NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

INVESTIGATION INTO TEXT CLASSIFICATION WITH KERNEL BASED SCHEMES

by

Steven M. Benveniste

March 2010

Thesis Advisor:	Monique P. Fargues
Second Reader:	Roberto Cristi

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.			
1. AGENCY USE ONLY ***(Leave blank)***	**2. REPORT DATE** March 2010	**3. REPORT TYPE AND DATES COVERED** Master's Thesis	
4. TITLE AND SUBTITLE Investigation Into Text Classification With Kernel Based Schemes		**5. FUNDING NUMBERS**	
6. AUTHOR(S) Steven M. Benveniste			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000		**8. PERFORMING ORGANIZATION REPORT NUMBER**	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A		**10. SPONSORING/MONITORING AGENCY REPORT NUMBER**	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited		**12b. DISTRIBUTION CODE**	

13. ABSTRACT (maximum 200 words)

The development of the Internet has resulted in a rapid explosion of information available on the Web. In addition, the speed and anonymity of internet media "publishing" make this medium ideal for rapid dissemination of various contents. As a result, there is a strong need for automated text analysis and mining tools, which can identify the main topics of texts, chat room discussions, Web postings, etc. This thesis investigates whether the nonlinear kernel-based feature vector selection approach may be beneficial for categorizing unstructured text documents. Results using a nonlinear kernel-based classification are compared to results obtained using the Latent Semantic Analysis (LSA) Approach commonly used in text categorization applications. The nonlinear kernel-based scheme considered in this work applies the feature vector selection (FVS) approach followed by the Linear Discriminant Analysis (LDA) scheme. Titles, along with abstracts from IEEE journal articles published between 1990 and 1999 with specific key terms, were used to construct the data set for classification. Overall, taking into account both classification performance and timing issues, results showed the FVS-LDA with a polynomial kernel of degree 1, and an added constant of 1, to be the best classifier for the database considered.

14. SUBJECT TERMS Text Classification, Text Categorization, Kernel Based Schemes, Single Value Decomposition (SVD), Data Mining, Feature Vector Selection (FVS)			**15. NUMBER OF PAGES** 169
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	**18. SECURITY CLASSIFICATION OF THIS PAGE** Unclassified	**19. SECURITY CLASSIFICATION OF ABSTRACT** Unclassified	**20. LIMITATION OF ABSTRACT** UU

NSN 7540-01-280-5500 Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

INVESTIGATION INTO TEXT CLASSIFICATION WITH KERNEL BASED SCHEMES

Steven M. Benveniste
Civilian, Department of Defense
B.S., University of California at Los Angeles, 2000

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN ELECTRICAL ENGINEERING

from the

NAVAL POSTGRADUATE SCHOOL
March 2010

Author: Steven M. Benveniste

Approved by: Monique P. Fargues
Thesis Advisor

Roberto Cristi
Second Reader

Clark Robertson
Chairman, Department of Electrical and Computing Engineering

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

The development of the Internet has resulted in a rapid explosion of information available on the Web. In addition, the speed and anonymity of internet media "publishing" make this medium ideal for rapid dissemination of various contents. As a result, there is a strong need for automated text analysis and mining tools, which can identify the main topics of texts, chat room discussions, Web postings, etc. This thesis investigates whether the nonlinear kernel-based feature vector selection approach may be beneficial for categorizing unstructured text documents. Results using a nonlinear kernel-based classification are compared to results obtained using the Latent Semantic Analysis (LSA) Approach commonly used in text categorization applications. The nonlinear kernel-based scheme considered in this work applies the feature vector selection (FVS) approach followed by the Linear Discriminant Analysis (LDA) scheme. Titles, along with abstracts from IEEE journal articles published between 1990 and 1999 with specific key terms, were used to construct the data set for classification. Overall, taking into account both classification performance and timing issues, results showed the FVS-LDA with a polynomial kernel of degree 1, and an added constant of 1, to be the best classifier for the database considered.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

Recently, relentless optimization of information retrieval effectiveness has driven Web search engines to new quality levels. Web search has become a standard and often preferred source of information finding. The World Wide Web has become a principal driver of innovation for information retrieval due to the explosion of published material. However, this explosion of published information would be of no use if the information could not be categorized so that a user may quickly find information that is both relevant and comprehensive [14].

With the rapid growth of the World Wide Web, the task of classifying natural language documents into a predefined set of semantic categories has become one of the key methods for organizing online information. This task is commonly referred to as text classification [12]. Due to the volume of documents a machine learning approach may become necessary as a manual classification approach is not practical. Text classifiers create new challenges in machine learning which include large input space, little training data, noise, complex learning tasks, and computational efficiency [12].

In 2004 Domboulas [9] investigated whether nonlinear kernel–based classifiers may improve overall classification rates over those obtained with linear classification schemes for infrared imaging face recognition applications. The specific nonlinear kernel–based classifier considered in that study was the Generalized Discriminant Analysis (GDA) approach. Results showed that the GDA approach lead to better classification performances than those obtained with the linear classifiers considered on the image database selected. Alexandropoulos later investigated a GDA approximation which is based on a Feature Vector Selection (FVS) data selection process [5], [7]. Results showed that the FVS scheme followed by the Linear Discriminant Analysis (LDA) scheme can achieve performances similar to those obtained with the GDA method at a much reduced computational cost. This study applies the FVS-LDA approach to the field of text categorization and compares results to those obtained using the Latent

Semantic Analysis (LSA) Approach commonly used in text classification/categorization applications.

The text database considered in this study was collected from the IEEE Xplore database website [2]. The documents collected were limited to Electrical engineering journal article abstracts and titles from IEEE periodicals with publications dates between 1990 and 1999. Ten categories were developed; some were specifically chosen to lead to texts with similar topics while others were selected to lead to very distinct subjects. A total of 1026 unique documents containing both article title and abstract were collected, however three of these documents were found in two classes. Note the documents were relatively short, less than one page, and contained on average around 151 words.

One of the first steps in the text categorization process is the creation of the term-document matrix (TDM) which contains features used for the categorization task. The collection of documents that makes up the text database gets converted to the TDM where each column j corresponded to a specific document and each row i corresponds to a term found in the collection of documents. Thus, each TDM element α_{ij}, where i and j are the row and column index respectively, represents the relevance of a specific word i in document j. Sixty different TDMs were explored in this study.

Common metrics used in text categorization evaluation studies include precision, recall, accuracy, error rate, and the F1 measure. In multi-label classification, the simplest method for computing an aggregate score across classes is to average the scores of all binary tasks. The resulting scores are called macro-averaged metrics. Another approach to averaging is first to sum over true positive (TP), true negative (TN), false positive (FP), and false negative (FN) over all classes, and then to compute each of the metrics. The resulting scores are called micro-averaged. These two approaches are both informative and complementary to each other by measuring performance differently. Macro-averaging gives an equal weight to each category, and is often dominated by the system's performance on smaller classes. Micro-averaging gives an equal weight to each document and is often dominated by the system's performance on larger classes. [3].

The classifier algorithms considered in the study are; Latent Symantec Analysis (LSA), GDA with a FVS processing step and one of two kernels. The two kernels considered are Gaussian and polynomial of various degrees and either a constant one added or no constant added. Polynomial kernels of degree greater than one were considered but gave worse results, and are not included in this document.

Classifier performances were compared by selecting eight different TDM types among the 60 considered in this study. The selected TDMs were those leading to both best and worse macro-averaged and micro-averaged *F1* performances obtained with the LSA classifier and 300 feature vectors (FVs).

Results showed most classification errors are directly linked to class similarities. The manifestation of these errors was very distinct when comparing LSA and FVS-LDA classifiers. This difference may be directly linked to the different criterion used in each classifier; LDA designed to extract the most discriminating features, while LSA selects the most representative ones. Note that it may be possible to increase classification performance for a well selected TDM type with a hybrid classifier based both on LSA and FVS-LDA methods. Further, different vector distance measures may also contribute to increased performances. Timing results indicate the computational loads associated with the FVS-LDA with a polynomial kernel with an added constant and the FVS-LDA with a Gaussian kernel are significantly lower than those for the other configurations considered.

Overall, taking into account both classification performance and timing issues, results showed the FVS-LDA with a polynomial kernel of degree 1 and an added constant equal to 1 is the best classifier for the database considered.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

FVs	Feature Vectors
FVS	Feature Vector Selection
FVS-LDA	Feature Vector Selection followed by Linear Discriminant Analysis
FN	False Negative
FP	False Positive
GDA	Generalized Discriminant Analysis
LDA	Linear Discriminant Analysis
LSA	Latent Semantic Analysis
SVD	Singular Value Decomposition
TDM	Term-Document Matrix
TDMs	Term-Document Matrices
TMG	Text to Matrix Generator
TN	True Negative
TP	True Positive
VSM	Vector Space Model

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

First, I would like to thank my wife, Jessica Anne Benveniste, and my parents, Stefania and Bernard George Benveniste, without whom I would not be the man I am today.

I would like to thank my thesis advisor Professor Monique P. Fargues for her invaluable guidance, and introducing me to the field of text classification; this thesis would not have been possible were it not for her expertise. I would also like to express my appreciation to Professor Roberto Cristi for reviewing this work, and Professor Phillip E. Pace for the resources he so graciously provided. I have learned much from my time at the Naval Postgraduate School, and was fortunate to enjoy every minute of it.

Lastly, I would like to thank the 771st Flight Test Squadron—with their sponsorship I was given the opportunity to attend the Naval Postgraduate School.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

Recently, relentless optimization of information retrieval effectiveness has driven Web search engines to new quality levels. Web search has become a standard and often preferred source of information finding. Information retrieval began with scientific publications and library records but quickly spread to other forms of content, particularly those of information professionals, such as journalists, lawyers, and doctors. The World Wide Web has become a principal driver of innovation for information retrieval due to the explosion of published material. However, this explosion of published information would be of no use if the information could not be categorized so that a user may quickly find information that is both relevant and comprehensive [14].

While the Web has brought about tremendous benefits, many terrorists, extremist groups, and hate groups have also been using Web sites and other online tools. The part of the Web used for such illegitimate and malicious purposes is referred to as the Dark Web. In traditional terrorism research, major data sources were limited to news stories, journal articles, books, and media-derived databases with the data analysis methods primarily limited to manual approaches. Nowadays Dark Web contents can also be analyzed to enable a better understanding and analysis of terrorist activities [8], extending information retrieval to the task of counterterrorism.

With the rapid growth of the World Wide Web, the task of classifying natural language documents into a predefined set of semantic categories has become one of the key methods for organizing online information. This task is commonly referred to as text classification [12]. Due to the volume of documents a machine learning approach may become necessary as a manual classification approach is not practical. Text classifiers create new challenges in machine learning which include large input space, little training data, noise, complex learning tasks, and computational efficiency [12].

Two basic approaches commonly found in applications of machine learning to classification are supervised and unsupervised. Supervised learning assumes that the user has a-priori knowledge about the association between specific data (referred to as training

data) and desired classes. Using knowledge about this association leads to generating the classifier which predicts class labels from specific input objects. Unsupervised learning occurs when the user has no a-priori knowledge about the association between specific data and desired classes. In such problems, the learner only has access to unlabelled data and the classifier can be viewed as a clustering scheme, which determines how data are organized. This study only explores supervised approaches.

In 2004 Domboulas [9] investigated whether nonlinear kernel–based classifiers may improve overall classification rates over those obtained with linear classification schemes for infrared imaging face recognition applications. The specific nonlinear kernel–based classifier considered in that study was the Generalized Discriminant Analysis (GDA) approach proposed earlier by Baudat [6]. Results showed that the GDA approach lead to better classification performances than those obtained with the linear classifiers considered on the image database selected. Alexandropoulos later investigated a GDA approximation which is based on a Feature Vector Selection (FVS) data selection process [5], [7]. Results showed that the FVS scheme followed by the Linear Discriminant Analysis (LDA) scheme can achieve performances similar to those obtained with the GDA method at a much reduced computational cost. In fact, FVS-LDA turns out to be a good approximation of its "kernelized" GDA version, as selecting the number of features for the FVS-LDA scheme from a third to a half of the available features results in close to the standard GDA performance at a significantly reduced computational cost. This study applies the FVS-LDA approach to the field of text categorization and compares results to those obtained using the Latent Semantic Analysis (LSA) approach commonly used in text classification/categorization applications.

A. THE DATABASE CONSIDERED

Numerous text datasets have been used in text classification research and several are widely available for download online [1]. In this study, we initially considered the Medline data, which included 1033 abstracts from medical journals [4]. However, this text database was not specifically well matched to our desired end goal, as no true class partitioning was included along with the data provided. In addition, our lack of expertise

in the medical area made it difficult to conduct such a categorization manually. Thus, we decided to focus instead on texts which we would be able to categorize in order to evaluate the classifier ability to categorize the texts presented, and collected a new dataset of electrical engineering documents.

The text database considered in this study was collected from the IEEE Xplore database website [2]. The documents collected were limited to Electrical engineering journal article abstracts and titles from IEEE periodicals with publications dates between 1990 and 1999. Engineering judgment was used to develop categories of approximately 100 documents with specific search criteria. Ten categories were developed; some were specifically chosen to lead to texts with similar topics while others were selected to lead to very distinct subjects. A total of 1026 unique documents containing both article title and abstract were collected, however three of these documents were found in two classes. Note the documents were relatively short, less than one page, and contained on average around 151 words. Figure 1 displays one of the documents found in the database. The search keywords are highlighted in yellow. Note that the words "network" and "robotic" become identical to words used as search criteria in other classes after stemming is applied. Stemming is discussed later in Chapter II, Section A.

```
Adaptation and learning using multiple models, switching, and tuning,
This article presents a general methodology for the design of adaptive control
systems which can learn to operate efficiently in dynamical environments
possessing a high degree of uncertainty. Multiple models are used to describe
the different environments and the control is effected by switching to an
appropriate controller followed by tuning or adaptation. The study of linear
systems provides the theoretical foundation for the approach and is described
first. The manner in which such concepts can be extended to the control of
nonlinear systems using neural networks is considered next. Towards the end of
the article, the applications of the above methodology to practical robotic
manipulator control is described
```

Figure 1. Example of Text Document in Database.

Table 1 shows a breakdown of the various classes, including the number of documents in each class, the number available for training, the number available for testing, and the unique search criteria used to gather these documents. The number available for training does not always match the number available for testing because there were three documents that were found in two classes. If any of these three documents were in the training ground they were associated to the class with the least

documents while if they were in the testing group, either of the two classes were considered correct.

Class	Number	Available for Train	Available for Test	Search Criteria
1	118	118	118	"adaptive filter" and "LMS"
2	75	75	75	"adaptive filter" and "application" and not "LMS"
3	141	139	140	"array antenna"
4	65	65	65	"communication networking" and "signal"
5	89	89	89	"control system" and "neural"
6	41	41	41	"data mining"
7	88	88	88	"radar cross section" and "scattering"
8	103	103	103	"semiconductor laser amplifier"
9	190	189	190	"space" and "robot"
10	120	119	120	"wireless networking"
Total	1030	1026	1029	

Table 1. Breakdown of the Database of Text Documents.

The 1st class contains 118 documents where the terms “adaptive filter” and “LMS” appear in the body of the abstract. The 2nd class contains 75 documents with “adaptive filter” and “application” as keywords found in the body of the abstract. However, only documents without the term “LMS” were included in this class. The 3rd class contains 141 documents, where the words “array antenna” are found in the body of the abstract. The 4th class contains 65 documents, where “communication networking” and “signal” are found in the body of the abstract. The 5th class contains 89 documents where “control system” and “neural” are found in the body of the abstract. The 6th class contains 41 documents where the words “data mining” are found in the body of the abstract. The 7th class contains 88 documents where “radar cross section” and “scattering” are found in the body of the abstract. The 8th class contains 103 documents, where the words “semiconductor laser amplifier” are found in the body of the abstract. The 9th class contains 190 documents where “space” and “robot” are found in the body of the abstract. The 10th class contains 120 documents where the terms “wireless networking” are found in the body of the abstract.

A few comments can be made regarding the dataset collected:

- Three documents collected can be associated to two different classes based upon the search criteria used. Classes 3 and 7 contained a document common to both. Classes 4 and 10 contained a document common to both. Classes 5 and 9 contained a document common to both. One document was removed from the 3rd class because it was identical to another in the same class. When any of these three documents were

included in the training set, they were associated only to the larger of the two classes they could be associated with. When these documents were included in the testing set, a correct association was found when they were associated to either class.

- Class sizes were chosen to be different to investigate whether such differences had an impact on resulting classification rates.
- Specific similarities between classes were purposefully introduced. For example, classes 4 and 10 share the word "networking". Further, it is likely that documents containing the word "network" in class 5 also contain the word "neural", even though it is not a requirement. Classes 1 and 2 share the words "adaptive" and "filter" but are distinguished by the word "LMS". Finally, the words "networking" and "network" will become indistinguishable as word stemming is applied in the preprocessing step.

B. THESIS OVERVIEW

This study consists of five chapters. Chapter I introduced the basic idea of text classification. Chapter II discusses how documents are represented as a term-document matrix, common evaluation metrics, and the software package Text to Matrix Generator (TMG). The classifier schemes considered in this work are discussed in Chapter III. Experimental results obtained using the dataset composed of electrical engineering journal article abstracts and titles are discussed in Chapter IV. Chapter V presents the conclusions and proposals for follow-on work. Appendix A contains tables of evaluation metrics for a select number of experiments conducted. The software implementation used for this study is described in Appendix B. Finally, Appendix C contains the list of common terms used in this study.

THIS PAGE INTENTIONALLY LEFT BLANK

II. TEXT TO MATRIX GENERATION AND METRICS

This chapter introduces the indexing capabilities of the Text to Matrix Generator (TMG) Toolbox. Specific attention is placed on the term frequency and weighting options available in TMG. Finally, this chapter discusses common metrics used in text categorization evaluation studies.

A. TEXT TO MATRIX GENERATOR

TMG is a MATLAB toolbox developed to generate term-document matrices (TDMs) obtained from text collections. TMG can also modify TDMs when text documents are incrementally added to or deleted from the text database considered [19]. TMG is capable of performing tasks that include: indexing, dimensional reduction, clustering, classification, and retrieval [20]. Only the indexing capabilities were used by this study and accordingly are discussed.

TMG has the capability to parse single files or entire directories of multiple files containing text. It also performs necessary preprocessing steps, and constructs a term-document matrix (TDM) according to the parameters set by the user. TMG was designed to provide several term-weighting options to the user, as discussed in the next section. Several term reduction methods, including stemming, removal of common terms, and the removal of terms that do not meet specific thresholds are available to the user. These steps are designed to reduce the number of words used in the categorization task, by eliminating those which are not useful in the process. A few comments can be made regarding these steps.

- Stemming is widely used in text categorization application to reduce the number of words in documents. Stemming is the process which reduces derived words to their stem, base or root form. For example, stemming reduces the words “fishing”, “fished”, “fish”, and “fisher” to the root word, “fish”.
- Common terms (also referred to as “stop words”) are a collection of words commonly used in the English language, such as: “the”, “be”, and “to” which may be of no use in the categorization of documents based on

topics. The common terms file used in this study contained 439 words, which are listed in Appendix C.

- Terms occurring too often or not enough may not be useful in the classification process, and are removed from the documents during pre-processing. Three sets of thresholds are available for the removal of terms; first, minimum and maximum word lengths, second, minimum and maximum local term frequency, i.e., how many times terms appear in a given document, and third, the minimum and maximum global term frequency, i.e., how many documents specific terms appear in. Default threshold values used for this study are listed in Table 2 below.

Note that the dataset initially contained 8420 terms. Stemming reduced the number of terms by 3062. Next, the list of common terms reduced the number of terms by 352, and the thresholds reduced the number of terms by an additional 177. Therefore, the TDM contained 4829 terms and 1026 documents.

The user interacts with TMG by means of MATLAB *tmg.m* functions or via a GUI *tmg_gui.m*. The options and the description available to the user for text-document matrix generation are found in Table 2. The TDM is stored as a MATLAB matrix and a list of all the words selected as terms is generated.

Options	Descripton
use.mysql	Indicates if results are to be stored in MySQL.
db_name	The name of the directory where the results are to be saved.
delimiter	The delimiter between documents within the same file. Possible values are 'emptyline' (default), 'none_delimiter' (treats each file as a single document) or any other string.
line_delimiter	Defines if the delimiter takes a whole line of text (default, 1) or not.
stoplist	The filename for the stoplist, i.e. a list of common words that we don't use for the indexing (default no stoplist used).
stemming	Indicates if the stemming algorithm is used (1) or not (0 - default).
update_step	The step used for the incremental built of the inverted index (default 10,000).
min_length	The minimum length for a term (default 3).
max_length	The maximum length for a term (default 30).
min_local_freq	The minimum local frequency for a term (default 1).
max_local_freq	The maximum local frequency for a term (default inf).
min_global_freq	The minimum global frequency for a term (default 1).
max_global_freq	The maximum global frequency for a term (default inf).
local_weight	The local term weighting function (default 't'). Possible values 't', 'b'', 'l', 'a', 'n'
global_weigth	The global term weighting function (default 'x'). Possible values 'x', 'e', 'f', 'g', 'n', 'p'
normaliziton	Indicates if we normalize the document vectors (default 'x'). Possible values: 'x', 'c'
dsp	Displays results (default 1) or not (0) to the command window.

Table 2. Options Available for TDM Generation.

B. TERM FREQUENCY AND WEIGHTING

One of the first steps in the text categorization process is the creation of the TDM which contains features used for the categorization task. The collection of documents that makes up the text database gets converted to the TDM where each column j corresponded to a specific document and each row i corresponds to a term found in the collection of documents. Thus, each TDM element α_{ij}, where i and j are the row and column index

respectively, represents the relevance of a specific word i in document j. This section describes the procedure used to generate the TDM elements α_{ij}. Each element α_{ij} is expressed as the multiplication of three factors: a local factor l_{ij} that measures the importance of term i in document j, a global factor g_i that measures the importance of term i in the entire dataset, and a normalization factor n_{ij}. TMG offers 60 possible combinations for the local, global, and normalization factors which were explored in this study.

1. Local Factor

The local factor value corresponds to a number representing the importance of a term in the document. Five different methods for calculating the local factor will be discussed. The first and simplest approach leads to the definition of the *Term Frequency* and is denoted by "t". It is simply defined as the number of occurrences of the term i in each document j, i.e.,

$$\text{Term Frequency (t)} \quad l_{ij} = f_{ij}. \tag{2.1}$$

The second local factor is referred to as *Binary* and denoted by "b", as it transforms the *Term Frequency* local factor to one if it is non zero and zero otherwise. Therefore the *Binary* local factor is defined as

$$\text{Binary (b)} \quad l_{ij} = b\left(f_{ij}\right) = \begin{cases} 1 & f_{ij} \neq 0 \\ 0 & f_{ij} = 0 \end{cases}. \tag{2.2}$$

The third local factor is called *Logarithmic* and denoted by "l". It is defined as

$$\text{Logarithmic (l)} \quad l_{ij} = \log_2\left(1 + f_{ij}\right). \tag{2.3}$$

The fourth type of local factor is called *Alternate Log* and denoted by "a". This local factor is obtained by transforming the *Binary* local factor as follows

$$\text{Alternate Log (a)} \quad l_{ij} = b\left(f_{ij}\right)\left[1+\log_2\left(f_{ij}\right)\right]. \tag{2.4}$$

The fifth local factor is the *Augmented Normalized Term Frequency* and denoted by "n". It is calculated by averaging *Binary* and the *Term Frequency* local factor divided by the maximum *Term Frequency* for the term, leading to

$$\text{Augmented Normalized Term Frequency (n)} \quad l_{ij} = \frac{1}{2}\left[b\left(f_{ij}\right)+\left(f_{ij} \Big/ \max_k f_{kj}\right)\right]. \tag{2.5}$$

2. Global Factor

The local factor alone equally weights all terms. Certain terms may have little or no discriminating relevance in distinguishing documents. As a result, the global factor was introduced as a mechanism for attenuating the effect of terms that occur too often in the dataset. Six different methods for calculating the global factor are discussed next. The first method, referred to as *None* and denoted by "x", is to have no global factor, i.e.,

$$\text{None (x)} \quad g_i = 1. \tag{2.6}$$

The second method leads to the global factor called *Entropy*, denoted by "e", and defined as

$$\begin{aligned} &\text{Entropy (e)} \quad g_i = 1+\left[\sum_j p_{ij}\log_2\left(p_{ij}\right) \Big/ \log_2\left(N\right)\right], \\ &\text{where } p_{ij} = \frac{f_{ij}}{\sum_k f_{ij}} \text{ and } N \text{ is equal to the total number of documents.} \end{aligned} \tag{2.7}$$

The third method leads to the global factor called *Inverse Document Frequency, denoted* by "f", and defined as

$$\text{Inverse Document Frequency (f)} \quad g_i = \log_2\left(\frac{N}{\sum_j b\left(f_{ij}\right)}\right), \tag{2.8}$$

where N is equal to the total number of documents.

The fourth method leads to the global factor called *GfIdf*, denoted by "g", and is defined as

$$\text{GfIdf (g)} \quad g_i = \frac{\sum_j f_{ij}}{\sum_j b\left(f_{ij}\right)}. \tag{2.9}$$

The fifth method leads to the global factor referred to as *Normal*, denoted by "n", and defined as the inverse square root of the sum of *Term Frequencies* squared, i.e.,

$$\text{Normal (n)} \quad g_i = \frac{1}{\sqrt{\sum_j f_{ij}^2}}. \tag{2.10}$$

Finally, the sixth method leads to the global factor called *Probabilistic Inverse*, denoted by "p", which is defined as

$$\text{Probabilistic Inverse (p)} \quad g_i = \log_2\left(\frac{N - \sum_j b\left(f_{ij}\right)}{\sum_j b\left(f_{ij}\right)}\right), \tag{2.11}$$

where N is equal to the total number of documents.

3. Normalization Factor

Normalization mitigates effects due to higher *Term Frequencies* observed in longer documents. We illustrate this issue by considering two documents where the second document is just the first document repeated twice. Ideally these two documents are the same but the local and group factors do not change accordingly. For example, the *Term Frequency* local factors have all doubled while the *None* global factor remains

unchanged. Two different methods for calculating the normalization factor are discussed next. The first, referred to as *None* and denoted by "x", is to have no normalization factor, i.e.,

$$\text{None (x)} \quad n_{ij} = 1. \tag{2.12}$$

The second method, referred to as *Cosine* and denoted by "c", calculates the square root of the squared global factor multiplied by the sum of the squared local factors for each term, i.e.,

$$\text{Cosine (c)} \quad n_{ij} = \sqrt{\sum_j \left(g_i l_{ij} \right)^2}. \tag{2.13}$$

The three factors discussed above multiplied together make up the elements of a TDM. A specific TDM used in this study will be referred to by the characters denoted for each factor. The order that the factors are used for naming is local, global, and normalization respectively. For example, a TDM constructed with *Term Frequency* as the local factor, *None* as the global factor, and *None* as the normalization factor is referred to as TDM "txx".

C. EVALUATION METRICS

Text classification is the task of assigning predefined categories to text documents. Text classification rules are typically evaluated using performance measures from information retrieval. Given a test set of *n* documents, a two-by-two contingency table with four cells can be constructed for each binary classification problem, shown in Table 3. The cells contain the counts for true positive (TP), false positive (FP), true negative (TN) and false negative (FN). True positive count is the number of documents within the class that are classified to be within the class. False positive count is the number of documents outside the class that are classified to be within the class. True negative count is the number of documents outside the class that are classified to be

outside the class. False negative count is the number of documents inside the class that are classified to be outside the class. Clearly, TP and TN are the number of documents correctly classified, FN and FP are the number of documents incorrectly classified, and the sum of TP, FN, TN, and FP is equal to the total number of documents *n* in the test set.

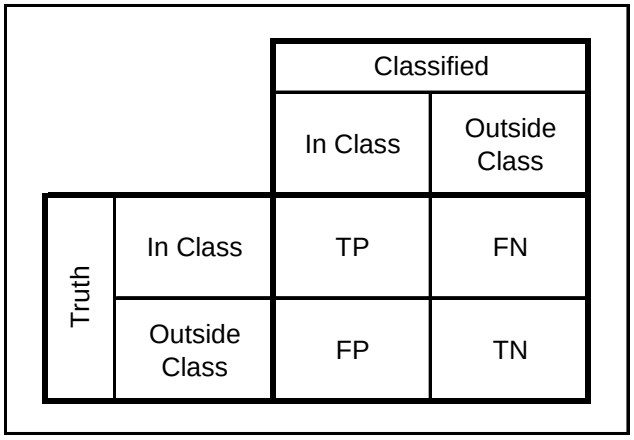

Table 3. Two-By-Two Contingency Table for each Binary Classification Problem.

Common metrics used in text categorization evaluation studies include precision, recall, accuracy, error rate, and the F1 measure. *Precision* is defined as the fraction of retrieved documents that are relevant. *Recall* is defined as the fraction of relevant documents that are retrieved. *Accuracy* and *error* rates give the percentage of documents correctly and incorrectly classified respectively. *F1* is a single measure which trades off precision versus recall and is the weighted harmonic mean of the two parameters. *F1* equally weights both *precision* and *recall*. These metrics are defined in Equations (2.14) through (2.18) shown below.

$$recall = \frac{TP}{TP + FN} \tag{2.14}$$

$$precision = \frac{TP}{TP + FP} \tag{2.15}$$

$$accuracy = \frac{TP + TN}{n} = \frac{TP + TN}{TP + TN + FP + FN} \tag{2.16}$$

$$error\ rate = \frac{FP + FN}{n} = 1 - accuracy \tag{2.17}$$

$$F1 = \frac{2 * recall * precision}{recall + precision}. \tag{2.18}$$

Due to the often highly unbalanced number of in-class vs. outside-of-class examples, note that TN often dominates the accuracy and error of a system, leading to miss-interpretation of the results. For example, a trivial classifier that makes outside-of-class predictions for all documents has an accuracy of 99% (or an error of 1%) when the in-class examples of a category constitute only 1% of the entire test set, however this classifier is useless. As a result, *precision* and *F1* metrics are more commonly used than *accuracy* and *error* measures in text classification evaluations.

In multi-label classification, the simplest method for computing an aggregate score across classes is to average the scores of all binary tasks. The resulted scores are called macro-averaged metrics. Another approach to averaging is first to sum over TP, TN, FP, and FN over all classes, and then to compute each of the metrics. The resulting scores are called micro-averaged. These two approaches are both informative and complementary to each other by measuring performance differently. Macro-averaging gives an equal weight to each category, and is often dominated by the system's performance on smaller classes. Micro-averaging gives an equal weight to each document and is often dominated by the system's performance on larger classes. [3].

THIS PAGE INTENTIONALLY LEFT BLANK

III. CLASSIFICATION AND ALGORITHMS

This chapter first introduces the process of designing and testing a classifier. Then two linear classification algorithms, namely the Latent Semantic Analysis (LSA), and Linear Discriminant Analysis (LDA) are introduced. The chapter then introduces Generalized Discriminant Analysis (GDA) which is a nonlinear classification scheme, and a Feature Vector Selection approach which reduces GDA computation requirements.

A. CLASSIFIER DESIGN AND TESTING

Previous sections described how a document of words can be converted to a vector of numeric values. Prior to designing a supervised classifier, irrespective of the algorithm chosen for classification, the first step is to randomly separate the collection of vectors into two non-overlapping sets; one for training and one for testing. In this work, we choose the size of the training and testing sets to be 60 and 40 percent of all the samples, respectively. Next, we design a classification algorithm from the training set. In the training stage we generate TDM training vectors (i.e., features) from the training set using the Text to Matrix Generator (TMG) software. Training vectors associated with each class are then projected into a reduced dimensional space. Next, each class is represented by the centroid computed from the group of projected training vectors obtained from the class considered. Classifier performances are evaluated by applying the process to testing vectors which were not used in the design of the classifier. In the testing stage, we generate TDM testing vectors (i.e., features) from the testing set using the TMG software. Next, each projected testing vector is compared to each projected class centroid and assigned to the class which is closest with respect to the Euclidian distance. Classification performances are obtained by comparing class association decisions made by the classifier against true class associations.

B. LATENT SEMANTIC ANALYSIS

1. Introduction

A popular approach for text representation is the vector space model (VSM). The VSM represents the content of a document as a vector and a collection of documents as a term-documents matrix (TDM). LSA models interactions among terms and documents, using the Singular Value Decomposition (SVD) technique which allows the representation of the terms and documents in a reduced dimensional feature space. The SVD technique projects all documents into a space where co-occurring terms are projected into similar directions, while non co-occurring terms are projected in very different directions. A direction can then be considered to be a feature vector of co-occurring terms.

LSA has become a useful tool for solving identification and estimation problems in signal and image processing applications [11]. In [16] LSA was used as a standard to compare results obtained using a Hebbian neural network and the Oja learning rule in text categorization applications. In [11] LSA was applied to demonstrate a prototype visualization system designed to display text classification results to users. In [15] LSA was selected to categorize call center data obtained from a multi-national company, where the specific data considered exhibited characteristics quite different than benchmark datasets commonly found in such types of applications. Results showed the LSA approach improved classification performances, albeit marginally.

2. Algorithm Description

The LSA algorithm is implemented by first performing the SVD on the TDM matrix. Recall that the SVD decomposes a rectangular matrix into a set of three matrices. Let i and j be defined as the number of terms and training documents, respectively. The resulting TDM matrix, $\mathbf{X}$, of dimensions $i \times j$ can be decomposed into the product of three other matrices:

$$\mathbf{X}_{ij} = \mathbf{U}_{ii}\mathbf{S}_{ij}\mathbf{V}_{jj}^{T}, \tag{3.1}$$

where **U, V,** and **S** are of dimensions $i \times i$, $j \times j$, and $i \times j$, respectively. **U** and **V** are unitary matrices and contain the left and right singular vectors, respectively. The matrix **S** is diagonal and contains the singular values. The matrix **U** is derived by first calculating the eigenvalues of the matrix $\mathbf{X}\mathbf{X}^T$. The left singular vectors contained in **U** are obtained by computing the eigenvectors of $\mathbf{X}\mathbf{X}^T$. These singular vectors become the column vectors in the matrix **U** and are usually ordered by the size of the corresponding eigenvalue. In other words, the eigenvector associated with the largest eigenvalue is contained in the first column of **U**, and the eigenvector associated with the smallest eigenvalue is contained in the last column of **U**. The derivation of the matrix **V** is similar with the exception that the process is repeated with $\mathbf{X}^T\mathbf{X}$. The singular value matrix **S** is diagonal and populated with the square root of the calculated eigenvalues in descending order. Note that the non zero eigenvalues for matrices $\mathbf{X}\mathbf{X}^T$ and $\mathbf{X}^T\mathbf{X}$ are identical.

Dimension reduction is obtained by keeping only the *k* largest singular values of **S** along with their corresponding columns in the matrices **U** and **V**, yielding $\overline{\mathbf{U}}$, $\overline{\mathbf{V}}$, and $\overline{\mathbf{S}}$ which leads to the following approximation $\hat{\mathbf{X}}$ for X defined as:

$$\mathbf{X}_{ij} \approx \hat{\mathbf{X}}_{ij} = \overline{\mathbf{U}}_{ik}\overline{\mathbf{S}}_{kk}\overline{\mathbf{V}}_{kj}^T. \tag{3.2}$$

By keeping only the largest singular values this technique selects the most representative features, in a power sense.

Finally, reduced dimension data Z may be obtained from the initial training data by projecting X as follows:

$$\mathbf{Z}_{kj} = \overline{\mathbf{U}}_{ik}^T\mathbf{X}_{ij}. \tag{3.3}$$

C. LINEAR DISCRIMINANT ANALYSIS

1. Introduction

The basic idea behind the LDA approach lies in selecting a projection so that projected class centers are far apart while the spread within each projected class is kept

small. Thus, the overlap between classes is expected to be small [18]. The LDA method was designed to extract the most discriminating features, unlike the LSA that selects the most representative ones.

2. Algorithm Description

This discussion of the LDA algorithm is summarized from [10]. Let us illustrate the two-class problem which projects *d*-dimensional data onto a line, to introduce the theory of the LDA algorithm. Assume that we have a set of *n* *d*-dimensional training samples $\mathbf{x_1},\ldots,\mathbf{x_n}$, where n_1 of the samples belong to the subset D_1 labeled ω_1, and n_2 of the samples belong to the subset D_2 labeled ω_2. If we form a linear combination of the components of **x**, we obtain the scalar dot product

$$y = \mathbf{w}^T \mathbf{x} \tag{3.4}$$

and a corresponding set of *n* samples $y_1,\ldots,y_n$ divided into the subsets Y_1 and Y_2. Geometrically, each y_i is the projection of the corresponding $\mathbf{x}_i$ onto a line in the direction of **w**. The magnitude of **w** is of no real significance however the direction of **w** is important. If we imagine that the samples labeled ω_1 fall more or less into one cluster while those labeled ω_2 fall in another, we want the projections falling onto the line to be well separated. Figure 2 illustrates the effect of choosing two different values for **w** for a two-dimensional example, the diagram on the right shows greater separation between the two classes.

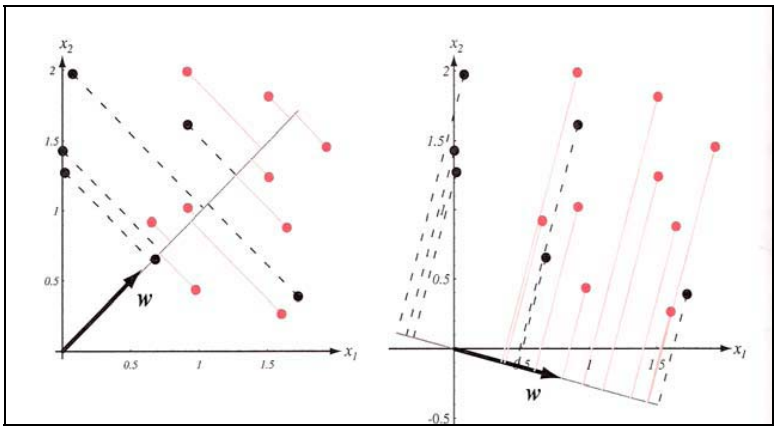

Figure 2. Projection of Samples onto Two Different Lines in the Direction Marked **w** (from [10]).

We now turn to the matter of finding the best such direction **w**, one designed to enable accurate class separation. A measure of the separation between the projected classes is the difference in the class means. Let $\mathbf{m}_i$ be defined as the *d*-dimensional class mean, i.e.,

$$\mathbf{m}_i = \frac{1}{n_i} \sum_{\mathbf{x} \in D_i} \mathbf{x}. \tag{3.5}$$

Then the class mean for the projected points is given by

$$\tilde{\mathbf{m}}_i = \frac{1}{n_i} \sum_{y \in Y_i} y = \frac{1}{n_i} \sum_{\mathbf{x} \in D_i} \mathbf{w}^T \mathbf{x} = \mathbf{w}^T \mathbf{m}_i. \tag{3.6}$$

It follows that the distance between the projected means is defined as

$$\left| \tilde{m}_1 - \tilde{m}_2 \right| = \left| \mathbf{w}^T \left(\mathbf{m}_1 - \mathbf{m}_2 \right) \right|. \tag{3.7}$$

Note that this difference can be made large by scaling **w** appropriately. However, good separation of the projected data is obtained when the difference between the means is large relative to some measure of the standard deviation for each class. Thus, we define the *scatter* for projected samples labeled ω_i as

$$\tilde{s}_i^2 = \sum_{y \in Y_i} \left(y - \tilde{m}_i \right)^2. \tag{3.8}$$

A meaningful criterion function that can be used to quantify the separation between two classes can be defined as

$$J(\mathbf{w}) = \frac{\left| \tilde{m}_1 - \tilde{m}_2 \right|^2}{\tilde{s}_1^2 + \tilde{s}_2^2}. \tag{3.9}$$

To obtain the criterion function as an explicit function of **w** we define the *scatter matrices* $\mathbf{S}_i$, the *within-class scatter matrix* $\mathbf{S}_W$, and the *between-class scatter matrix* $\mathbf{S}_B$ as:

$$\mathbf{S}_i = \sum_{\mathbf{x} \in D_i} \left(\mathbf{x} - \mathbf{m}_i \right)\left(\mathbf{x} - \mathbf{m}_i \right)^T, \tag{3.10}$$

$$\mathbf{S}_W = \mathbf{S}_1 + \mathbf{S}_2, \tag{3.11}$$

$$\mathbf{S}_B = \left(\mathbf{m}_1 - \mathbf{m}_2 \right)\left(\mathbf{m}_1 - \mathbf{m}_2 \right)^T. \tag{3.12}$$

Therefore the criterion function can be explicitly written as a function of **w** as

$$J(\mathbf{w}) = \frac{\mathbf{w}^T \mathbf{S}_B \mathbf{w}}{\mathbf{w}^T \mathbf{S}_W \mathbf{w}}, \tag{3.13}$$

where $\tilde{s}_1^2 + \tilde{s}_2^2 = \mathbf{w}^T \mathbf{S}_W \mathbf{w}$ and $\left(\tilde{m}_1 - \tilde{m}_2 \right)^2 = \mathbf{w}^T \mathbf{S}_B \mathbf{w}$.

This expression for the criterion function is well known in mathematical physics as the generalized Rayleigh quotient. It can be shown that a vector **w** that maximizes the criterion function must satisfy

$$\mathbf{S}_B\mathbf{w} = \lambda\mathbf{S}_W\mathbf{w}, \tag{3.14}$$

for some constant λ, which is a generalized eigenvalue problem.

For the *c*-class problem, the natural generalization of the linear discriminant involves *c*-1 discriminant functions. Thus, the projection is from a *d*-dimensional space to a (*c*-1)-dimensional space. The generalization for the *within-class scatter matrix* is obvious, leading to:

$$\mathbf{S}_W = \sum_{i=1}^{c}\mathbf{S}_i. \tag{3.15}$$

The generalization for the *between-class scatter matrix* is more complicated. Suppose that we define a *total mean vector* **m** and a *total scatter matrix* $\mathbf{S}_T$ as

$$\mathbf{m} = \frac{1}{n}\sum_{\mathbf{x}}\mathbf{x} = \frac{1}{n}\sum_{i=1}^{c} n_1\mathbf{m}_i, \tag{3.16}$$

and

$$\mathbf{S}_T = \sum_{\mathbf{x}}(\mathbf{x}-\mathbf{m})(\mathbf{x}-\mathbf{m})^T. \tag{3.17}$$

Then the *between-class scatter matrix* may be defined as

$$\mathbf{S}_B = \mathbf{S}_T - \mathbf{S}_W. \tag{3.18}$$

The projection of a *d*-dimensional space to a (*c*-1)-dimensional space is accomplished with *c*-1 discriminant functions

$$y_i = \mathbf{w}_i^T \mathbf{x} \quad i = 1, ..., c-1. \tag{3.19}$$

Next, the above set of *c*-1 discriminant functions may be rewritten as a single matrix equation, which leads to

$$\mathbf{y} = \mathbf{W}^T \mathbf{x}. \tag{3.20}$$

Therefore, the criterion function for the *c*-class case is defined as

$$J(\mathbf{W}) = \frac{\left|\mathbf{W}^T \mathbf{S}_B \mathbf{W}\right|}{\left|\mathbf{W}^T \mathbf{S}_W \mathbf{W}\right|}. \tag{3.21}$$

As a result, the columns of the optimal matrix **W** which maximizes $J(\mathbf{W})$ are the *c*-1 generalized eigenvectors that correspond to the *c*-1 largest eigenvalues of the following eigenvalue problem:

$$\mathbf{S}_B \mathbf{w}_i = \lambda_i \mathbf{S}_W \mathbf{w}_i \quad i = 1, ..., c-1. \tag{3.22}$$

Finally, reduced dimension training data **Y** may be obtained from the initial training data by projecting **X** as follows:

$$\mathbf{Y} = \mathbf{W}^T \mathbf{X}. \tag{3.23}$$

D. GENERALIZED DISCRIMINANT ANALYSIS

1. Introduction

Kernel-based schemes were initially proposed as they led to better classification performances for nonlinearly separable problems. Successful applications of kernel-based algorithms have been reported for various fields, from optical pattern and object recognition, text categorization, time series prediction, to gene expression profile analysis, DNA and protein analysis, and many more [17]. The idea behind kernel methods is to map the data features into a very large dimensional space *F* in which the transformed features can be processed using classical linear algorithms [7].

It is known that LDA may fail for nonlinearly separable problems. In 2000, Baudat and Anouar developed a kernel-based generalization to the basic LDA called the GDA by first mapping the input features into a kernel-based feature space *F*, in which the classical LDA is then applied [6].

2. Algorithm Description

This discussion of the GDA algorithm is summarized from [6] and [9]. Let **x** be a vector of the training input set **X** with *M* elements and *N* classes. Let **C** be defined as the covariance matrix:

$$\mathbf{C} = \frac{1}{M}\sum_{j=1}^{M} \mathbf{x}_j \mathbf{x}_j^T. \tag{3.24}$$

Next, assume that the feature space **X** is mapped into a Hilbert space *F* via a nonlinear mapping function φ:

$$\begin{aligned} \varphi &: \mathbf{X} \to F \\ \mathbf{x} &\to \varphi(\mathbf{x}) \end{aligned}. \tag{3.25}$$

Then the overall covariance matrix expressed in the feature space *F* is defined as

$$\mathbf{V} = \frac{1}{M}\sum_{j=1}^{M}\varphi\left(\mathbf{x}_j\right)\varphi^T\left(\mathbf{x}_j\right), \tag{3.26}$$

where the transformed observations are assumed to be centered in the space F. The inter-class inertia, i.e., the between-class scatter matrix, obtained in the transformed space F is represented by the covariance matrix **B** as

$$\mathbf{B} = \frac{1}{M}\sum_{l=1}^{N} n_l \bar{\varphi}_l \bar{\varphi}_l^T, \tag{3.27}$$

where $\bar{\varphi}_l$ is the mean value of the class l defined as:

$$\bar{\varphi}_l = \frac{1}{n_l}\sum_{k=1}^{n_l}\varphi\left(\mathbf{x}_{lk}\right), \tag{3.28}$$

where $\mathbf{x}_{lk}$ is the element k of the class l.

Generalizing the LDA to a kernel-based approach is obtained by formulating it in terms of dot products expressions of the projected data only. Therefore, we define the following kernel function representing the dot product expression as:

$$k\left(\mathbf{x}_i, \mathbf{x}_j\right) = k_{ij} = \varphi^T\left(\mathbf{x}_i\right)\varphi\left(\mathbf{x}_j\right). \tag{3.29}$$

For a given classes p and q, the kernel function is expressed as

$$\left(k_{ij}\right)_{pq} = \varphi^T\left(\mathbf{x}_{pi}\right)\varphi\left(\mathbf{x}_{qj}\right). \tag{3.30}$$

Let **K** be a ($M \times M$) matrix defined on the class elements by

$$\mathbf{K} = \left(\mathbf{K}_{pq}\right)_{\substack{p=1..N \\ q=1..N}},$$
$$\text{where } \mathbf{K}_{pq} = \left(k_{ij}\right)_{\substack{i=1..n_p \\ j=1..n_q}}. \tag{3.31}$$

Both $\mathbf{K}$ and $\mathbf{K}_{pq}$ are symmetric matrices. Next we define a M-dimensional block diagonal matrix $\mathbf{W}$, where each block $\mathbf{W}_l$ is of dimension $(n_l \times n_l)$ and has elements equal to $1/n_l$.

Recall that LDA maps the input space into one where the principal components maximize the ratio of the *between-class scatter matrix* and the *within-class scatter matrix*. The use of kernel functions expands the LDA application to include the nonlinear transformed space. The principal components in the resultant space are nonlinearly related to the input variables and the kernel function contributes to the creation of the function that nonlinearly separates the classes. Following findings used in the LDA derivation, the GDA maximizes the Rayleigh quotient $\frac{\mathbf{v}^T\mathbf{B}\mathbf{v}}{\mathbf{v}^T\mathbf{V}\mathbf{v}}$ of the *between-class scatter matrix* over the *within-class scatter matrix* defined in the transformed space [9]. The vector $\mathbf{v}$ which maximizes the Rayleigh quotient is the generalized eigenvector associated with the maximum generalized eigenvalue of the following eigenproblem

$$\mathbf{B}\mathbf{v} = \lambda\mathbf{V}\mathbf{v}. \tag{3.32}$$

The eigenvectors, $\mathbf{v}$, are linear combinations of the elements of F. Therefore $\mathbf{v}$ can be expressed as

$$\mathbf{v} = \sum_{p=1}^{N}\sum_{q=1}^{n_p}\alpha_{pq}\varphi\left(\mathbf{x}_{pq}\right). \tag{3.33}$$

By multiplying Equation (3.32) with $\varphi^T\left(\mathbf{x}_{ij}\right)$ and using the matrices $\mathbf{K}$ and $\mathbf{W}$, the Rayleigh quotient can be rewritten as

$$\lambda = \frac{\mathbf{v}^T \mathbf{B}\mathbf{v}}{\mathbf{v}^T \mathbf{V}\mathbf{v}} = \frac{\boldsymbol{\alpha}^T \mathbf{K}\mathbf{W}\mathbf{K}\boldsymbol{\alpha}}{\boldsymbol{\alpha}^T \mathbf{K}\mathbf{K}\boldsymbol{\alpha}}. \tag{3.34}$$

The matrix **K** is symmetric and positive definite. Therefore it has an eigendecomposition of the type:

$$\begin{aligned} &\mathbf{K} = \mathbf{P}\boldsymbol{\Gamma}\mathbf{P}^T, \\ &\text{where } \mathbf{P}^{-1} = \mathbf{P}^T. \end{aligned} \tag{3.35}$$

Making the variable transformation $\boldsymbol{\beta} = \boldsymbol{\Gamma}\mathbf{P}^T\boldsymbol{\alpha}$, substituting back into Equation (3.34), and simplifying yields the classical eigenvector problem:

$$\lambda\boldsymbol{\beta} = \mathbf{P}^T\mathbf{W}\mathbf{P}\boldsymbol{\beta}. \tag{3.36}$$

Then $\boldsymbol{\beta}$ is calculated according to Equation (3.36) and $\boldsymbol{\alpha}$ can be computed. The coefficients $\boldsymbol{\alpha}$ are then normalized by $\sqrt{\boldsymbol{\alpha}^T\mathbf{K}\boldsymbol{\alpha}}$ which forces the vectors $\mathbf{v}$ to be normalized.

Finally, reduced dimension training data **y** from the feature space may be obtained from the initial training data by projecting **x** as follows:

$$\mathbf{y} = \mathbf{v}^T\varphi(\mathbf{x}) = \sum_{p=1}^{N}\sum_{q=1}^{n_p}\alpha_{pq}k(\mathbf{x}_{pq}, \mathbf{x}). \tag{3.37}$$

3. Kernel Selection

As mentioned previously, the basic idea behind kernel-based schemes is to project the input data into a feature space via a nonlinear projection φ and then to apply linear schemes in the feature space. The kernel function required for this implementation was

expressed in terms of a dot product in Equation (3.30). Currently, several types of kernels are being used in kernel based implementation [9]. The two selected for this study are:

- The Polynomial kernel with a constant function defined as:

$$k(\mathbf{x},\mathbf{y}) = (\mathbf{x}\cdot\mathbf{y} + c)^d \quad \text{where } c \text{ is either 0 or 1.} \tag{3.38}$$

  Note that the GDA implementation reverts back to the classical LDA implementation when d=1 and c=0. [9]. Liu [13] showed that fractional degree polynomial kernels out performed integer degree polynomials when applied to face recognition applications.

- The Gaussian kernel function defined as:

$$k(\mathbf{x},\mathbf{y}) = e^{\left(-\frac{\|\mathbf{x}-\mathbf{y}\|^2}{2\sigma^2}\right)}. \tag{3.39}$$

  Note the parameter σ must be selected.

E. FEATURE VECTOR SELECTION APPROACH

1. Introduction

The Feature Vector Selection (FVS) approach addresses the issue of the large dimensional feature space F by selecting a subspace F_s as a basis to represent the available data [5]. Once the relevant feature vectors (FVs) are selected from the training set, any data can by projected onto these FVs. Therefore, algorithms can be carried out with this projected data and no longer require the kernel function, except through the projection. The idea is to get a nonlinear version of an algorithm while avoiding formulating it in terms of dot products. The FVS is the first step in the process; the second step is the projection onto the FVs and then application of the classical algorithms [7]. FVS is designed to dramatically reduce memory requirements by dealing with kernel matrices of a size equal to the number of features selected to span the subspace F_s [5].

2. Algorithm Description

This discussion of the FVS algorithm was summarized from [7] and [5]. Assume the data investigated are centered. Let **x** be a vector of the training input set **X**. Let φ be a mapping function which transforms the input feature space **X** into a Hilbert space *F*:

$$\begin{aligned} \varphi &: \mathbf{X} \to F \\ \mathbf{x} &\to \varphi(\mathbf{x}) \end{aligned}. \tag{3.40}$$

The kernel matrix **K** obtained from the training set of M samples is defined in terms of dot products only as

$$\begin{aligned} &\mathbf{K} = \left(k_{ij}\right)_{1\le i\le M,1\le j\le M} \\ &\text{where } k_{ij} = \varphi^T\left(\mathbf{x}_i\right)\varphi\left(\mathbf{x}_j\right), \text{ and } M \text{ is the number of training samples.} \end{aligned} \tag{3.41}$$

The transformed data lie in a subspace F_s of the space *F,* which has a dimension equal to the numerical rank of the kernel matrix **K**. Usually the dimension of this subspace is significantly lower than *M*. Let's define $L \le M$ as the number of training samples $\mathbf{x}_{Sj}$ with associated transformed samples $\varphi_{Sj} = \varphi\left(\mathbf{x}_{Sj}\right)$ which are selected. These selected samples are called the FVs. Thus, given a set of *L* selected FVs $\Phi_S = \{\varphi_{S1},\ldots, \varphi_{SL}\}$ in *F,* the mapping of any sample $\mathbf{x}_i$ into F_s may be expressed as

$$\hat{\varphi}_i = \Phi_S \cdot \mathbf{a}_i \quad i = 1,...,M\,, \tag{3.42}$$

The goal is to identify the mapping $\hat{\varphi}_i$ so that it is close in some norm sense to the original mapping based on the total number of samples. Thus, we minimize in *F* the normalized Euclidean distance given by the following ratio

$$\delta_i = \frac{\left\|\varphi_i - \hat{\varphi}_i\right\|^2}{\left\|\varphi_i\right\|^2}. \tag{3.43}$$

Note that Equation (3.43) is a measure of colinearity between the two vectors φ_i and $\hat{\varphi}_i$, regardless of their lengths. It can be shown that the minimum of Equation (3.43) may also be expressed as

$$\min_{\mathbf{a}_i} \delta_i = 1 - \frac{\vec{\mathbf{K}}_{Si}^T \mathbf{K}_{SS}^{-1} \vec{\mathbf{K}}_{Si}^T}{k_{ij}}, \tag{3.44}$$

where the matrix $\mathbf{K}_{SS}$ is the L-dimensional kernel matrix computed with the selected FVs and the matrix $\vec{\mathbf{K}}_{Si}$ in the vector inner product between the samples $\mathbf{X}$ and the FVs. Now we must find the set S that minimizes Equation (3.44) in average over all training samples contained in $\mathbf{X}$, leading:

$$\min_S \left[\sum_{\mathbf{x}_i \in \mathbf{X}} \left(1 - \frac{\vec{\mathbf{K}}_{Si}^T \mathbf{K}_{SS}^{-1} \vec{\mathbf{K}}_{Si}^T}{k_{ij}} \right) \right]. \tag{3.45}$$

The global and the local fitness J_S and J_{Si} for a given set S are defined as

$$J_S = \frac{1}{M} \sum_{\mathbf{x}_i \in \mathbf{X}} J_{Si} = \frac{1}{M} \sum_{\mathbf{x}_i \in \mathbf{X}} \frac{\vec{\mathbf{K}}_{Si}^T \mathbf{K}_{SS}^{-1} \vec{\mathbf{K}}_{Si}^T}{k_{ij}}. \tag{3.46}$$

Note that the minimization operation shown in Equation (3.45) is equivalent to finding a set S that maximizing J_S defined in Equation (3.46) The selection of S is an iterative process. The first iteration ($L=1$) finds the sample that gives the maximum global fitness while at the same time the local fitness is used to select the next best

candidate. With the exception of the first iteration the algorithm used the lowest local fitness to elect the new FV while evaluating the global fitness. This procedure has a tendency to provide close to orthogonal FVs, ending at a well conditioned numerical solution. The procedure ends when $\mathbf{K}_{SS}$ is no longer invertible numerically, which means the Φ_S is a good approximation of a basis for the data in F or the maximum desired number of FVs is reached. Now the problem has been reduced to a GDA approach with a training set of L vectors. Further details and examples illustrating the application of the FVS approach to classification may be found in [5]. Figure 3 shows the architecture of the method discussed.

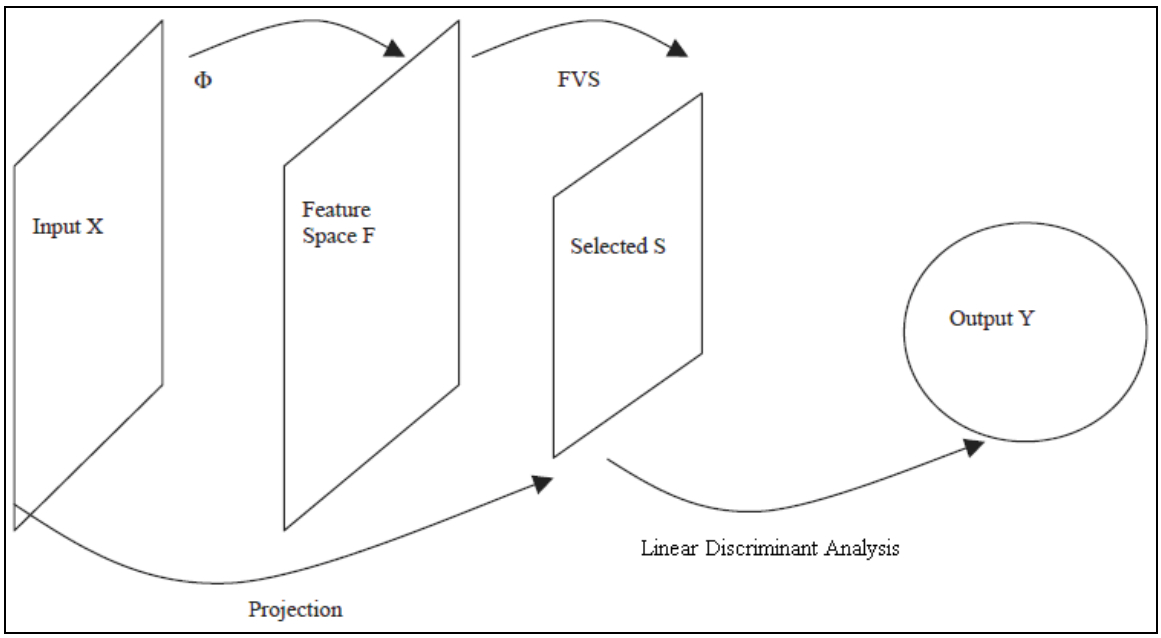

Figure 3. Architecture of FVS-LDA (from [7]).

IV. EXPERIMENTAL RESULTS

This chapter first presents the macro-averaged and micro-averaged performance results for the classifier algorithms considered in the study. Accuracy, error, precision, recall, and *F1* values for 35 of the 59 experiments conducted in the study are listed in Appendix A. Twenty four of the experiments not included in Appendix A were six of the seven Feature Vector Selection (FVS) experiments derived with a Gaussian kernel, the one included yielded the best macro-averaged and micro-averaged *F1* performance result when values for all TDMs were averaged. Three experiments with a polynomial kernel of degree 0.3 and no added constant with 100, 200, and 400 feature vectors (FVs) were not included in Appendix A because the results were identical to the results with 50 FVs. The results for a polynomial kernel of degree 0.3 and no added constant did not vary by feature vector because the FVS step did not yield more then 50 independent FVs.

This section presents performance results based on the *F1* measure described previously in Chapter II, Section C. Recall that a *F1* value of 1 corresponds to no classification errors. The classifiers tested are the Latent Symantec Analysis (LSA) and the Generalized Discriminant Analysis (GDA) with a FVS processing step and one of two kernels. The two kernels considered are Gaussian and polynomial. The polynomial kernels tested were of degree less than one, degree equal to one, and either a constant of one or zero added, as shown in Equation (3.38). Polynomial kernels of degree greater than one were considered but gave worse results, and are not included. Note that the GDA classifier with a polynomial kernel of degree one and no added constant reverts back to the classic Linear Discriminant Analysis (LDA) implementation. The construction of a TDM was discussed earlier in Chapter II, Section B. Table 4 gives a key for the TDM label and the plotting index used to display results shown in Figures 4, 6, 8, 10, 12, 14, and 18.

TDM\Index	TDM\Index	TDM\Index	TDM\Index	TDM\Index
txx \ 1	bxx \ 13	lxx \ 25	axx \ 37	nxx \ 49
txc \ 2	bxc \ 14	lxc \ 26	axc \ 38	nxc \ 50
tex \ 3	bex \ 15	lex \ 27	aex \ 39	nex \ 51
tec \ 4	bec \ 16	lec \ 28	aec \ 40	nec \ 52
tfx \ 5	bfx \ 17	lfx \ 29	afx \ 41	nfx \ 53
tfc \ 6	bfc \ 18	lfc \ 30	afc \ 42	nfc \ 54
tgx \ 7	bgx \ 19	lgx \ 31	agx \ 43	ngx \ 55
tgc \ 8	bgc \ 20	lgc \ 32	agc \ 44	ngc \ 56
tnx \ 9	bnx \ 21	lnx \ 33	anx \ 45	nnx \ 57
tnc \ 10	bnc \ 22	lnc \ 34	anc \ 46	nnc \ 58
tpx \ 11	bpx \ 23	lpx \ 35	apx \ 47	npx \ 59
tpc \ 12	bpc \ 24	lpc \ 36	apc \ 48	npc \ 60

Table 4. TDM Label and Plotting Index Key List.

First, we present results obtained for each classifier. Next, we compare *F1*-based performances obtained and relationships between errors and class similarities for specific TDM configurations on all classifiers. Finally, we discuss computational timing issues.

A. LSA RESULTS

1. Introduction

As introduced earlier, LSA is carried out using the Singular Value Decomposition (SVD) technique which projects all documents in to a space where co-occurring terms are projected into similar directions, while non co-occurring terms are projected in very different directions. A direction can then be considered to be a feature vector of co-occurring terms. Dimension reduction is obtained by keeping only k FVs that correspond to the k largest singular values. The LSA technique is currently commonly found in text categorization applications and was used in this study as a benchmark for comparison with kernel-based schemes. Seven LSA experiments were conducted where the amount of dimensional feature reduction was varied. The amount of dimensional reduction was measured by the number, k, of FVs kept for the LSA classifier, were the smaller k corresponds to larger dimensional reduction. In other words the 4829 terms originally present were converted into k co-occurring terms. The values for k considered in the study are: 1, 25, 50, 100, 150, 200, and 300.

2. Macro-Averaged Results

Macro-averaging gives an equal weight to each category, and is often dominated by the system's performance on smaller classes [3]. Figure 4 shows the macro-averaged results for all 60 TDMs and the seven choices considered for *k*. A few comments can be made regarding the macro-averaged results.

- Macro-averaged performance results are very poor when k = 1, as expected.
- F1-based performance results obtained when k is 200 are very close to those obtained for k = 300, as the average absolute difference across all TDM configurations is equal to 0.0059 in that k range. Results for k equal to 25 through 300 are similar indicating that maximum classification performances can be obtained with relatively few FVs.
- Macro-averaged F1 performances range roughly between 0.80 and 0.96 when k is equal to any of the k values considered, except for k equal to 1, for all TDM configurations except when the global factor selected is Normal[1]. In such a case F1 performance results degrade to the range between 0.10 and 0.80.
- Results show the TDM type drives F1 classification performance results when the number of FVs k is above 25. For example, a TDM choice of either "bgc" (Index 20) or "ngx" (Index 55) generates results between 0.93 and 0.96 for k values between 25 and 300.

[1] The *Normal* global factor is defined as the inverse square root of the sum of *Term Frequencies* squared.

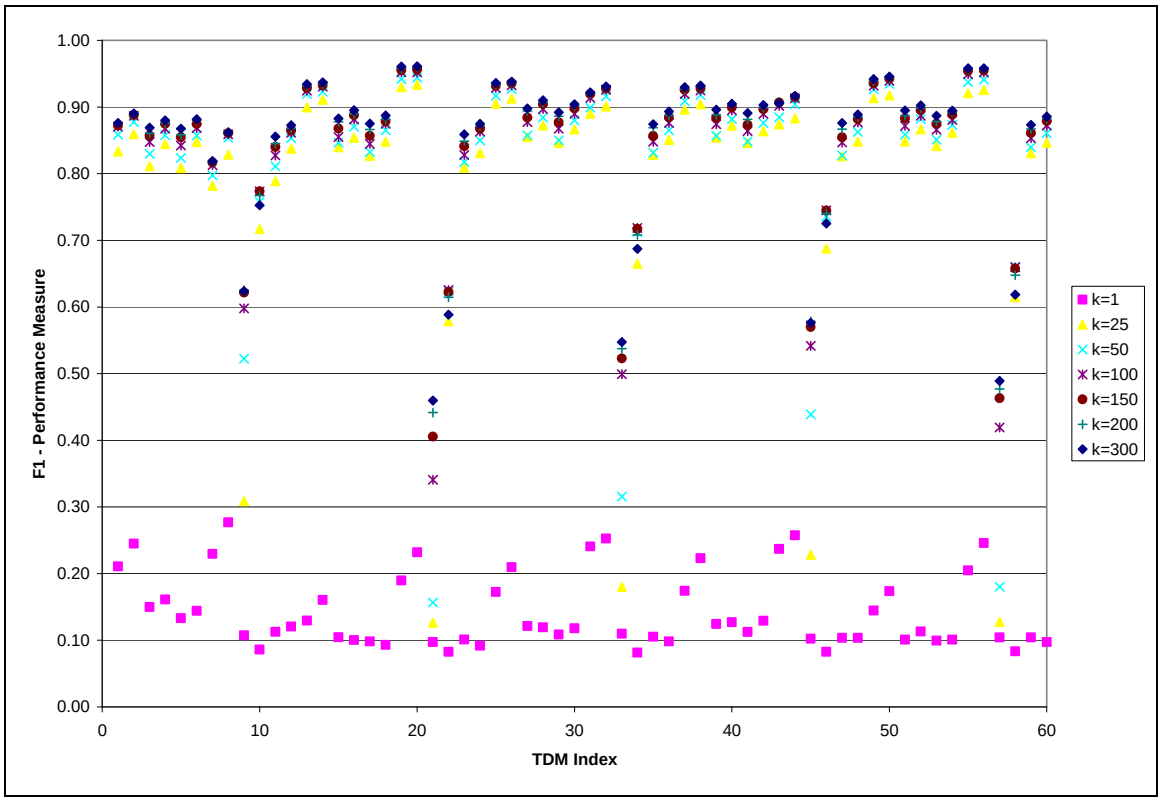

Figure 4. Macro-Averaged Results for the LSA Classifier, Varying Dimension Reduction *k* Values.

Next, we selected a specific TDM configuration and compared resulting F1-based performances obtained with the LSA approach. Figure 5 shows macro-averaged F1 values obtained for the TDM configuration "bgc" (Index 20) and all 7 k values considered. TDM "bgc" (Index 20) was chosen because it performed well on our database. A few observations can be made regarding Figure 5.

- Note that F1-based performances values observed are quite close, with the exception of results obtained for k = 1.
- The dotted line going through the points corresponding to k values from 25 to 300 is the least squares line fit obtained from these 6 points, Note that the line slope is nearly equal to zero, thereby indicating results for k = 300 are representative of the maximum performance for the LSA classifier.

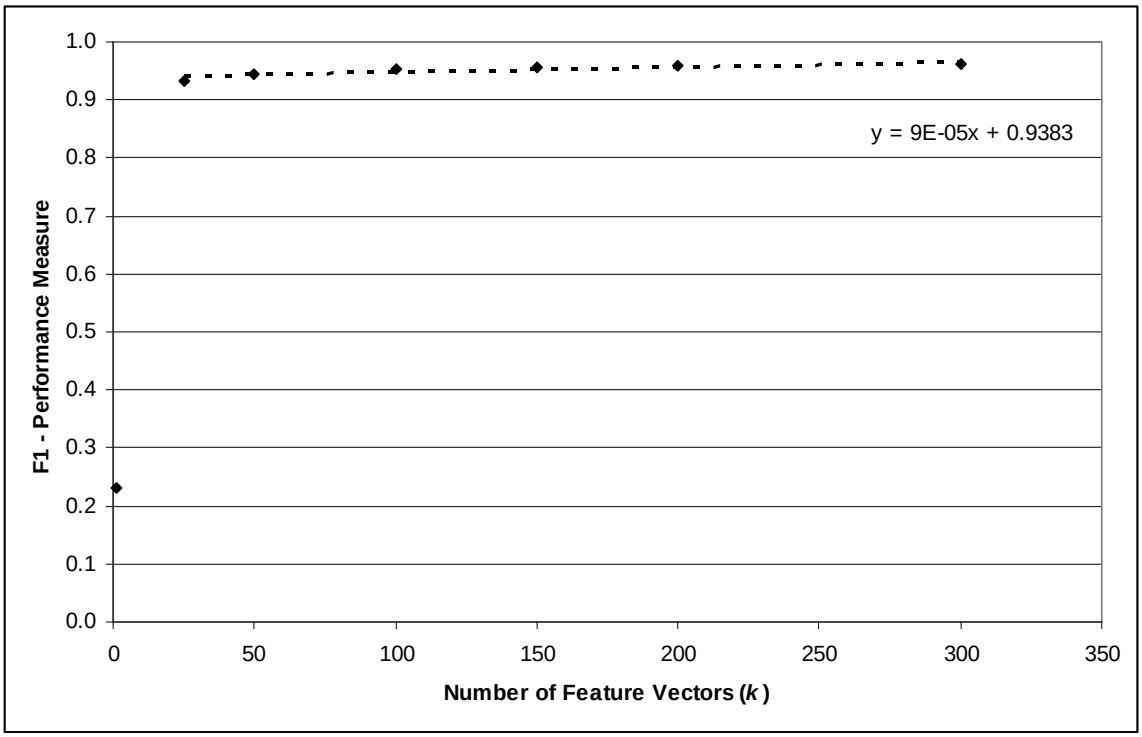

Figure 5. Macro-Averaged LSA Results for the TDM Configuration (bgc) Versus Number of Feature Vectors.

3. Micro-Averaged Results

Micro-averaging gives an equal weight to each document and is often dominated by the system's performance on larger classes [3]. Figure 6 shows the micro-averaged results for all 60 TDMs and the seven choices for *k* considered in this study. A few comments can be made regarding the micro-averaged results.

- Micro-averaged performance results are very poor when k = 1, as expected.
- F1-based micro-averaged performance results obtained when k is 200 are very close to those obtained for k = 300, as the average absolute difference across all TDM configurations is equal to 0.0052 in that k range. Results for k equal to 25 through 300 are similar indicating that maximum classification performances can be obtained with relatively few FVs.
- Micro-averaged F1 performances range roughly between 0.80 and 0.97 when k is equal to any of the k values considered, except for k equal to 1, for all TDM configurations except when the global factor selected is the Normal. In such a case F1 performance results degrade to the range between 0.10 and 0.80.

- Results show the TDM type drives F1 classification performance results when the number of FVs k is above 25. For example, a TDM choice of either "bgc" (Index 20) or "ngx" (Index 55) generates results between 0.93 and 0.97 for k values between 25 and 300.

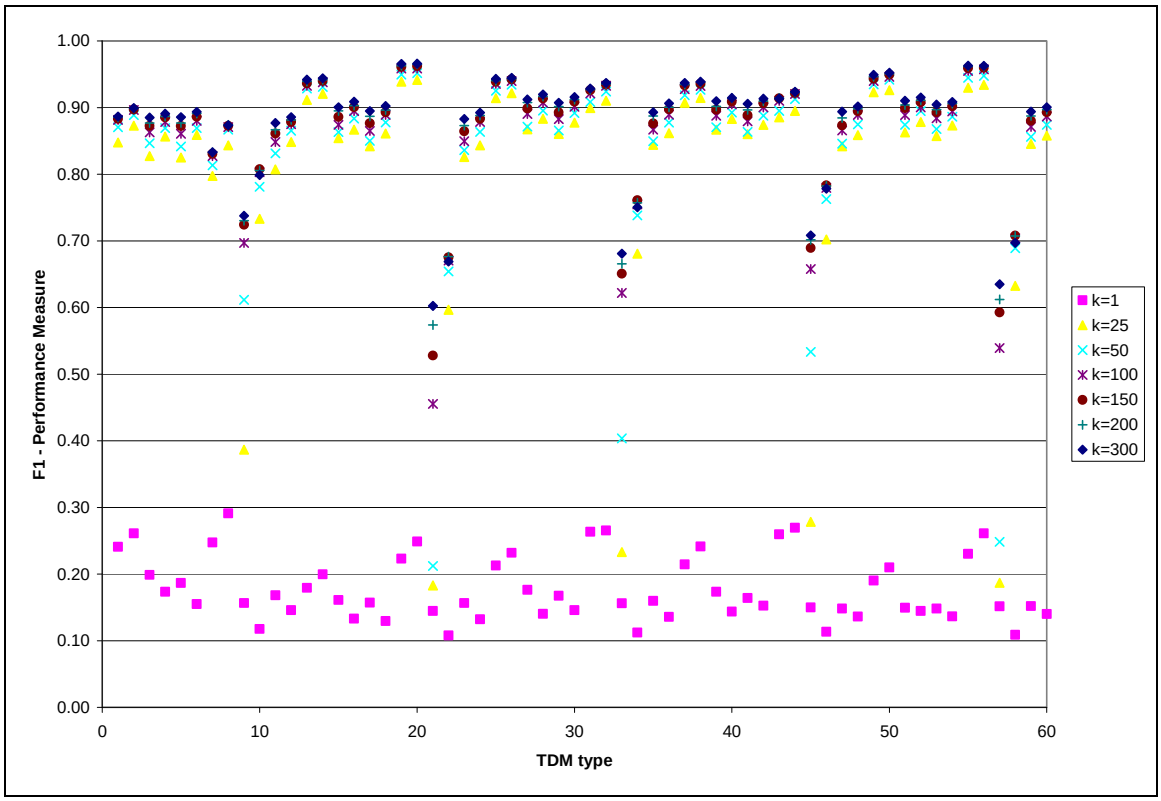

Figure 6. Micro-Averaged Results for the LSA Classifier for Various Dimension Reduction *k* Values.

Next, we selected a specific TDM configuration and compared resulting micro-averaged F1 values obtained with the LSA approach. Figure 7 shows micro-averaged *F1* values obtained for the TDM configuration "bgc" (Index 20) and all 7 *k* values considered. This specific TDM "bgc" (Index 20) was chosen because it performed well on our database. A few observations can be made regarding Figure 7.

- Note that F1-based performance values observed are quite close, with the exception of results obtained for k = 1.
- The dotted line going through the points corresponding to k values from 25 to 300 is the least squares line fit obtained from these 6 points. Note that the line slope is nearly equal to zero, thereby indicating results for k = 300 are representative of the maximum performance for the LSA classifier.

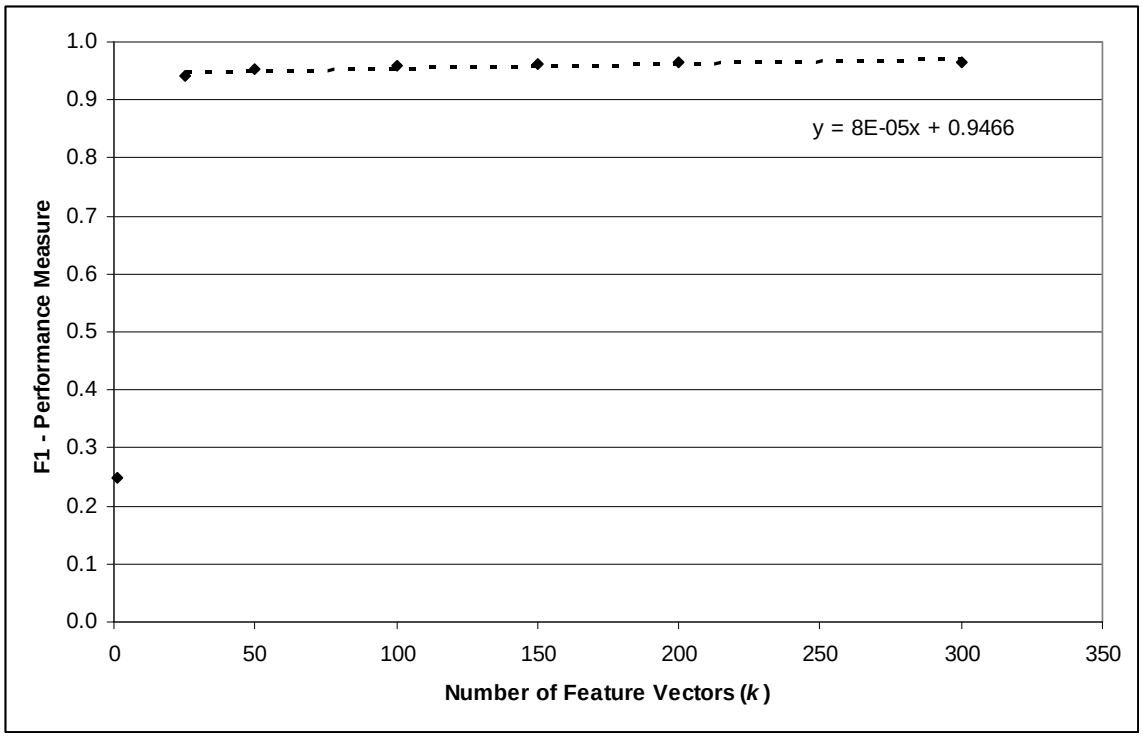

Figure 7. Micro-Averaged LSA Results for the TDM Configuration (bgc) Versus Number of Feature Vectors.

4. Summary

Results indicate maximum classification performances can be obtained with relatively few FVs. Both macro-average and micro-average performances were similar. Recall that macro-averaging is often dominated by the system's performance on smaller classes while micro-averaging is often dominated by the system's performance on larger classes. Thus, these results lead to the observation that that the smallest testing group containing 24 documents was sufficiently large to be properly classified using the LSA scheme.

Results also show that the TDM type dominates classification performances for the LSA classifier and that the maximum *F1* classification performance obtained for the LSA classifier is around 0.96.

B. FVS-LDA RESULTS

1. Introduction

The basic idea behind the LDA approach lies in selecting a projection so that projected class centers are far apart while the spread within each projected class is kept small. Thus, the overlap between classes is expected to be small [18]. The LDA method was designed to extract the most discriminating features, unlike the LSA that selects the most representative ones. In this study, we implemented the LDA by using the FVS algorithm with a Polynomial Kernel of degree 1 and no added constant. This implementation is identical to performing the LDA with a subset of *k* FVs. Dimensional reduction is therefore obtained by selecting *k* FVs from the entire set of training vectors and the LDA algorithm reduces the size of each feature vector to the number of classes minus one. Four LDA experiments were conducted, where the amount of dimensional reduction was varied. The amount of dimensional reduction was measured by the number, *k*, of FVs selected for the LDA classifier, were the smaller *k* corresponds to larger dimensional reduction. In other words of the 611 training documents *k* documents were selected, the values for *k* chosen are: 50, 100, 200, and 400.

2. Macro-Averaged Results

As mentioned earlier, macro-averaging gives an equal weight to each category, and is often dominated by the system's performance on smaller classes [3]. Figure 8 shows the macro-averaged results for all 60 TDMs and the four choices considered for *k*. A few comments can be made regarding the macro-averaged results.

- F1-based performance results obtained when k is 200 are very close to those obtained for k = 400, as the average absolute difference across all TDM configurations is equal to 0.0168 in that k range.
- Macro-averaged F1 performances range roughly between 0.73 and 0.98 for all TDM configurations except when selecting the global factor Normal. In such a case F1 performance results degrade to the range between 0.27 and 0.67.

- Results show the TDM type drives F1 classification performance results. For example, a TDM choice of either "bgc" (Index 20) or "ngx" (Index 55) generates results between 0.92 and 0.98 for all k values.

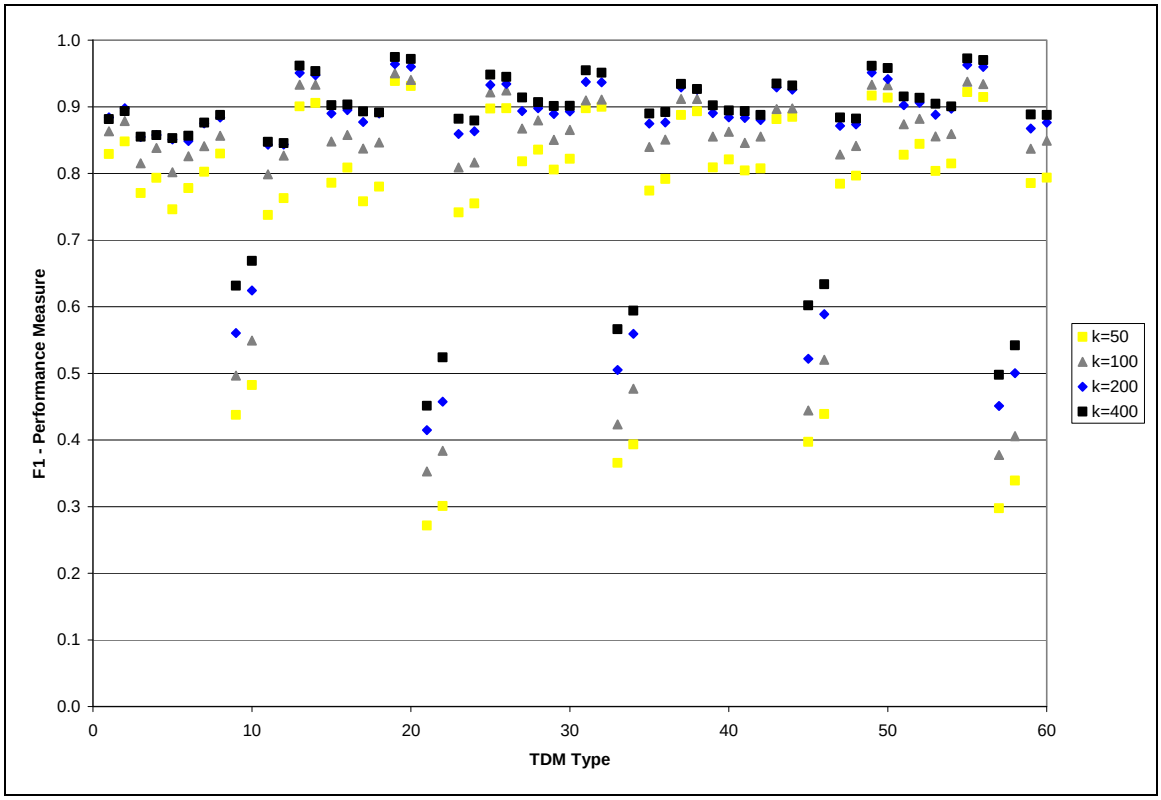

Figure 8. Macro-Averaged Results for the FVS-LDA Classifier with a Polynomial Kernel of Degree 1 for Varying Dimension Reduction *k* Values.

Next, we selected a specific TDM configuration and compared resulting *F1*-based performances obtained for the FVS-LDA approach with a polynomial kernel of degree 1 and no added constant. Figure 9 shows macro-averaged *F1* values obtained for the TDM configuration "bgc" (Index 20) and all 4 *k* values considered. TDM "bgc" (Index 20) was chosen because it performed well on our database. A few observations can be made regarding Figure 9.

- Note that F1-based performance values observed are quite close.
- The dotted line going through the points corresponds to k values from 50 to 400 is the least squares line fit obtained from these 4 points. Note that the line slope is nearly equal to zero, thereby indicating results for k = 400 are representative of the maximum performance for the FVS-LDA classifier with a polynomial kernel of degree 1 and no added constant.

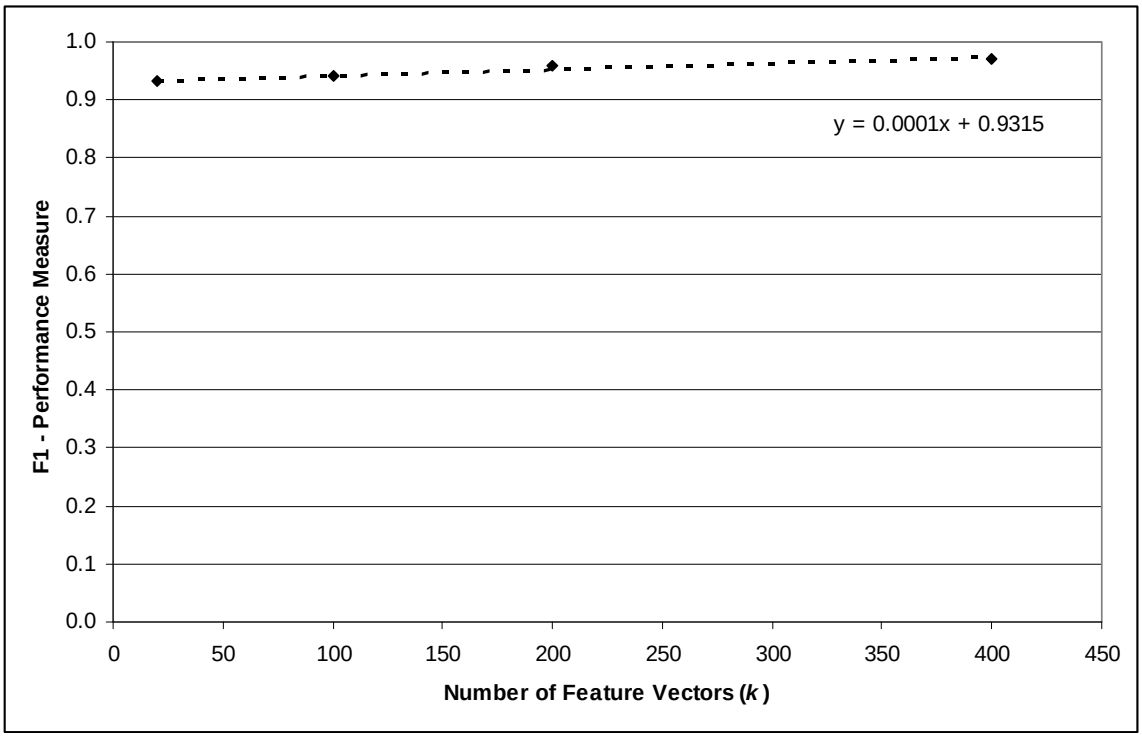

Figure 9. Macro-Averaged FVS-LDA with a Polynomial Kernel of Degree 1 and no added Constant Results for TDM (bgc) Versus Number of Feature Vectors.

3. Micro-Averaged Results

As mentioned earlier, micro-averaging gives an equal weight to each document and is often dominated by the system's performance on larger classes [3]. Figure 10 shows the micro-averaged results for all 60 TDMs and the four choices considered for *k*. A few comments can be made regarding the micro-averaged results.

- F1-based performance results obtained when k is 200 are very close to those obtained for k = 400, as the average absolute difference across all TDM configurations is equal to 0.0189 in that k range.
- Micro-averaged F1 performances range roughly between 0.77 and 0.98 for all TDM configurations except when selecting Normal as the global factor. In such a case F1 performance results degrade to the range between 0.33 and 0.76.
- Results show the TDM type drives F1 classification performance results. For example, a TDM choice of either "bgc" (Index 20) or "ngx" (Index 55) generates results between 0.93 and 0.98 for all k values.

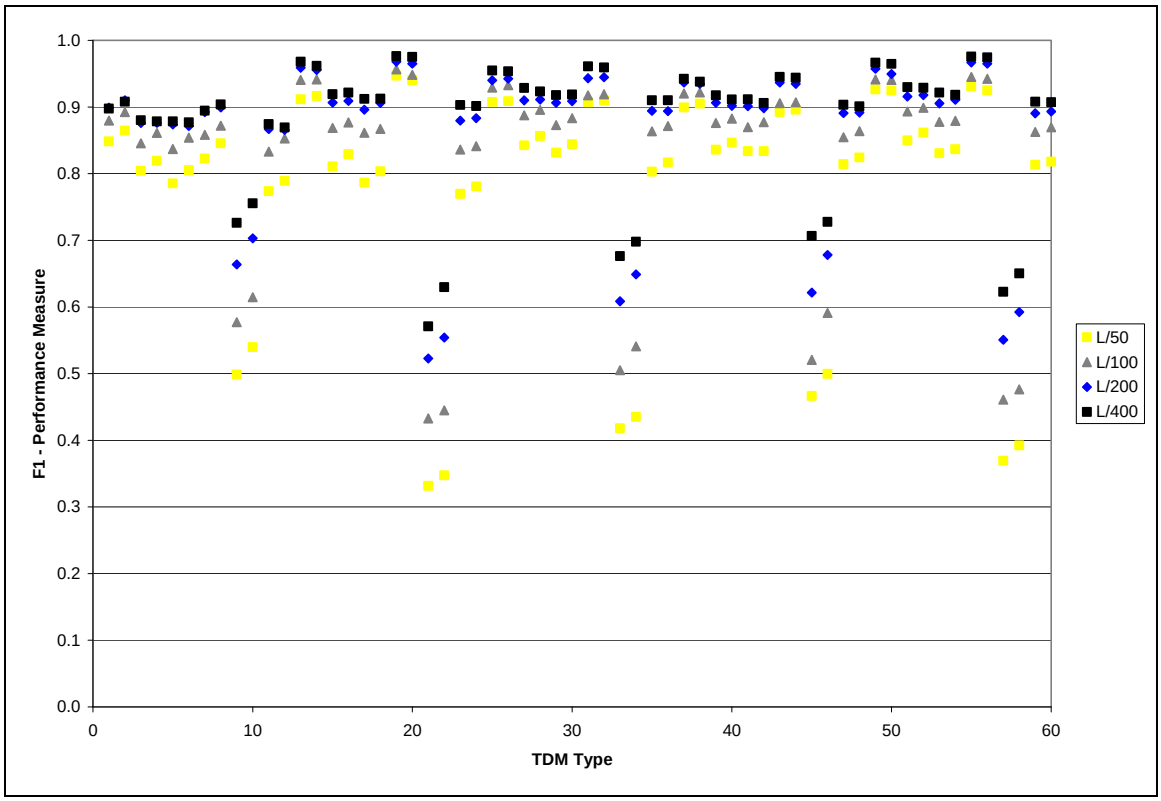

Figure 10. Micro-Averaged Results for the FVS-LDA Classifier with a Polynomial Kernel of Degree 1 for Varying Dimension Reduction *k* Values.

Next, we selected a specific TDM configuration and compared resulting F1-based performances obtained with the FVS-LDA approach with a polynomial kernel of degree 1 and no added constant. Figure 11 shows micro-averaged F1 values obtained for the TDM configuration "bgc" (Index 20) and all 4 k values considered. TDM "bgc" (Index 20) was chosen because it performed well on our database. A few observations can be made regarding Figure 11.

- Note that F1-based performance values observed are quite close.
- The dotted line going through the points corresponds to k values from 50 to 400 and is the least squares line fit obtained from these 4 points. Note that the line slope is nearly equal to zero, thereby indicating results for k = 400 are representative of the maximum performance for the FVS-LDA classifier with a polynomial kernel of degree 1 and no added constant.

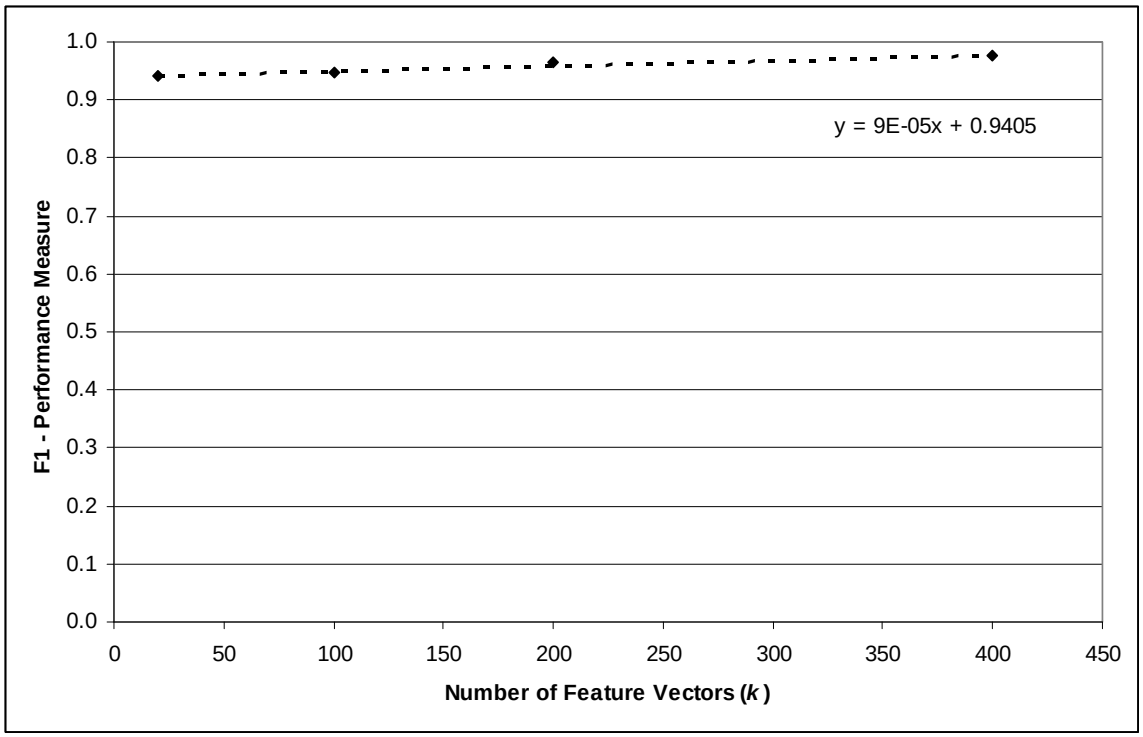

Figure 11. Micro-Averaged FVS-LDA with a Polynomial Kernel of Degree 1 and no added Constant Results for TDM (bgc) Versus Number of Feature Vectors.

4. Summary

Results show both macro-average and micro-average performances are similar. Recall that macro-averaging is often dominated by the system's performance on smaller classes while micro-averaging is often dominated by the system's performance on larger classes. Thus, these results lead to the observation that that the smallest testing group containing 24 documents was sufficiently large to be properly classified using the FVS-LDA scheme with a polynomial kernel of degree 1 and no added constant.

Results also show that the TDM type dominates classification performances for the FVS-LDA with a polynomial kernel of degree 1 and no added constant classifier, and that the maximum *F1* classification performance obtained for the FVS-LDA classifier with a polynomial kernel of degree 1 and no added constant is around 0.98.

C. FVS-LDA WITH POLYNOMIAL KERNEL RESULTS

1. Introduction

The Feature Vector Selection (FVS) approach addresses the issue of the large dimensional feature space F by selecting a subspace F_s as a basis to represent the available data [5]. The FVS is the first step in the process; the second step is the projection onto the FVs and then application of the classical algorithms [7]. This section discusses the results for the polynomial kernels tested. The degrees tested were 1, 0.7, 0.3, and degrees greater than 1. All polynomial kernels were also tested with and without an added constant. The polynomial kernel of degree 1 and no added constant was presented in the previous section. Polynomial kernels of degree greater than one and degree equal to 0.3 consistently gave worse results and are not included. Specifically three polynomial kernels are presented in this section: degree 0.7 with and without a constant, and degree 1 with a constant. The classical algorithm chosen is the LDA approach. Dimensional reduction is therefore obtained by selecting k FVs from the entire set of training vectors and the LDA algorithm reduces the size of each feature vector to the number of classes minus one. Four FVS-LDA experiments with each polynomial kernel were conducted where the amount of dimensional reduction was varied. The amount of dimensional reduction was measured by the number, k, of FVs selected for the FVS-LDA classifier, were the smaller k corresponds to larger dimensional reduction. In other words, k of the 611 training documents were selected, where the values for k are: 50, 100, 200, and 400.

2. Macro-Averaged Results

As mentioned earlier, macro-averaging gives an equal weight to each category, and is often dominated by the system's performance on smaller classes [3]. Figure 12 shows the macro-averaged results for all 60 TDMs, three polynomial kernels, and k equal to 200 and 400 FVs. A few comments can be made regarding the macro-averaged results.

- The polynomial kernel of degree 1 performed better than the polynomial kernel of degree 0.7, especially if the global factor selected is not Normal.

- F1-based performance results obtained when k is 200 are very close to those obtained for k = 400, as the average absolute difference across all TDM configurations is equal to 0.0256, 0.0198 and 0.0096 in that k range for a Polynomial kernel of degree 1 with a constant, degree 0.7 with a constant, and degree 0.7 without a constant respectively.
- Macro-averaged F1 performances range roughly between 0.84 and 0.97 for all TDM configurations, except when the global factor selected is the Normal. In such a case F1 performance results degrade to the range between 0.23 and 0.80.
- Results show the TDM type drives F1 classification performance results. For example, a TDM choice of either "bgc" (Index 20) or "ngx" (Index 55) generates results between 0.95 and 0.97 for all k values.

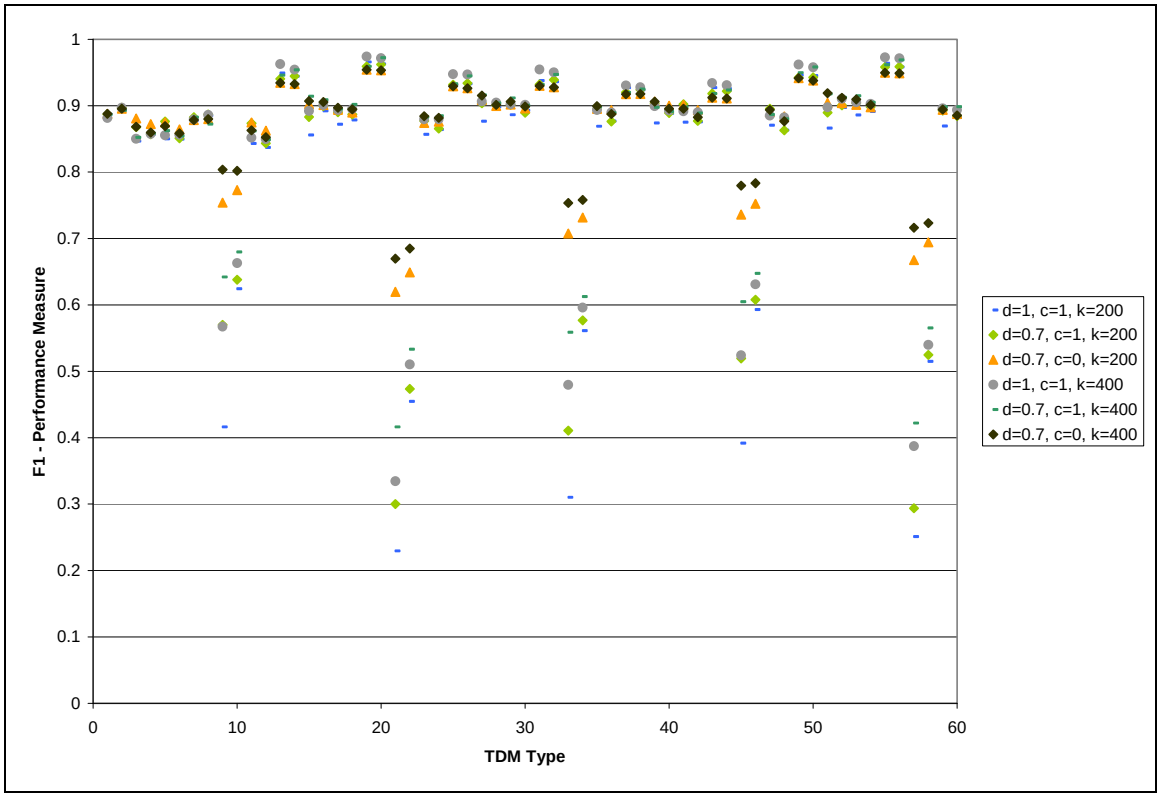

Figure 12. Macro-Averaged Results for the FVS-LDA Classifier with a Polynomial Kernel of Various Degrees, with and without a Constant, and Two Dimension Reduction *k* Values.

Next, we selected a specific TDM configuration and compared resulting *F1*-based performances obtained with the FVS-LDA approach with a polynomial kernel of degree 0.7 with an added constant. Figure 13 shows macro-averaged *F1* values obtained for the TDM configuration "bgc" (Index 20) and all 4 *k* values considered. TDM "bgc" (Index

20) was chosen because it performed well on our database. A few observations can be made regarding Figure 13.

- Note that F1-based performance values observed are quite close.
- The dotted line going through the points corresponds to k values from 50 to 400 is the least squares line fit obtained from these 4 points, Note that the line slope is nearly equal to zero, thereby indicating results for k = 400 are representative of the maximum performance for the FVS-LDA classifier with a polynomial kernel of degree 0.7 with an added constant.

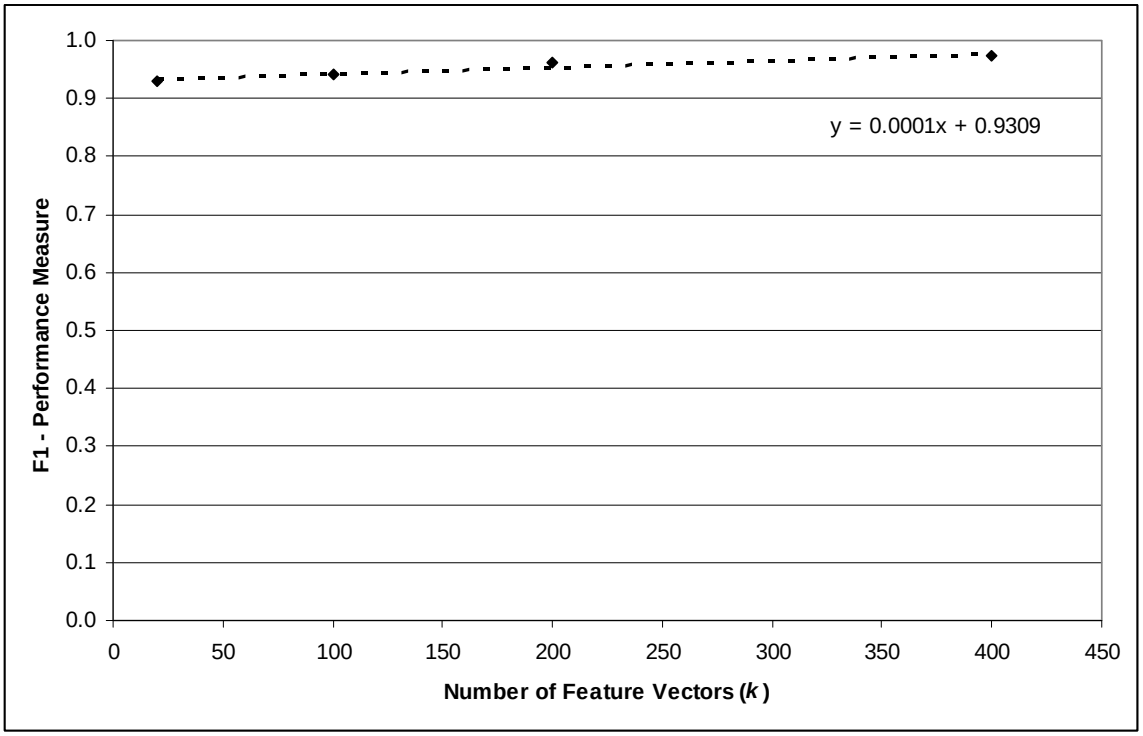

Figure 13. Macro-Averaged FVS-LDA with a Polynomial Kernel of Degree 0.7 and an added Constant Results for TDM (bgc) Versus Number of Feature Vectors.

3. Micro-Averaged Results

As mentioned earlier, micro-averaging gives an equal weight to each document and is often dominated by the system's performance on larger classes [3]. Figure 14 shows the micro-averaged results for all 60 TDMs, three polynomial kernels, and *k* equal to 200 and 400 FVs. A few comments can be made regarding the micro-averaged results.

- The polynomial kernel of degree 1 performed better than the polynomial kernel of degree 0.7, especially if the selected global factor is not Normal.

- F1-based performance results obtained when k is 200 are very close to those obtained for k = 400, as the average absolute difference across all TDM configurations is equal to 0.0272, 0.0216 and 0.0089 in that k range for a Polynomial kernel or degree 1 with a constant, degree 0.7 with a constant, and degree 0.7 without a constant respectively.
- Macro-averaged F1 performances range roughly between 0.86 and 0.98 for all TDM configurations, except when the selected global factor is Normal. In such a case F1 performance results degrade to the range between 0.31 and 0.84.
- Results show the TDM type drives F1 classification performance results. For example, a TDM choice of either "bgc" (Index 20) or "ngx" (Index 55) generates results between 0.96 and 0.98 for all k values.

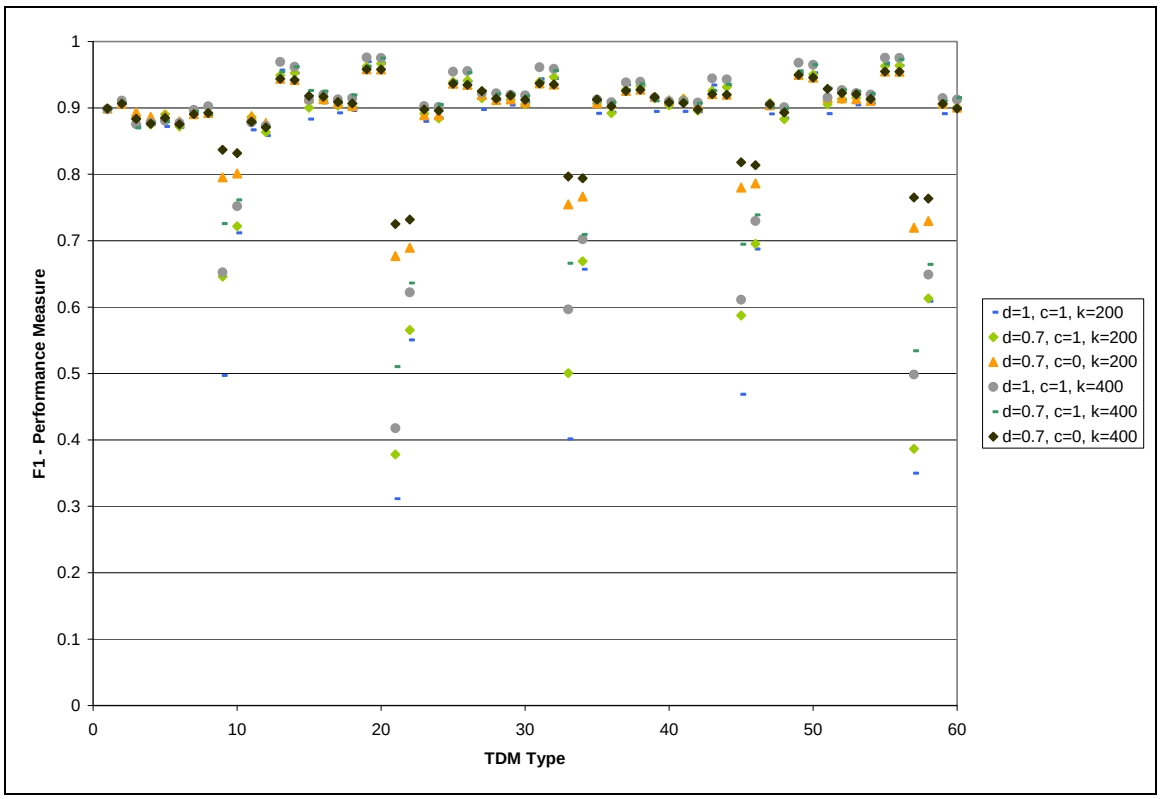

Figure 14. Micro-Averaged Results for the FVS-LDA Classifier with a Polynomial Kernel of Various Degrees, with and without a Constant, and Two Dimension Reduction *k* Values.

Next, we selected a specific TDM configuration and compared resulting F1-based performances obtained for the FVS-LDA approach with a polynomial kernel of degree 0.7. Figure 15 shows micro-averaged F1 values obtained for the TDM configuration

"bgc" (Index 20) and all 4 k values considered. TDM "bgc" (Index 20) was chosen because it performed well on our database. A few observations can be made regarding Figure 13.

- Note that F1-based performance values observed are quite close.
- The dotted line going through the points corresponds to k values from 50 to 400. This line is the least squares line fit obtained from these 4 points. Note that the line slope is nearly equal to zero, thereby indicating results for k = 400 are representative of the maximum performance for the FVS-LDA classifier with a polynomial kernel of degree 0.7.

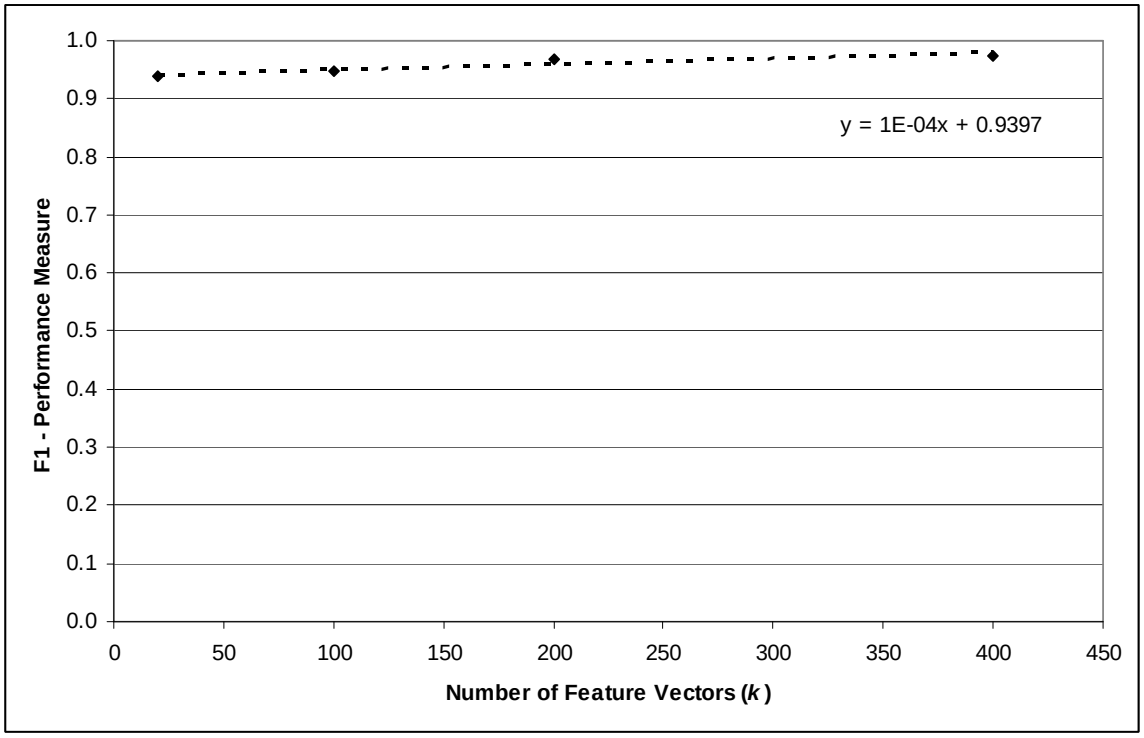

Figure 15. Micro-Averaged FVS-LDA with a Polynomial Kernel of Degree 0.7 and an added Constant Results for TDM (bgc) Versus Number of Feature Vectors.

4. Summary

Results show both macro-average and micro-average performances are similar. Recall that macro-averaging is often dominated by the system's performance on smaller classes while micro-averaging is often dominated by the system's performance on larger classes. Thus, these results lead to the observation that that the smallest testing group

containing 24 documents was sufficiently large to be properly classified using the FVS-LDA scheme with a polynomial kernel of degree less than or equal to 1.

Results also show that the TDM type dominates classification performances for the FVS-LDA with a polynomial kernel of degree less than or equal to 1 classifiers and that the maximum *F1* classification performance obtained for the FVS-LDA classifier with a polynomial kernel of degree less than or equal to 1 is around 0.98. Performance results obtained for a polynomial kernel of degree 1 with a constant are better than those obtained with a polynomial kernel of degree 0.7.

D. FVS-LDA WITH GAUSSIAN KERNEL RESULTS

1. Introduction

This section discusses results obtained with the FVS-LDA scheme when Gaussian kernels are used in the nonlinear projection step, instead of polynomial kernels. Gaussian kernels require the selection of a parameter σ, as illustrated earlier in Equation (3.39). Seven different values for σ were considered in this study: 8.37, 26.46, 83.67, 264.58, 836.66, 2645.75, and 8366.60. The experimental results discussed below are restricted to those obtained with the value for σ equal to 264.58, which gave best macro-averaged and micro-averaged *F1*-based performances, when averaged over all TDMs. The classical algorithm chosen was the LDA approach. Four FVS-LDA experiments with a Gaussian kernel were conducted, where the amount of dimensional reduction was varied. The amount of dimensional reduction was measured by the number, *k*, of FVs selected for the FVS-LDA classifier, were the smaller *k* corresponds to larger dimensional reduction. In other words, k out of the 611 training documents were selected, where possible *k* values f are: 50, 100, 200, and 400.

2. Macro-Averaged Results

As mentioned earlier, macro-averaging gives an equal weight to each category, and is often dominated by the system's performance on smaller classes [3]. Figure 16 shows the macro-averaged results for all 60 TDMs, a Gaussian kernel with σ equal to

264.58, and the four choices considered for *k*. A few comments can be made regarding the macro-averaged results.

- F1-based performance results obtained when k is 200 are very close to those obtained for k = 400, as the average absolute difference across all TDM configurations is equal to 0.0288 in that k range.
- Micro-averaged F1 performances range roughly between 0.56 and 0.98 for all TDM configurations except when the global factor selected is Normal. In such a case F1 performance results degrade to the range between 0.14 and 0.67.
- Results show the TDM type drives F1 classification performance results. For example, a TDM choice of either "bgc" (Index 20) or "ngx" (Index 55) generates results between 0.90 and 0.98 for all k values.

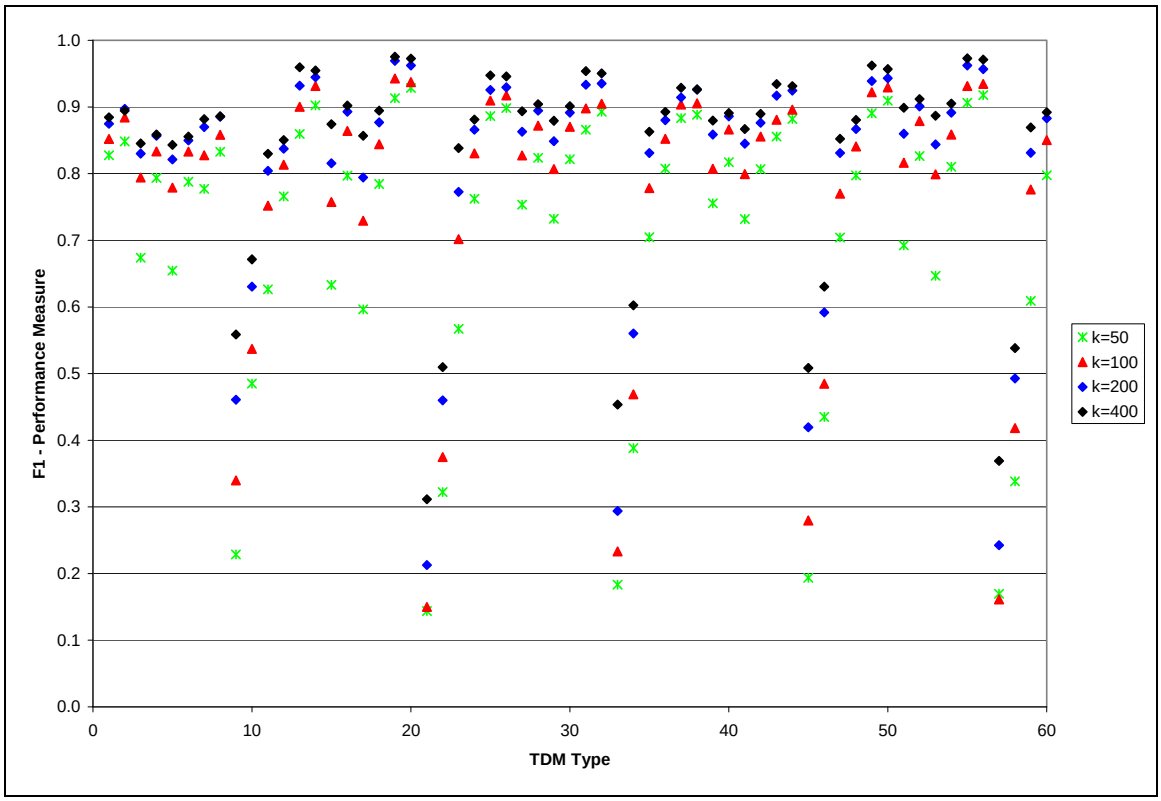

Figure 16. Macro-Averaged Results for the FVS-LDA Classifier with a Gaussian Kernel with σ Equal to 264.58 for Varying Dimension Reduction *k* Values.

Next, we selected a specific TDM configuration and compared resulting F1-based performances obtained with the FVS-LDA approach a Gaussian kernel with σ equal to 264.58. Figure 17 shows macro-averaged F1 values obtained for the TDM configuration "bgc" (Index 20) and all 4 k values considered. TDM "bgc" (Index 20) was chosen

because it performed well on our database. A few observations can be made regarding Figure 17.

- Note that F1-based performance values observed are quite close.
- The dotted line going through the points correspond to k values from 50 to 400. It is the least squares line fit obtained from these 4 points. Note that the line slope is nearly equal to zero, thereby indicating results for k = 400 are representative of the maximum performance for the FVS-LDA classifier with a Gaussian kernel with σ equal to 264.58.

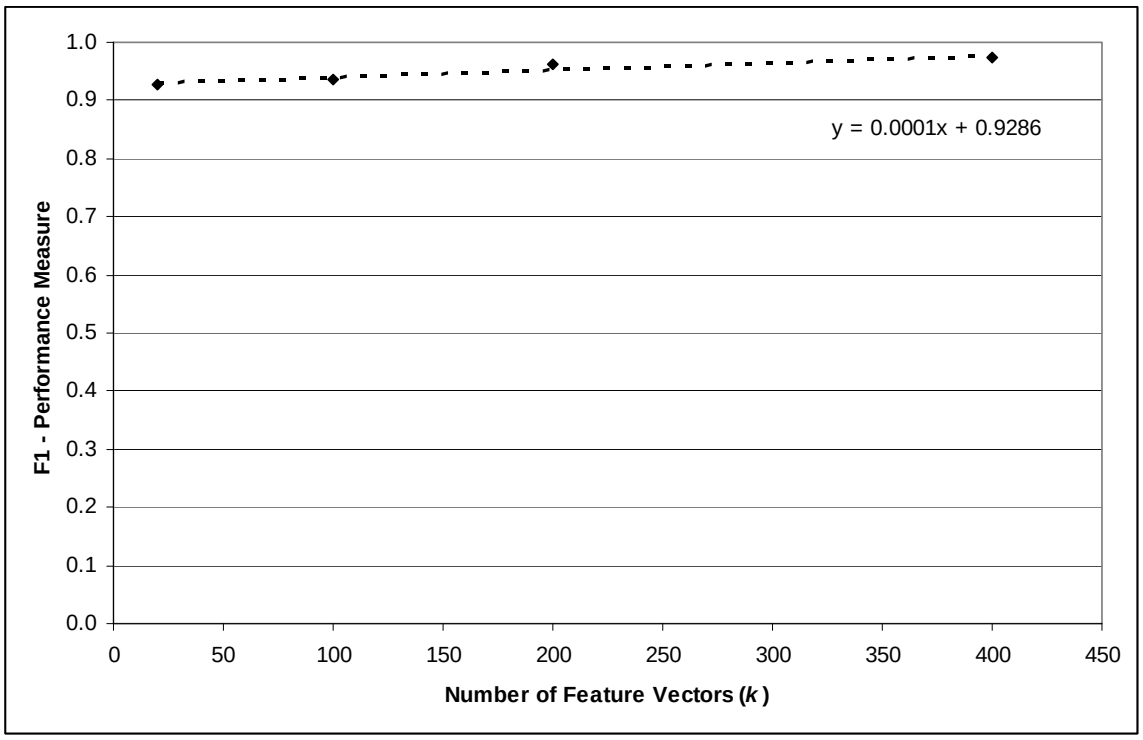

Figure 17. Macro-Averaged FVS-LDA with a Gaussian Kernel with σ Equal to 264.58 Results for TDM (bgc) Versus Number of Feature Vectors.

3. Micro-Averaged Results

As mentioned earlier, micro-averaging gives an equal weight to each document and is often dominated by the system's performance on larger classes [3]. Figure 18 shows the micro-averaged results for all 60 TDMs, a Gaussian kernel with σ equal to 264.58, and the four choices considered for *k*. A few comments can be made regarding these micro-averaged results.

- F1-based performance results obtained when k is 200 are very close to those obtained for k = 400, as the average absolute difference across all TDM configurations is equal to 0.0299 in that k range.
- Micro-averaged F1 performances range roughly between 0.59 and 0.98 for all TDM configurations, except selecting the global factor as Normal. In such a case F1 performance results degrade to the range between 0.20 and 0.76.
- Results show the TDM type drives F1 classification performance results. For example, a TDM choice of either "bgc" (Index 20) or "ngx" (Index 55) generates results between 0.91 and 0.98 for all k values.

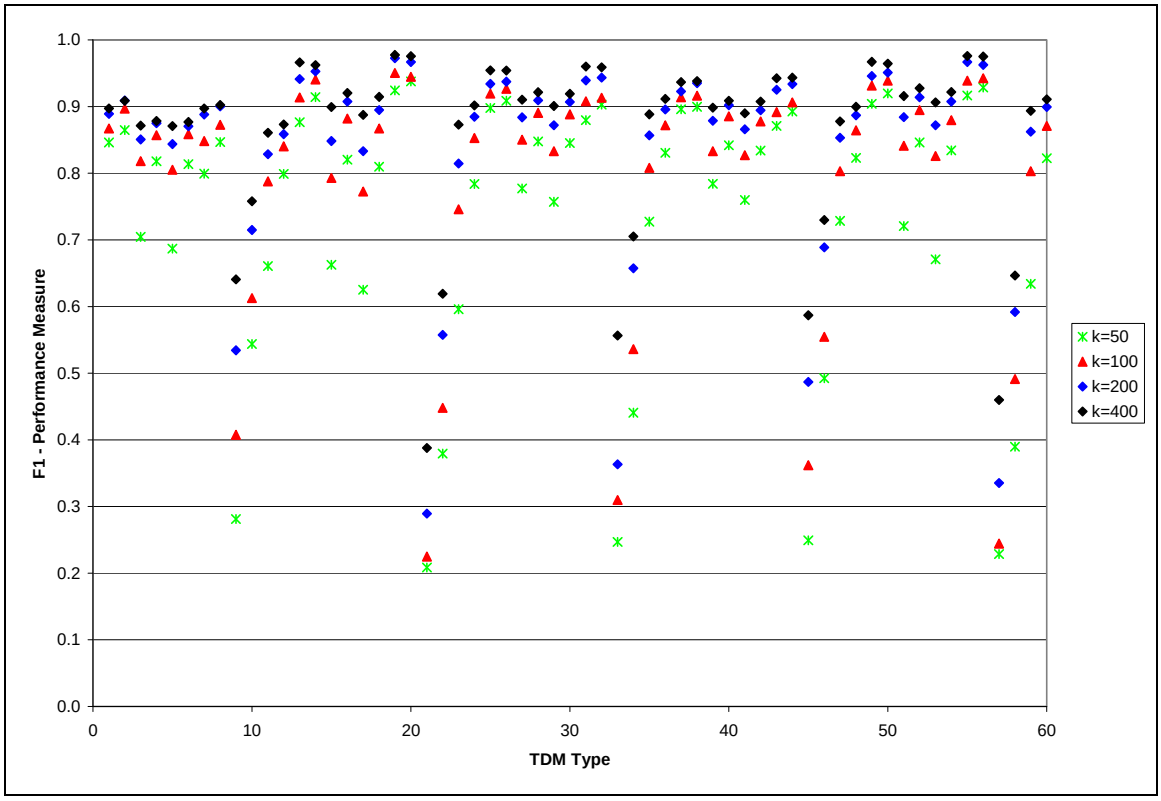

Figure 18. Micro-Averaged Results for the FVS-LDA Classifier with a Gaussian Kernel with σ Equal to 264.58 for Varying Dimension Reduction *k* Values.

Next, we selected a specific TDM configuration and compared resulting F1-based performance results obtained with the FVS-LDA approach a Gaussian kernel with σ value equal to 264.58. Figure 19 shows micro-averaged F1 values obtained for the TDM configuration "bgc" (Index 20) and all 4 k values considered. TDM "bgc" (Index 20) was chosen because it performed well on our database. A few observations can be made regarding Figure 19.

- Note that F1-based performance values observed are quite close.
- The dotted line going through the points correspond to k values from 50 to 400. It is the least squares line fit obtained from these 4 points. Note that the line slope is nearly equal to zero, thereby indicating results for k = 400 are representative of the maximum performance for the FVS-LDA classifier with a Gaussian kernel and σ equal to 264.58.

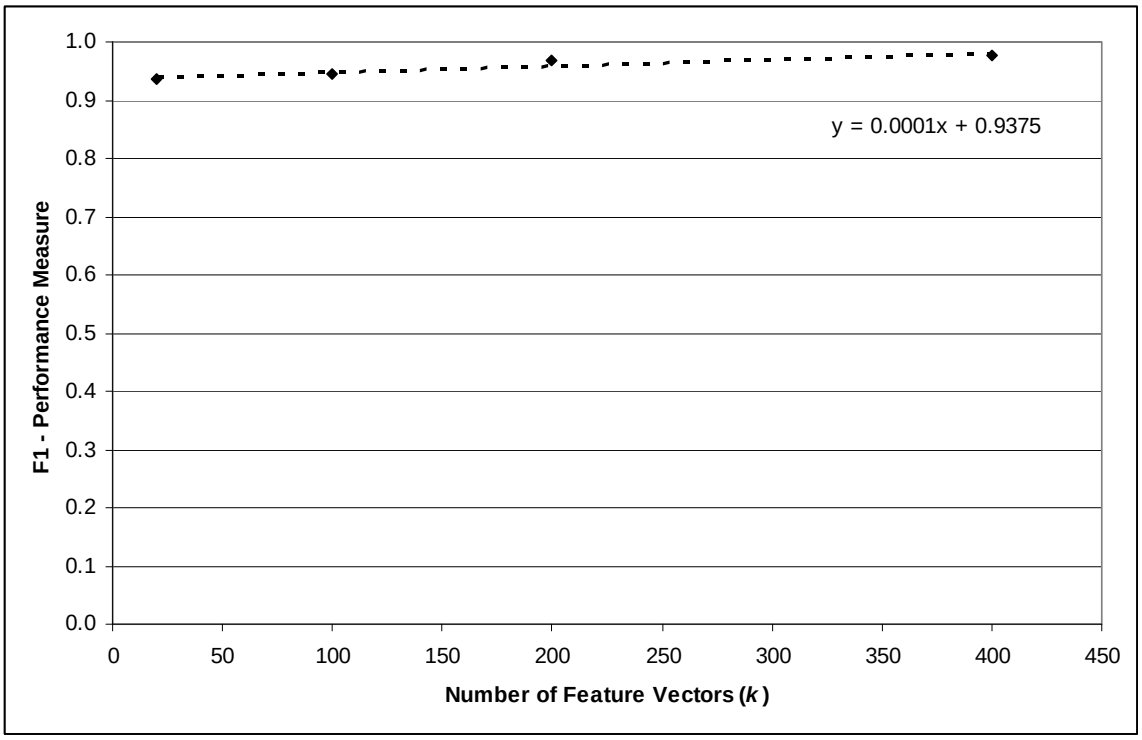

Figure 19. Micro-Averaged FVS-LDA with a Gaussian Kernel with σ Equal to 264.58 Results for TDM (bgc) Versus Number of Feature Vectors.

4. Summary

Results show both macro-average and micro-average performances are similar. As mentioned earlier, macro-averaging is often dominated by the system's performance on smaller classes while micro-averaging is often dominated by the system's performance on larger classes. Thus, these results lead to the observation that that the smallest testing group containing 24 documents only was sufficiently large to be properly classified using the FVS-LDA scheme with a Gaussian kernel for σ equal to 264.58.

Results also show that the TDM type dominates classification performances of the FVS-LDA with Gaussian kernel and that the maximum *F1* classification performance obtained for the FVS-LDA classifier with a Gaussian kernel for σ equal to 264.58 is around 0.98.

E. CLASSIFIER COMPARISON

1. TDMs Chosen For Comparison

Classifier performances were compared by selecting eight different TDM types among the 60 considered in this study. The selected TDMs were those leading to both best and worse macro-averaged and micro-averaged *F1* performances obtained with the LSA classifier and 300 FVs.

A few comments can be made regarding the selection process followed.

- The four TDMs consistently leading to best LSA-based classifier performances were "bgc", "bgx", "ngc", and "ngx" configurations. Note that these four TDMs had classification performances within 0.01 of each other. Of these four TDMs only "bgc" and "ngx" configurations were chosen as they did not share a common normalization factor.
- "txx" and "bxx" TDM feature configurations were selected as they were the computationally simplest among those considered and also showed relatively good performance results.
- Results showed the worse performances (rarely above 0.50) were consistently obtained for TDMs configurations derived with a global factor equal to Normal. Two representative TDM configurations among all eight using a global factor equal to Normal were selected: "lnx" and "lnc".
- Two TDMs were also chosen because they did not have a global factor equal to Normal and had poor performances relative to the others: "tgx" and "bpx".

The following eight TDMs types were chosen to compare classifier performances: "bgc", "ngx", "txx", "bxx", "lnx", "lnc", "tgx", and "bpx".

2. Performance Comparisons

Figure 20 shows macro-averaged *F1* performance results obtained for the 8 TDMs selected to compare classifier performances. These results are presented for the

LSA classifier with 300 FVs, the FVS-LDA with a polynomial kernel of degree 1 with and without an added constant with 400 FVs, and the FVS-LDA with a Gaussian kernel where σ is equal to 264.58 with 400 FVs. A few comments can be made from these observed macro-averaged F1 performances results.

- The two best performing TDMs configurations, "bgc" and "ngx", lead to similar classification performances for the classifier types considered, as the maximum classification difference is only 0.0149. Among the different classifiers, the lowest performance is obtained for the LSA classifier.
- The two computationally simplest TDMs types to compute, "txx" and "bxx", indicate different classifier performances, with maximum classification performance differences equal to 0.0085 and 0.0629 for both types, respectively. We note The LSA classifier had the lowest performance for both TDMs. Overall, results indicate that FVS-LDA classifiers outperform the LSA classifier for the "bxx" TDM configuration.
- The two TDMs "lnx" and "lnc" were originally selected as they had the same global factor equal to Normal and resulted in the worst performances. Results show performances changed as a function of the classifier type. For the "lnx" configuration, the FVS-LDA classifier with a Gaussian kernel did not perform as well as the other classifier types. For the "lnc" configuration, the LSA classifier out performs FVS-LDA classifiers.
- The two TDMs "tgx" and "bpx" were among the TDMs derived using a global factor not equal to Normal and leading to the worst performances. Results show classifier performances vary for different classifier types. For the "tgx" configuration, FVS-LDA classifiers outperformed the LSA classifier. In addition, for the "bpx" configuration, FVS-LDA classifiers with a polynomial kernel outperform both LSA and Gaussian kernel-based FVS-LDA classifiers.

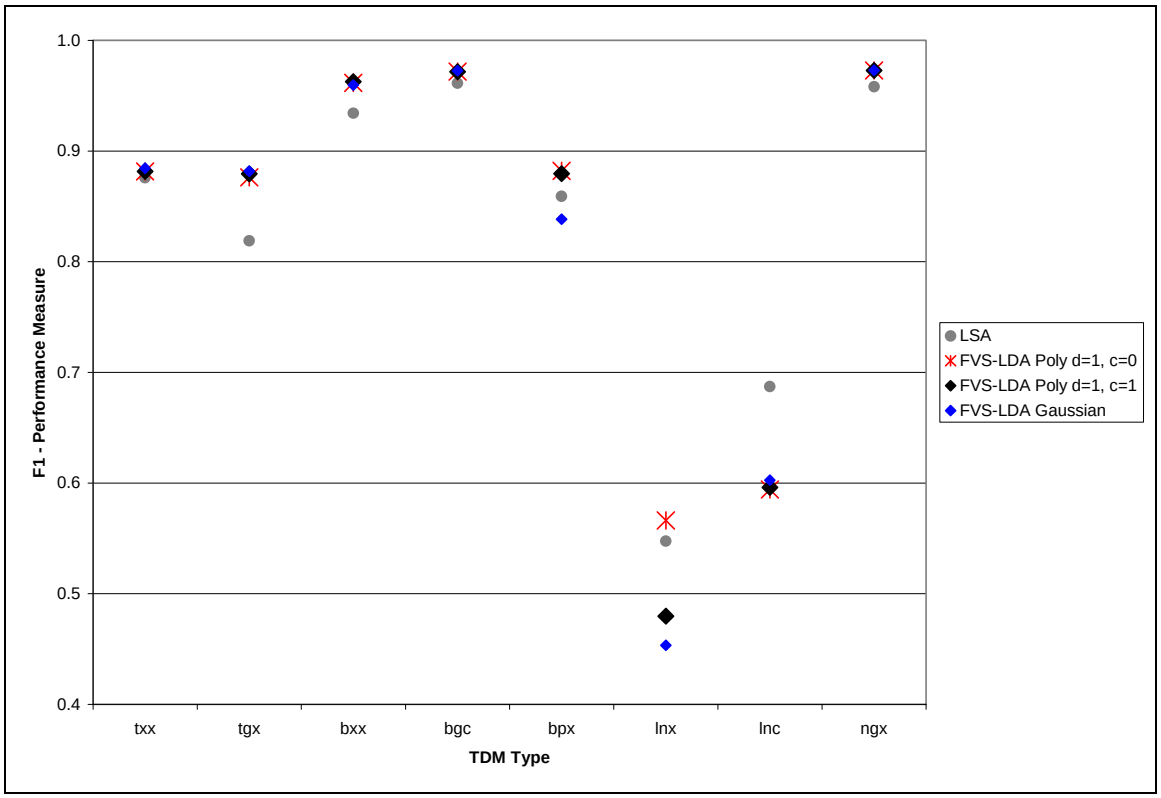

Figure 20. Macro-Averaged Results for Various Classifier with Selected TDMs.

Figure 21 shows micro-averaged *F1* performance results for the 8 TDMs selected to compare classifier performances. A few comments can be made from the macro-averaged F1 performances results.

- The two best performing TDMs, "bgc" and "ngx", show similar performances for all classifier types. Results show a 0.0130 maximum performance difference between the classifiers, where the LSA classifier has the lowest performance for both TDM configurations.
- The two computationally simplest TDMs, "txx" and "bxx", indicate different classifier performances, with maximum classification performance differences among the four classifier configurations equal to 0.0116 and 0.0643 for both types, respectively. Results also show the LSA classifier has the lowest performance for both TDMs.
- The two worse performing TDMs, "lnx" and "lnc", are derived with the global factor selected as Normal. Results show performances vary as a function of the classifier type for the "lnc" TDM, results show that the LSA classifier outperform FVS-LDA classifiers. Results also show that the FVS-LDA classifier using a Gaussian kernel and a polynomial kernel

of degree 1 with a constant do not perform as well as the other classifiers for the "lnx" TDM configuration.

- The two worst performing TDMs configurations derived without the global factor equal to Normal are for configurations "tgx" and "bpx". Results indicate performance variations as a function of the classifier type. For the "tgx" TDM configuration, FVS-LDA classifiers outperform the LSA classifier. For the "bpx" TDM configuration, the FVS-LDA classifier derived using a polynomial kernel outperform both LSA and FVS-LDA with a Gaussian kernel classifiers.

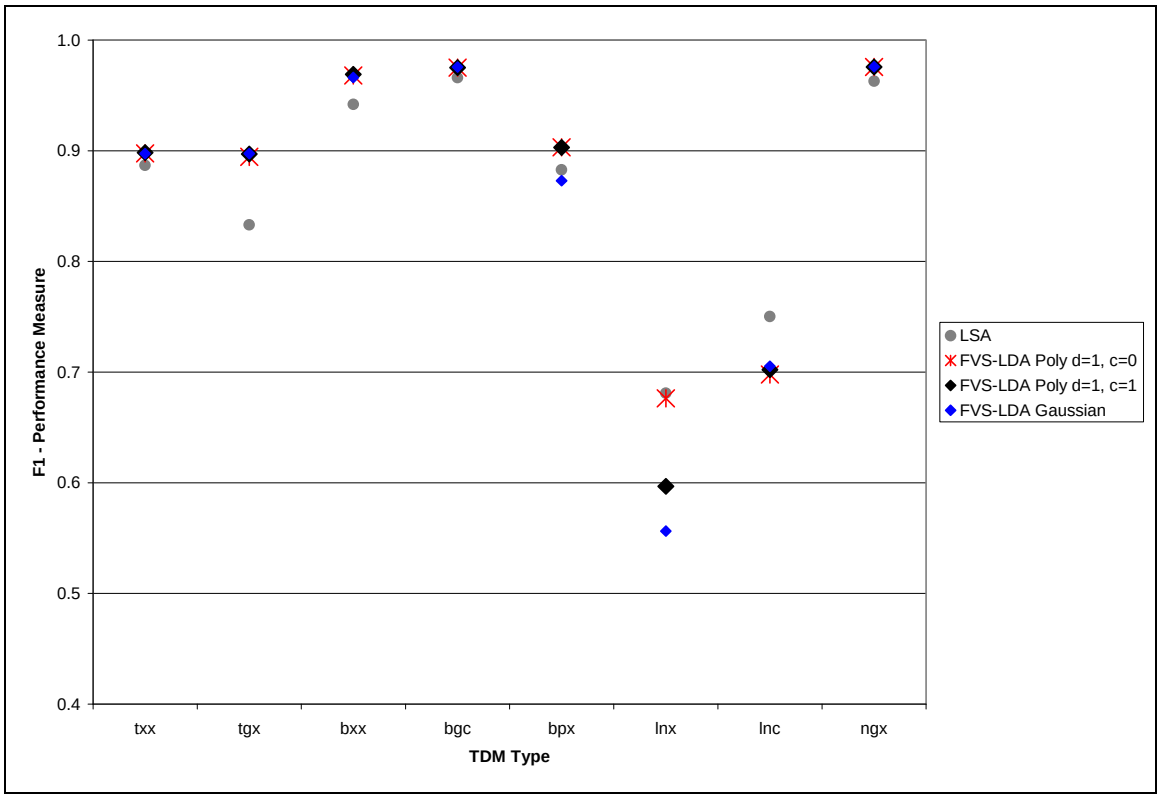

Figure 21. Micro-Averaged Results for Various Classifier with Selected TDMs.

3. Errors and Class Relationships

Figure 22 shows the error distribution obtained for the "bgc" TDM configuration and the FVS-LDA classifier with a polynomial kernel of degree 1, no added constant and 400 FVs. This specific feature configuration was selected as it is one of the best performing TDMs observed in the study. In Figure 22, element (*i*, *Sj*) represents the error rate obtained for class *i*, where the actual value noted at that element represents the

normalized percentage of documents of class *i* incorrectly assigned to class *j*. A total of 103 errors were collected from 10 random sets of 415 testing vectors, leading to a 2.48% overall error rate. Thirty one percent of the errors were from class 9 matched to class 5 and an additional thirty one percent were from class 10 matched to class 4. Eight percent of the errors were from class 1 matched to class 2. Seventy-five percent of the errors were between classes: 1 and 2, 4 and 10, 5 and 9. Most classification errors are directly linked to class similarities. The errors due to documents from classes 9 and 10 matched to classes 5 and 4 respectively are much greater than the errors due to documents from classes 5 and 4 matched to classes 9 and 10, respectively. This observation and the FVS-LDA classifier type imply that the discriminating features of classes 5 and 4 are more likely to be found in documents from classes 9 and 10, respectively.

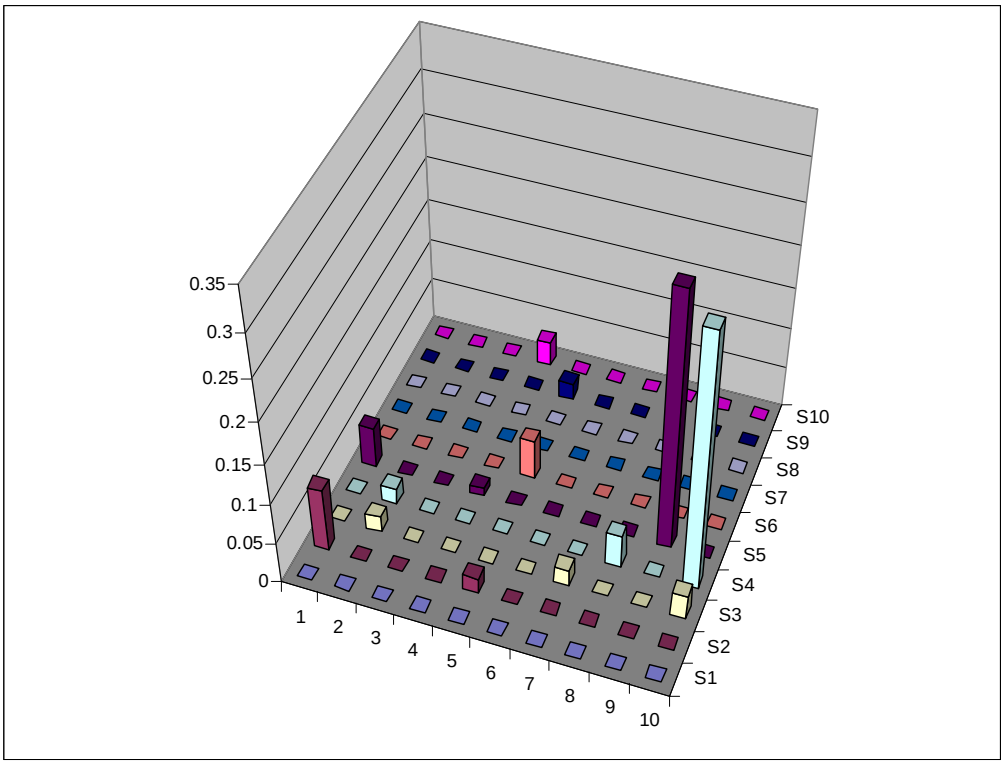

Figure 22. Classification Errors Distribution; "bgc" TDM Configuration, FVS-LDA Classifier with a Polynomial Kernel of Degree 1 with no Constant, 400 Reature Vectors.

Figure 23 shows the classification error distribution obtained for the "bgc" TDM configuration and the LSA classifier with 300 FVs. Results show a total of 141 errors

were collected from 10 random sets of 415 testing vectors, leading to a 3.40% overall error rate. Twenty-three percent of the errors were from class 1 matched to class 2. Twenty three percent of the errors were from class 10 matched to class 4. Twenty percent of the errors were from class 5 matched to class 9. Twelve percent of the errors were from class 2 matched to class 1. Eighty-four percent of the errors were between classes: 1 and 2, 4 and 10, 5 and 9. Most classification errors are directly linked to class similarities. In comparison to Figure 22, Figure 23 shows a large percentage of errors between classes 1 and 2. The 1st class contains terms "adaptive filter" and "LMS" while the 2nd class contains terms "adaptive filter" and "application". However, only documents without the term "LMS" were included in the 2nd class. The errors between classes 1 and 2 were introduced, due to the LSA classifier selecting the most representative features as opposed to the FVS-LDA classifier selecting the most discriminating features.

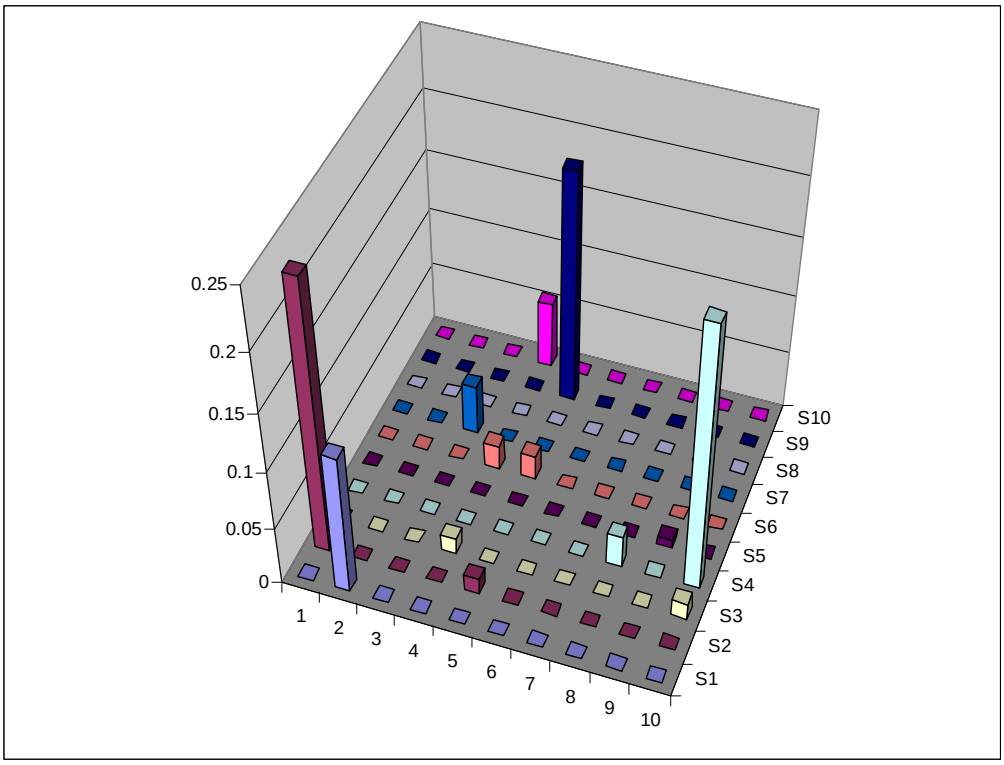

Figure 23. Classification Errors Distribution; "bgc" TDM Configuration, LSA Classifier, 300 Feature Vectors.

Figure 24 shows the classification errors distribution obtained for the "tgx" TDM configuration followed by the FVS-LDA classifier with a polynomial kernel of degree 1,

no added constant, and 400 FVs. This configuration was selected as it showed relatively good performance and was one of the simplest TDMs investigated. Results show a total of 438 errors were collected from 10 random sets of 415 testing vectors, leading to an overall error rate equal to 10.55%. Seventeen percent of the errors were from class 2 documents incorrectly assigned to class 1. Nine percent of the errors were from class 10 documents incorrectly assigned to class 4. Eight percent of the errors were from class 1 documents incorrectly assigned to class 2. Eight percent of the errors were from class 4 documents incorrectly assigned to class 10. Seven percent of the errors were from class 9 documents incorrectly assigned to class 5. Seven percent of the errors were from class 5 documents incorrectly assigned to class 9. Overall 56% of the errors were between classes: 1 and 2, 4 and 10, 5 and 9. Most classification errors are directly linked to class similarities. The "tgx" TDM in comparison to the "bgc" TDM has more than doubled the amount of errors and it is no longer clear that the errors are directly linked to classifier type.

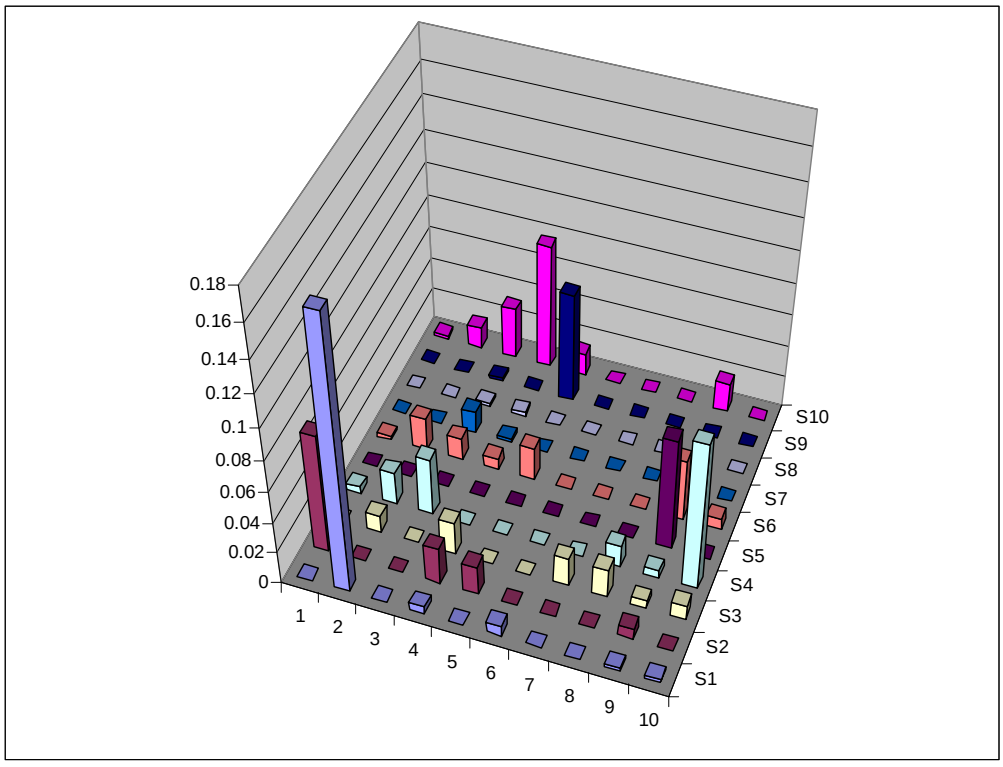

Figure 24. Classification Errors Distribution; "tgx" TDM Configuration, FVS-LDA Classifier with a Polynomial Kernel of Degree 1 with no Constant, 400 Feature Vectors.

Figure 25 shows the errors distribution obtained for the "tgx" TDM configuration followed by the LSA classifier with 300 FVs. This configuration was selected as it showed relatively good performances and was one of the simplest TDMs to calculate. Results show a total of 693 errors from 10 random sets of 415 testing vectors, representing a 16.70% overall error rate. Twenty two percent of the errors were from class 2 documents incorrectly assigned to class 1. Sixteen percent of the errors were from class 4 documents incorrectly assigned to class 10. Twelve percent of the errors were from class 1 documents incorrectly assigned to class 2. Eleven percent of the errors were from class 5 documents incorrectly assigned to class 9. Overall, 66% of the errors were between classes: 1 and 2, 4 and 10, 5 and 9. Most classification errors are directly linked to class similarities. The "tgx" TDM in comparison to the "bgc" TDM has more than doubled the amount of errors and it is no longer clear that the errors are directly linked to classifier type.

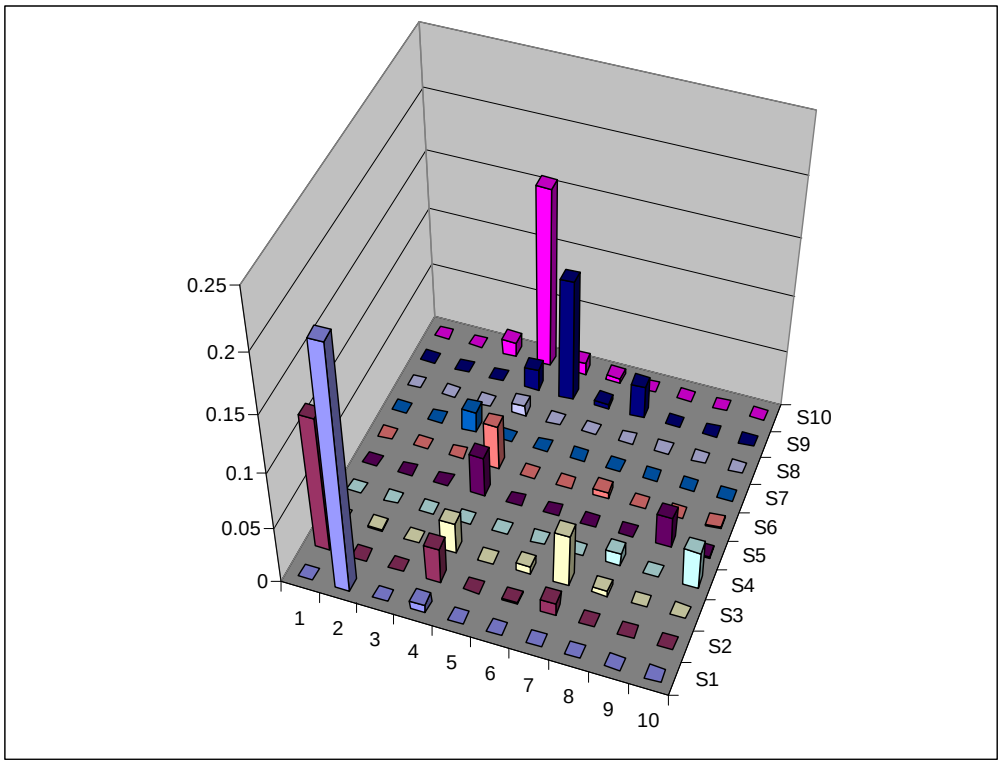

Figure 25. Classification Errors Distribution; "tgx" TDM Configuration, LSA Classifier, 300 Feature Vectors.

Most classification errors are directly linked to class similarities. The manifestation of these errors was very distinct when compared between the LSA and FVS-LDA classifiers and using the "bgc" TDM. This difference was because the LDA method was designed to extract the most discriminating features, unlike the LSA that selects the most representative ones. It may be possible when using a well chosen TDM type to increase classification performance with a hybrid classifier which uses both a LSA and FVS-LDA method to classify and decides between the two methods. In addition, it may be possible to decide between the two methods by employing different vector distance measures.

4. Computation Time Comparisons

Figure 26 plots the computation time to run 4 of the classifiers as a function of the number of FVs selected. The classifier configurations considered are: LSA with 300 FVs, FVS-LDA with a polynomial kernel of degree 1 without an added constant with 400 FVs, FVS-LDA with a polynomial kernel of degree 1 with a added constant with 400 FVs, and FVS-LDA with a Gaussian kernel and σ equal to 264.58 with 400 FVs. Timing results include generating the classifiers, applying the classifier to the testing data, and computing associated classification results. Results show the computation time is significantly lower for the FVS-LDA with a polynomial kernel of degree 1 with an added constant of 1 and the Gaussian kernel than that required for other classifier configurations. Timing results for the FVS-LDA with a polynomial kernel less than 1 with an added constant of 1 were similar to those of the FVS-LDA with a polynomial kernel of degree 1 with an added constant of 1.

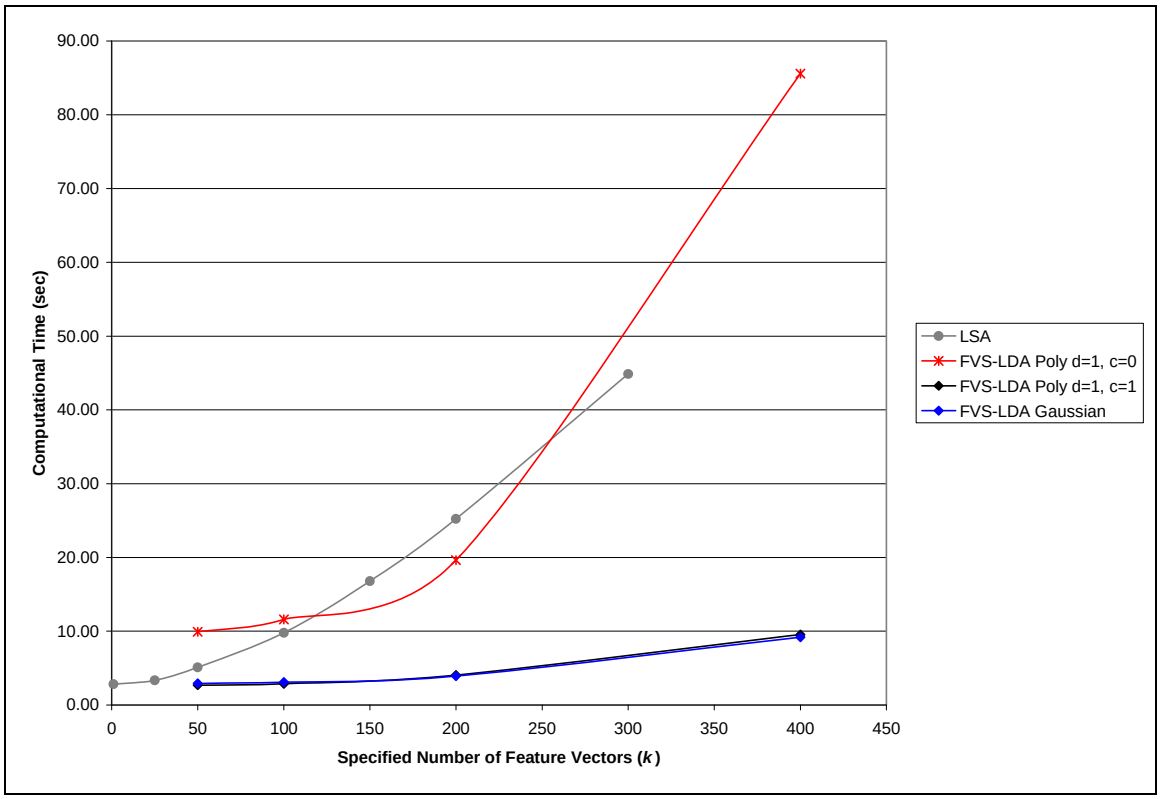

Figure 26. Computation Time for Various Classifiers.

V. CONCLUSIONS

In 2004 Domboulas [9] investigated whether nonlinear kernel-based classifiers may improve overall classification rates over those obtained with linear classification schemes for infrared imaging face recognition applications. The specific nonlinear kernel–based classifier considered in that study was the Generalized Discriminant Analysis (GDA) approach. Results showed that the GDA approach lead to better classification performances than those obtained with the linear classifiers considered on the image database selected. Alexandropoulos later investigated a GDA approximation which is based on a Feature Vector Selection (FVS) data selection process [5], [7]. Results showed that the FVS scheme followed by the Linear Discriminant Analysis (LDA) scheme can achieve performances similar to those obtained with the GDA method at a much reduced computational cost. This study applies the FVS-LDA approach to the field of text categorization and compares results to those obtained using the Latent Semantic Analysis (LSA) Approach commonly used in text classification/categorization applications.

The text database considered in this study was limited to electrical engineering journal article abstracts and titles from IEEE periodicals with publications dates between 1990 and 1999. Ten categories were developed; some were specifically chosen to lead to texts with similar topics while others were selected to lead to very distinct subjects. A total of 1026 unique documents containing both article title and abstract were collected, however three of these documents were found in two classes.

One of the first steps in the text categorization process is the creation of the term-document matrix (TDM) which contains features used for the categorization task. The collection of documents that makes up the text database gets converted to the TDM where each column j corresponded to a specific document and each row i corresponds to a term found in the collection of documents. Thus, each TDM element α_{ij}, where i and j are the row and column index respectively, represents the relevance of a specific word i in document j. Sixty different TDMs were explored in this study.

The classifier algorithms considered in the study are; LSA, GDA with a FVS processing step and one of two kernels. The two kernels considered are Gaussian and polynomial of various degrees and either an additive constant equal to one or no constant added. Polynomial kernels of degree greater than one were considered but gave worse results, and are not included in this document. Note that the GDA classifier with a polynomial kernel of degree one and no added constant reverts back to the classic LDA implementation.

A. RESULTS

Classifier performances were compared by selecting eight different TDM types among the 60 considered in this study. The selected TDMs were those leading to both best and worse macro-averaged and micro-averaged *F1* performances obtained with the LSA classifier and 300 feature vectors (FVs). The eight TDMs types chosen to compare classifier performances are: “bgc”, “ngx”, “txx”, “bxx”, “lnx”, “lnc”, “tgx”, “bpx”, as discussed in Chapter IV, Section E.1. TDM configurations “bgc” and “ngx” were chosen because they consistently lead to the best LSA classifier performances. TDM configurations “txx” and “bxx” were selected as they were the computationally simplest among those considered and also showed relatively good performance results. TDM configurations “lnx”, “lnc”, “tgx”, and “bpx” where selected due to their relatively poor performance results.

Results showed:

- The two TDMs configurations that showed the best LSA classifier performances (bgc and ngx) and the two TDMs configurations that showed relatively good performances (txx and bxx) lead to similar classification performances for the classifier types considered, as the maximum classification difference is only 0.0149. Among all classifiers tested, the lowest performance is obtained with the LSA classifier.
- The four TDMs configurations that showed poor performances (lnx, lnc, tgx, and bpx) lead to different performance as a function of the classifier type, i.e., results were not consistent.
- Most classification errors are directly linked to class similarities. The manifestation of these errors was very distinct when comparing LSA and FVS-LDA classifiers and using the “bgc” TDM. This difference may be

directly linked to the different criterion used in each classifier; LDA designed to extract the most discriminating features, while LSA selects the most representative ones. Note that it may be possible to increase classification performance for a well selected TDM type with a hybrid classifier based both on LSA and FVS-LDA methods. Further, different vector distance measures may also contribute to increased performances.

- Timing results indicate the computational loads associated with the FVS-LDA with a polynomial kernel and a added constant and the FVS-LDA with a Gaussian kernel are significantly lower than those for the other configurations considered.

Overall, taking into account both classification performance and timing issues, results showed the FVS-LDA with a polynomial kernel of degree 1 and an added constant of 1 is the best classifier for the database considered.

B. RECOMMENDATIONS AND FUTURE WORK

It is recommended to extend this study to traditionally used test classification datasets to get a better estimation of the FVS approach performances. Several datasets are available for download online at [1] and [4]. It is also recommended that additional classifiers be evaluated.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A. EXPERIMENTAL RESULTS

Common metrics used in text categorization evaluation studies include precision, recall, accuracy, error rate, and the F1 measure. *Precision* is defined as the fraction of retrieved documents that are relevant. *Recall* is defined as the fraction of relevant documents that are retrieved. *Accuracy* and *error* rates give the percentage of documents correctly and incorrectly classified respectively. *F1* is a single measure which trades off precision versus recall and is the weighted harmonic mean of the two parameters. *F1* equally weights both *precision* and *recall*. These metrics are defined in Equations (2.14) through (2.18). *Precision* and *F1* metrics are more commonly used than *accuracy* and *error* measures in text categorization evaluations.

In multi-label classification, the simplest method for computing an aggregate score across classes is to average the scores of all binary task. The resulting scores are called macro-averaged metrics. Another approach to averaging is first to sum over true positive (TP), true negative (TN), false positive (FP), and false negative (FN) over all classes, and then to compute each of the metrics, where TP, TN, and FP, and FN were defined previously in Chapter II, Section C. The resulting scores are called micro-averaged. These two approaches are both informative and complementary to each other by measuring performance differently. Macro-averaging gives an equal weight to each category, and is often dominated by the system's performance on smaller classes. Micro-averaging gives an equal weight to each document and is often dominated by the system's performance on larger classes. [3].

This Appendix presents macro-averaged and micro-averaged performance results for the classifier algorithms considered in the study; Latent Symantec Analysis (LSA), Generalized Discriminant Analysis (GDA) with a feature vector selection (FVS) processing step and one of two kernels. The two kernels considered are Gaussian and polynomial of various degrees and either a constant one added or no constant added. Polynomial kernels of degree greater than one were considered but gave worse results, and are not included in this document. Note that the GDA classifier with a polynomial

kernel of degree one and no added constant reverts back to the classic Linear Discriminant Analysis (LDA) implementation.

Accuracy, error, precision, recall, and *F1* values for 32 of the 59 experiments conducted in the study are found in this Appendix. Twenty four of the experiments not included were six of the seven Feature Vector Selection (FVS) experiments derived with a Gaussian kernel, the one included yielded the best macro-averaged and micro-averaged *F1* performance result when values for all TDMs were averaged. Three experiments with a polynomial kernel of degree 0.3 and no added constant with 100, 200, and 400 feature vectors (FVs) were not included because the results were identical to the results with 50 FVs. The results for a polynomial kernel of degree 0.3 and no added constant did not vary by feature vector because the FVS step did not yield more than 50 independent FVs.

The construction of a TDM was discussed earlier in Chapter II, Section B. Table 5 lists the TDM index key which associates a specific TDM feature vector configuration to a specific numerical index used on the figures and tables included in this document.

TDM\Index	TDM\Index	TDM\Index	TDM\Index	TDM\Index
txx \ 1	bxx \ 13	lxx \ 25	axx \ 37	nxx \ 49
txc \ 2	bxc \ 14	lxc \ 26	axc \ 38	nxc \ 50
tex \ 3	bex \ 15	lex \ 27	aex \ 39	nex \ 51
tec \ 4	bec \ 16	lec \ 28	aec \ 40	nec \ 52
tfx \ 5	bfx \ 17	lfx \ 29	afx \ 41	nfx \ 53
tfc \ 6	bfc \ 18	lfc \ 30	afc \ 42	nfc \ 54
tgx \ 7	bgx \ 19	lgx \ 31	agx \ 43	ngx \ 55
tgc \ 8	bgc \ 20	lgc \ 32	agc \ 44	ngc \ 56
tnx \ 9	bnx \ 21	lnx \ 33	anx \ 45	nnx \ 57
tnc \ 10	bnc \ 22	lnc \ 34	anc \ 46	nnc \ 58
tpx \ 11	bpx \ 23	lpx \ 35	apx \ 47	npx \ 59
tpc \ 12	bpc \ 24	lpc \ 36	apc \ 48	npc \ 60

Table 5. TDM Label and Plotting Index Key List.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.21576	0.00038	0.24838	0.00022	0.84819	0.00001	0.15181	0.00001	0.21085	0.00027
2	0.24728	0.00037	0.27341	0.00012	0.85219	0.00001	0.14781	0.00001	0.24498	0.00027
3	0.16079	0.00043	0.19200	0.00028	0.83976	0.00001	0.16024	0.00001	0.14994	0.00029
4	0.17154	0.00057	0.20051	0.00050	0.83470	0.00001	0.16530	0.00001	0.16116	0.00029
5	0.14842	0.00054	0.17981	0.00022	0.83730	0.00001	0.16270	0.00001	0.13301	0.00014
6	0.15333	0.00041	0.19001	0.00036	0.83099	0.00001	0.16901	0.00001	0.14403	0.00023
7	0.24771	0.00052	0.25510	0.00026	0.84949	0.00002	0.15051	0.00002	0.22935	0.00026
8	0.28021	0.00027	0.31075	0.00026	0.85827	0.00001	0.14173	0.00001	0.27693	0.00030
9	0.13932	0.00063	0.15251	0.00022	0.83133	0.00001	0.16867	0.00001	0.10716	0.00025
10	0.14343	0.00262	0.15715	0.00029	0.82352	0.00001	0.17648	0.00001	0.08603	0.00018
11	0.13860	0.00055	0.16273	0.00015	0.83364	0.00001	0.16636	0.00001	0.11289	0.00006
12	0.14405	0.00127	0.17864	0.00021	0.82920	0.00001	0.17080	0.00001	0.12068	0.00021
13	0.14132	0.00065	0.17792	0.00055	0.83586	0.00002	0.16414	0.00002	0.12937	0.00036
14	0.16492	0.00025	0.19533	0.00034	0.83995	0.00002	0.16005	0.00002	0.16054	0.00038
15	0.12842	0.00106	0.15317	0.00008	0.83219	0.00000	0.16781	0.00000	0.10441	0.00004
16	0.11434	0.00044	0.16597	0.00031	0.82665	0.00001	0.17335	0.00001	0.10040	0.00011
17	0.11018	0.00132	0.14923	0.00013	0.83142	0.00001	0.16858	0.00001	0.09830	0.00010
18	0.11146	0.00046	0.16456	0.00017	0.82588	0.00000	0.17412	0.00000	0.09315	0.00004
19	0.19711	0.00049	0.22643	0.00011	0.84463	0.00001	0.15537	0.00001	0.18976	0.00019
20	0.23501	0.00062	0.26785	0.00043	0.84978	0.00002	0.15022	0.00002	0.23180	0.00042
21	0.12300	0.00076	0.14355	0.00019	0.82892	0.00001	0.17108	0.00001	0.09714	0.00025
22	0.11912	0.00055	0.15032	0.00012	0.82159	0.00000	0.17841	0.00000	0.08255	0.00006
23	0.11752	0.00028	0.14776	0.00013	0.83128	0.00001	0.16872	0.00001	0.10129	0.00006
24	0.11211	0.00095	0.16629	0.00016	0.82646	0.00001	0.17354	0.00001	0.09174	0.00012
25	0.18612	0.00023	0.21590	0.00008	0.84255	0.00001	0.15745	0.00001	0.17245	0.00009
26	0.21002	0.00033	0.23975	0.00021	0.84636	0.00001	0.15364	0.00001	0.20974	0.00028
27	0.13903	0.00123	0.16606	0.00015	0.83528	0.00001	0.16472	0.00001	0.12115	0.00019
28	0.12671	0.00027	0.17385	0.00043	0.82810	0.00001	0.17190	0.00001	0.11943	0.00022
29	0.12449	0.00021	0.15719	0.00017	0.83349	0.00001	0.16651	0.00001	0.10854	0.00008
30	0.13951	0.00113	0.18198	0.00034	0.82916	0.00001	0.17084	0.00001	0.11780	0.00014
31	0.24445	0.00058	0.27520	0.00043	0.85272	0.00002	0.14728	0.00002	0.24087	0.00042
32	0.25841	0.00048	0.28343	0.00039	0.85306	0.00001	0.14694	0.00001	0.25260	0.00030
33	0.14167	0.00067	0.15507	0.00031	0.83123	0.00001	0.16877	0.00001	0.10984	0.00031
34	0.11142	0.00076	0.15219	0.00010	0.82246	0.00000	0.17754	0.00000	0.08150	0.00010
35	0.12570	0.00052	0.15198	0.00019	0.83195	0.00001	0.16805	0.00001	0.10519	0.00009
36	0.12477	0.00104	0.17363	0.00030	0.82718	0.00001	0.17282	0.00001	0.09807	0.00019
37	0.17629	0.00068	0.21689	0.00019	0.84294	0.00001	0.15706	0.00001	0.17404	0.00025
38	0.22874	0.00022	0.25101	0.00023	0.84829	0.00001	0.15171	0.00001	0.22308	0.00025
39	0.14053	0.00051	0.16525	0.00017	0.83470	0.00001	0.16530	0.00001	0.12432	0.00016
40	0.13486	0.00032	0.17447	0.00051	0.82877	0.00001	0.17123	0.00001	0.12710	0.00021
41	0.12739	0.00052	0.15931	0.00020	0.83282	0.00001	0.16718	0.00001	0.11255	0.00020
42	0.14730	0.00081	0.18921	0.00079	0.83051	0.00003	0.16949	0.00003	0.12909	0.00052
43	0.24028	0.00045	0.27166	0.00016	0.85190	0.00001	0.14810	0.00001	0.23699	0.00019
44	0.26043	0.00045	0.29127	0.00037	0.85393	0.00001	0.14607	0.00001	0.25731	0.00037
45	0.13386	0.00027	0.14992	0.00016	0.82998	0.00001	0.17002	0.00001	0.10231	0.00017
46	0.10923	0.00216	0.15388	0.00032	0.82270	0.00001	0.17730	0.00001	0.08275	0.00029
47	0.13296	0.00148	0.14727	0.00035	0.82969	0.00003	0.17031	0.00003	0.10365	0.00037
48	0.12188	0.00055	0.17572	0.00031	0.82723	0.00001	0.17277	0.00001	0.10379	0.00014
49	0.15406	0.00053	0.18841	0.00042	0.83807	0.00002	0.16193	0.00002	0.14472	0.00031
50	0.17509	0.00051	0.20756	0.00024	0.84202	0.00001	0.15798	0.00001	0.17356	0.00039
51	0.12809	0.00082	0.15036	0.00016	0.82988	0.00001	0.17012	0.00001	0.10096	0.00009
52	0.12002	0.00057	0.17855	0.00040	0.82892	0.00001	0.17108	0.00001	0.11312	0.00020
53	0.12280	0.00129	0.14717	0.00022	0.82964	0.00001	0.17036	0.00001	0.09925	0.00016
54	0.11579	0.00082	0.17272	0.00019	0.82728	0.00001	0.17272	0.00001	0.10096	0.00014
55	0.20580	0.00074	0.24316	0.00047	0.84607	0.00002	0.15393	0.00002	0.20472	0.00048
56	0.25410	0.00038	0.27902	0.00007	0.85219	0.00001	0.14781	0.00001	0.24582	0.00014
57	0.12534	0.00103	0.15410	0.00031	0.83031	0.00001	0.16969	0.00001	0.10438	0.00038
58	0.12402	0.00121	0.15023	0.00025	0.82173	0.00001	0.17827	0.00001	0.08319	0.00013
59	0.12225	0.00102	0.14652	0.00033	0.83041	0.00002	0.16959	0.00002	0.10412	0.00036
60	0.12070	0.00067	0.17445	0.00026	0.82805	0.00002	0.17195	0.00002	0.09740	0.00028

Table 6. Macro Averaged Performance Measurements for the LSA Classifier with 1 Feature Vector.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.83806	0.00028	0.84674	0.00051	0.96954	0.00002	0.03046	0.00002	0.83341	0.00047
2	0.85711	0.00047	0.87337	0.00047	0.97460	0.00001	0.02540	0.00001	0.85941	0.00048
3	0.83114	0.00024	0.81751	0.00035	0.96549	0.00002	0.03451	0.00002	0.81136	0.00044
4	0.85635	0.00018	0.85260	0.00044	0.97128	0.00001	0.02872	0.00001	0.84450	0.00031
5	0.83308	0.00032	0.81346	0.00058	0.96506	0.00003	0.03494	0.00003	0.80846	0.00066
6	0.86000	0.00018	0.85498	0.00039	0.97181	0.00001	0.02819	0.00001	0.84736	0.00031
7	0.79405	0.00042	0.79543	0.00041	0.95952	0.00001	0.04048	0.00001	0.78190	0.00038
8	0.82668	0.00043	0.84442	0.00045	0.96872	0.00002	0.03128	0.00002	0.82857	0.00053
9	0.57779	0.00899	0.34204	0.00084	0.87735	0.00010	0.12265	0.00010	0.30894	0.00140
10	0.78698	0.00057	0.72215	0.00097	0.94660	0.00002	0.05340	0.00002	0.71714	0.00077
11	0.81968	0.00027	0.79222	0.00058	0.96145	0.00002	0.03855	0.00002	0.78877	0.00061
12	0.85262	0.00020	0.84413	0.00055	0.96969	0.00001	0.03031	0.00001	0.83725	0.00041
13	0.89935	0.00017	0.90228	0.00011	0.98231	0.00000	0.01769	0.00000	0.89950	0.00013
14	0.90990	0.00009	0.91443	0.00005	0.98414	0.00000	0.01586	0.00000	0.91088	0.00007
15	0.85075	0.00015	0.84040	0.00034	0.97084	0.00001	0.02916	0.00001	0.83942	0.00030
16	0.85902	0.00015	0.85742	0.00034	0.97340	0.00001	0.02660	0.00001	0.85390	0.00028
17	0.84259	0.00017	0.82718	0.00042	0.96839	0.00001	0.03161	0.00001	0.82676	0.00035
18	0.85403	0.00011	0.85197	0.00029	0.97224	0.00001	0.02776	0.00001	0.84793	0.00022
19	0.93300	0.00019	0.92951	0.00010	0.98781	0.00001	0.01219	0.00001	0.92983	0.00014
20	0.93470	0.00016	0.93356	0.00014	0.98834	0.00001	0.01166	0.00001	0.93302	0.00014
21	0.31319	0.00628	0.17540	0.00034	0.83658	0.00002	0.16342	0.00002	0.12632	0.00049
22	0.67575	0.00140	0.58471	0.00163	0.91933	0.00004	0.08067	0.00004	0.57879	0.00151
23	0.83131	0.00015	0.80790	0.00060	0.96516	0.00001	0.03484	0.00001	0.80873	0.00044
24	0.84108	0.00011	0.83564	0.00034	0.96867	0.00001	0.03133	0.00001	0.83098	0.00027
25	0.90535	0.00017	0.91070	0.00012	0.98284	0.00001	0.01716	0.00001	0.90490	0.00016
26	0.91177	0.00014	0.91848	0.00015	0.98429	0.00000	0.01571	0.00000	0.91248	0.00015
27	0.86506	0.00016	0.85861	0.00037	0.97349	0.00001	0.02651	0.00001	0.85519	0.00034
28	0.87632	0.00009	0.87787	0.00022	0.97667	0.00000	0.02333	0.00000	0.87236	0.00016
29	0.85956	0.00018	0.84781	0.00046	0.97210	0.00001	0.02790	0.00001	0.84614	0.00039
30	0.87150	0.00009	0.87243	0.00025	0.97552	0.00001	0.02448	0.00001	0.86667	0.00021
31	0.88988	0.00011	0.89631	0.00010	0.97986	0.00000	0.02014	0.00000	0.88973	0.00012
32	0.90094	0.00026	0.90599	0.00019	0.98207	0.00001	0.01793	0.00001	0.90092	0.00022
33	0.40294	0.00999	0.21567	0.00059	0.84665	0.00003	0.15335	0.00003	0.17999	0.00098
34	0.74447	0.00089	0.67118	0.00153	0.93614	0.00005	0.06386	0.00005	0.66471	0.00128
35	0.84880	0.00014	0.82815	0.00046	0.96882	0.00001	0.03118	0.00001	0.82809	0.00036
36	0.85920	0.00012	0.85701	0.00029	0.97234	0.00001	0.02766	0.00001	0.85091	0.00024
37	0.89526	0.00021	0.90396	0.00015	0.98145	0.00001	0.01855	0.00001	0.89593	0.00020
38	0.90332	0.00021	0.91202	0.00018	0.98289	0.00001	0.01711	0.00001	0.90440	0.00019
39	0.86455	0.00013	0.85750	0.00030	0.97335	0.00001	0.02665	0.00001	0.85402	0.00030
40	0.87715	0.00011	0.87797	0.00025	0.97658	0.00001	0.02342	0.00001	0.87202	0.00019
41	0.86042	0.00013	0.84793	0.00034	0.97205	0.00001	0.02795	0.00001	0.84606	0.00033
42	0.86984	0.00011	0.86946	0.00027	0.97484	0.00001	0.02516	0.00001	0.86349	0.00024
43	0.87340	0.00008	0.88210	0.00007	0.97711	0.00000	0.02289	0.00000	0.87393	0.00008
44	0.88079	0.00029	0.89163	0.00022	0.97904	0.00001	0.02096	0.00001	0.88297	0.00024
45	0.51179	0.00812	0.25696	0.00133	0.85566	0.00005	0.14434	0.00005	0.22819	0.00189
46	0.76522	0.00113	0.69450	0.00060	0.94043	0.00003	0.05957	0.00003	0.68756	0.00075
47	0.84792	0.00012	0.82600	0.00044	0.96839	0.00002	0.03161	0.00002	0.82609	0.00039
48	0.85799	0.00006	0.85416	0.00029	0.97176	0.00001	0.02824	0.00001	0.84795	0.00023
49	0.91351	0.00018	0.91622	0.00016	0.98463	0.00001	0.01537	0.00001	0.91332	0.00016
50	0.91769	0.00009	0.92112	0.00008	0.98525	0.00000	0.01475	0.00000	0.91744	0.00009
51	0.85550	0.00021	0.85042	0.00035	0.97258	0.00001	0.02742	0.00001	0.84842	0.00031
52	0.87027	0.00013	0.87066	0.00027	0.97571	0.00001	0.02429	0.00001	0.86662	0.00022
53	0.85061	0.00011	0.84358	0.00024	0.97147	0.00001	0.02853	0.00001	0.84158	0.00022
54	0.86566	0.00010	0.86563	0.00023	0.97465	0.00001	0.02535	0.00001	0.86133	0.00019
55	0.92256	0.00024	0.92131	0.00018	0.98598	0.00001	0.01402	0.00001	0.92057	0.00022
56	0.92645	0.00020	0.92693	0.00018	0.98680	0.00001	0.01320	0.00001	0.92543	0.00019
57	0.28287	0.00833	0.17621	0.00040	0.83740	0.00002	0.16260	0.00002	0.12761	0.00053
58	0.69948	0.00123	0.62232	0.00217	0.92651	0.00005	0.07349	0.00005	0.61494	0.00169
59	0.84252	0.00013	0.83292	0.00027	0.96911	0.00001	0.03089	0.00001	0.83082	0.00025
60	0.85439	0.00008	0.85156	0.00026	0.97161	0.00001	0.02839	0.00001	0.84645	0.00023

Table 7. Macro Averaged Performance Measurements for the LSA Classifier with 25 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.85989	0.00037	0.87155	0.00042	0.97412	0.00002	0.02588	0.00002	0.85857	0.00045
2	0.87529	0.00040	0.89095	0.00040	0.97773	0.00001	0.02227	0.00001	0.87765	0.00041
3	0.84424	0.00018	0.83381	0.00031	0.96930	0.00002	0.03070	0.00002	0.82978	0.00036
4	0.86549	0.00026	0.86553	0.00046	0.97383	0.00001	0.02617	0.00001	0.85764	0.00040
5	0.84185	0.00019	0.82550	0.00038	0.96834	0.00002	0.03166	0.00002	0.82361	0.00042
6	0.86647	0.00029	0.86450	0.00047	0.97388	0.00002	0.02612	0.00002	0.85747	0.00045
7	0.80758	0.00021	0.81009	0.00023	0.96270	0.00001	0.03730	0.00001	0.79744	0.00020
8	0.85230	0.00032	0.86874	0.00035	0.97335	0.00002	0.02665	0.00002	0.85398	0.00038
9	0.74330	0.00357	0.52354	0.00061	0.92231	0.00006	0.07769	0.00006	0.52248	0.00060
10	0.81025	0.00019	0.74997	0.00102	0.95624	0.00002	0.04376	0.00002	0.75775	0.00099
11	0.83521	0.00008	0.80976	0.00023	0.96627	0.00001	0.03373	0.00001	0.81087	0.00025
12	0.86311	0.00016	0.85918	0.00043	0.97306	0.00001	0.02694	0.00001	0.85318	0.00036
13	0.91922	0.00007	0.92201	0.00007	0.98569	0.00000	0.01431	0.00000	0.91955	0.00007
14	0.92207	0.00007	0.92566	0.00005	0.98622	0.00000	0.01378	0.00000	0.92275	0.00006
15	0.85640	0.00029	0.84528	0.00044	0.97263	0.00002	0.02737	0.00002	0.84637	0.00041
16	0.87414	0.00018	0.87227	0.00022	0.97672	0.00001	0.02328	0.00001	0.87066	0.00022
17	0.84616	0.00021	0.82998	0.00050	0.97002	0.00001	0.02998	0.00001	0.83253	0.00042
18	0.86935	0.00025	0.86637	0.00036	0.97557	0.00001	0.02443	0.00001	0.86499	0.00034
19	0.94524	0.00014	0.94085	0.00008	0.98988	0.00000	0.01012	0.00000	0.94203	0.00010
20	0.94795	0.00013	0.94256	0.00013	0.99036	0.00000	0.00964	0.00000	0.94405	0.00013
21	0.42651	0.00369	0.19251	0.00035	0.84241	0.00002	0.15759	0.00002	0.15644	0.00065
22	0.70823	0.00089	0.61264	0.00116	0.93080	0.00003	0.06920	0.00003	0.62313	0.00138
23	0.83707	0.00016	0.81390	0.00050	0.96723	0.00001	0.03277	0.00001	0.81758	0.00039
24	0.85687	0.00017	0.85136	0.00037	0.97272	0.00001	0.02728	0.00001	0.84979	0.00032
25	0.91735	0.00008	0.92167	0.00008	0.98506	0.00000	0.01494	0.00000	0.91689	0.00009
26	0.92685	0.00013	0.93167	0.00016	0.98684	0.00001	0.01316	0.00001	0.92700	0.00015
27	0.86502	0.00016	0.85911	0.00024	0.97431	0.00001	0.02569	0.00001	0.85752	0.00022
28	0.88687	0.00017	0.88796	0.00029	0.97908	0.00001	0.02092	0.00001	0.88409	0.00025
29	0.86108	0.00018	0.84986	0.00031	0.97316	0.00001	0.02684	0.00001	0.84976	0.00030
30	0.88323	0.00014	0.88333	0.00027	0.97836	0.00001	0.02164	0.00001	0.87981	0.00022
31	0.89907	0.00008	0.90437	0.00005	0.98169	0.00000	0.01831	0.00000	0.89909	0.00006
32	0.91573	0.00026	0.92083	0.00026	0.98482	0.00001	0.01518	0.00001	0.91621	0.00026
33	0.56673	0.00289	0.34766	0.00225	0.88072	0.00015	0.11928	0.00015	0.31549	0.00263
34	0.77786	0.00070	0.70321	0.00147	0.94766	0.00004	0.05234	0.00004	0.71250	0.00136
35	0.84895	0.00015	0.82947	0.00029	0.96993	0.00001	0.03007	0.00001	0.83132	0.00025
36	0.86984	0.00022	0.86890	0.00042	0.97552	0.00001	0.02448	0.00001	0.86509	0.00035
37	0.90784	0.00007	0.91567	0.00006	0.98371	0.00000	0.01629	0.00000	0.90890	0.00007
38	0.91678	0.00012	0.92500	0.00012	0.98535	0.00000	0.01465	0.00000	0.91807	0.00011
39	0.86535	0.00017	0.85909	0.00025	0.97412	0.00001	0.02588	0.00001	0.85671	0.00023
40	0.88529	0.00026	0.88709	0.00046	0.97855	0.00001	0.02145	0.00001	0.88190	0.00039
41	0.85939	0.00019	0.84964	0.00027	0.97272	0.00001	0.02728	0.00001	0.84842	0.00027
42	0.87952	0.00017	0.88033	0.00034	0.97754	0.00001	0.02246	0.00001	0.87585	0.00027
43	0.88509	0.00010	0.89063	0.00007	0.97904	0.00000	0.02096	0.00000	0.88442	0.00009
44	0.90308	0.00025	0.91034	0.00021	0.98255	0.00001	0.01745	0.00001	0.90397	0.00021
45	0.67734	0.00493	0.45127	0.00124	0.90670	0.00005	0.09330	0.00005	0.43905	0.00219
46	0.79621	0.00035	0.72834	0.00114	0.95253	0.00003	0.04747	0.00003	0.73569	0.00110
47	0.84821	0.00020	0.82524	0.00041	0.96920	0.00001	0.03080	0.00001	0.82743	0.00037
48	0.86851	0.00016	0.86748	0.00032	0.97494	0.00001	0.02506	0.00001	0.86258	0.00025
49	0.92662	0.00012	0.92877	0.00012	0.98699	0.00000	0.01301	0.00000	0.92631	0.00012
50	0.93519	0.00008	0.93722	0.00010	0.98839	0.00000	0.01161	0.00000	0.93472	0.00009
51	0.86521	0.00022	0.85860	0.00028	0.97484	0.00001	0.02516	0.00001	0.85868	0.00031
52	0.88405	0.00016	0.88371	0.00023	0.97894	0.00001	0.02106	0.00001	0.88197	0.00021
53	0.85979	0.00015	0.85065	0.00027	0.97354	0.00001	0.02646	0.00001	0.85095	0.00026
54	0.87627	0.00018	0.87541	0.00031	0.97725	0.00001	0.02275	0.00001	0.87340	0.00027
55	0.93932	0.00028	0.93775	0.00023	0.98892	0.00001	0.01108	0.00001	0.93741	0.00027
56	0.94223	0.00018	0.94180	0.00014	0.98954	0.00001	0.01046	0.00001	0.94107	0.00016
57	0.41879	0.00446	0.21889	0.00077	0.84964	0.00004	0.15036	0.00004	0.18025	0.00091
58	0.73745	0.00086	0.65079	0.00179	0.93783	0.00004	0.06217	0.00004	0.66078	0.00184
59	0.85026	0.00016	0.84006	0.00028	0.97123	0.00001	0.02877	0.00001	0.83992	0.00026
60	0.86540	0.00020	0.86329	0.00032	0.97484	0.00001	0.02516	0.00001	0.86085	0.00028

Table 8. Macro Averaged Performance Measurements for the LSA Classifier with 50 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.87148	0.00023	0.88218	0.00029	0.97629	0.00001	0.02371	0.00001	0.87054	0.00027
2	0.88409	0.00035	0.89862	0.00048	0.97928	0.00001	0.02072	0.00001	0.88686	0.00041
3	0.85982	0.00010	0.84923	0.00015	0.97258	0.00001	0.02742	0.00001	0.84749	0.00020
4	0.87294	0.00015	0.87471	0.00027	0.97566	0.00001	0.02434	0.00001	0.86733	0.00023
5	0.85758	0.00010	0.84218	0.00026	0.97214	0.00001	0.02786	0.00001	0.84229	0.00030
6	0.87441	0.00012	0.87441	0.00028	0.97605	0.00001	0.02395	0.00001	0.86841	0.00023
7	0.82189	0.00021	0.82439	0.00019	0.96545	0.00001	0.03455	0.00001	0.81263	0.00015
8	0.85746	0.00039	0.87295	0.00038	0.97417	0.00002	0.02583	0.00002	0.85912	0.00042
9	0.77417	0.00128	0.59959	0.00024	0.93937	0.00001	0.06063	0.00001	0.59777	0.00032
10	0.82269	0.00027	0.75850	0.00050	0.96063	0.00002	0.03937	0.00002	0.77361	0.00050
11	0.84673	0.00016	0.82480	0.00040	0.96964	0.00001	0.03036	0.00001	0.82743	0.00039
12	0.86952	0.00006	0.86547	0.00016	0.97504	0.00000	0.02496	0.00000	0.86151	0.00015
13	0.92493	0.00014	0.92649	0.00012	0.98655	0.00000	0.01345	0.00000	0.92464	0.00013
14	0.93159	0.00009	0.93207	0.00011	0.98761	0.00000	0.01239	0.00000	0.93082	0.00010
15	0.86330	0.00027	0.85288	0.00034	0.97484	0.00001	0.02516	0.00001	0.85516	0.00033
16	0.88490	0.00014	0.88149	0.00015	0.97899	0.00000	0.02101	0.00000	0.88151	0.00014
17	0.85603	0.00028	0.84116	0.00051	0.97301	0.00001	0.02699	0.00001	0.84462	0.00045
18	0.87888	0.00014	0.87404	0.00016	0.97778	0.00001	0.02222	0.00001	0.87477	0.00015
19	0.95676	0.00017	0.95041	0.00013	0.99171	0.00000	0.00829	0.00000	0.95237	0.00013
20	0.95729	0.00012	0.94995	0.00008	0.99171	0.00000	0.00829	0.00000	0.95211	0.00009
21	0.50751	0.00317	0.37913	0.00089	0.89108	0.00005	0.10892	0.00005	0.34079	0.00112
22	0.71863	0.00053	0.60477	0.00060	0.93412	0.00002	0.06588	0.00002	0.62554	0.00090
23	0.84438	0.00033	0.82308	0.00071	0.96988	0.00002	0.03012	0.00002	0.82799	0.00061
24	0.86891	0.00011	0.86245	0.00021	0.97571	0.00001	0.02429	0.00001	0.86309	0.00017
25	0.92886	0.00006	0.93274	0.00007	0.98713	0.00000	0.01287	0.00000	0.92857	0.00006
26	0.93292	0.00009	0.93646	0.00014	0.98795	0.00000	0.01205	0.00000	0.93264	0.00012
27	0.88205	0.00020	0.87769	0.00018	0.97812	0.00001	0.02188	0.00001	0.87752	0.00019
28	0.89864	0.00016	0.89943	0.00019	0.98145	0.00001	0.01855	0.00001	0.89690	0.00018
29	0.87493	0.00023	0.86679	0.00025	0.97653	0.00001	0.02347	0.00001	0.86759	0.00025
30	0.89201	0.00014	0.89206	0.00019	0.98024	0.00001	0.01976	0.00001	0.88975	0.00018
31	0.91321	0.00011	0.91964	0.00009	0.98424	0.00000	0.01576	0.00000	0.91375	0.00010
32	0.92512	0.00025	0.93009	0.00024	0.98655	0.00001	0.01345	0.00001	0.92596	0.00024
33	0.67290	0.00377	0.51997	0.00060	0.92439	0.00003	0.07561	0.00003	0.49906	0.00099
34	0.78936	0.00032	0.69970	0.00067	0.95094	0.00002	0.04906	0.00002	0.71843	0.00073
35	0.86162	0.00019	0.84526	0.00035	0.97340	0.00001	0.02660	0.00001	0.84804	0.00031
36	0.87963	0.00015	0.87809	0.00026	0.97788	0.00001	0.02212	0.00001	0.87596	0.00023
37	0.91906	0.00005	0.92474	0.00008	0.98554	0.00000	0.01446	0.00000	0.91937	0.00007
38	0.92408	0.00007	0.93031	0.00010	0.98651	0.00000	0.01349	0.00000	0.92498	0.00008
39	0.87910	0.00012	0.87505	0.00013	0.97759	0.00000	0.02241	0.00000	0.87416	0.00010
40	0.89664	0.00017	0.89905	0.00019	0.98096	0.00001	0.01904	0.00001	0.89500	0.00019
41	0.87159	0.00013	0.86322	0.00012	0.97586	0.00000	0.02414	0.00000	0.86368	0.00010
42	0.89154	0.00014	0.89273	0.00023	0.98005	0.00001	0.01995	0.00001	0.88952	0.00020
43	0.90167	0.00009	0.90912	0.00007	0.98198	0.00000	0.01802	0.00000	0.90196	0.00008
44	0.91206	0.00026	0.91933	0.00024	0.98410	0.00001	0.01590	0.00001	0.91319	0.00023
45	0.71192	0.00435	0.55321	0.00058	0.93157	0.00003	0.06843	0.00003	0.54153	0.00085
46	0.80814	0.00030	0.72770	0.00057	0.95590	0.00002	0.04410	0.00002	0.74496	0.00065
47	0.86101	0.00019	0.84477	0.00025	0.97311	0.00001	0.02689	0.00001	0.84683	0.00023
48	0.88090	0.00013	0.87977	0.00023	0.97778	0.00001	0.02222	0.00001	0.87683	0.00021
49	0.93263	0.00008	0.93368	0.00007	0.98795	0.00000	0.01205	0.00000	0.93189	0.00008
50	0.93981	0.00006	0.94118	0.00006	0.98925	0.00000	0.01075	0.00000	0.93930	0.00006
51	0.87786	0.00016	0.86979	0.00017	0.97773	0.00001	0.02227	0.00001	0.87184	0.00017
52	0.88952	0.00016	0.88749	0.00017	0.98005	0.00001	0.01995	0.00001	0.88707	0.00016
53	0.87340	0.00016	0.86358	0.00020	0.97677	0.00001	0.02323	0.00001	0.86605	0.00020
54	0.88373	0.00014	0.88100	0.00015	0.97884	0.00000	0.02116	0.00000	0.88058	0.00014
55	0.95124	0.00026	0.94860	0.00022	0.99099	0.00001	0.00901	0.00001	0.94916	0.00025
56	0.95435	0.00019	0.95179	0.00018	0.99147	0.00001	0.00853	0.00001	0.95206	0.00019
57	0.58350	0.00627	0.44731	0.00084	0.90786	0.00004	0.09214	0.00004	0.41910	0.00112
58	0.74194	0.00053	0.64065	0.00061	0.94082	0.00002	0.05918	0.00002	0.65964	0.00079
59	0.86159	0.00013	0.85147	0.00022	0.97422	0.00001	0.02578	0.00001	0.85327	0.00019
60	0.87592	0.00012	0.87296	0.00018	0.97730	0.00000	0.02270	0.00000	0.87227	0.00015

Table 9. Macro Averaged Performance Measurements for the LSA Classifier with 100 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.87416	0.00024	0.88321	0.00031	0.97663	0.00001	0.02337	0.00001	0.87219	0.00030
2	0.88512	0.00030	0.89946	0.00038	0.97947	0.00001	0.02053	0.00001	0.88809	0.00034
3	0.86871	0.00008	0.85716	0.00020	0.97451	0.00001	0.02549	0.00001	0.85701	0.00020
4	0.87922	0.00015	0.88102	0.00022	0.97706	0.00001	0.02294	0.00001	0.87489	0.00021
5	0.86809	0.00009	0.85324	0.00019	0.97446	0.00001	0.02554	0.00001	0.85460	0.00020
6	0.87999	0.00015	0.87974	0.00034	0.97725	0.00001	0.02275	0.00001	0.87443	0.00031
7	0.82595	0.00020	0.82787	0.00019	0.96617	0.00001	0.03383	0.00001	0.81660	0.00017
8	0.85965	0.00043	0.87415	0.00044	0.97451	0.00002	0.02549	0.00002	0.86086	0.00048
9	0.78780	0.00091	0.62115	0.00029	0.94487	0.00000	0.05513	0.00000	0.62145	0.00035
10	0.82510	0.00051	0.75519	0.00060	0.96149	0.00002	0.03851	0.00002	0.77364	0.00068
11	0.85768	0.00014	0.83706	0.00027	0.97219	0.00001	0.02781	0.00001	0.84013	0.00029
12	0.87272	0.00017	0.86803	0.00034	0.97571	0.00001	0.02429	0.00001	0.86489	0.00030
13	0.92930	0.00009	0.92970	0.00009	0.98728	0.00000	0.01272	0.00000	0.92863	0.00009
14	0.93347	0.00008	0.93350	0.00009	0.98800	0.00000	0.01200	0.00000	0.93274	0.00008
15	0.87590	0.00019	0.86449	0.00020	0.97720	0.00001	0.02280	0.00001	0.86780	0.00020
16	0.89134	0.00008	0.88658	0.00007	0.98014	0.00000	0.01986	0.00000	0.88777	0.00007
17	0.86679	0.00027	0.85277	0.00038	0.97533	0.00001	0.02467	0.00001	0.85694	0.00035
18	0.88410	0.00008	0.87638	0.00011	0.97860	0.00000	0.02140	0.00000	0.87842	0.00009
19	0.95979	0.00015	0.95296	0.00009	0.99219	0.00000	0.00781	0.00000	0.95518	0.00011
20	0.96133	0.00009	0.95412	0.00009	0.99243	0.00000	0.00757	0.00000	0.95635	0.00008
21	0.58068	0.00193	0.43494	0.00028	0.90559	0.00002	0.09441	0.00002	0.40551	0.00064
22	0.72580	0.00030	0.59951	0.00020	0.93508	0.00001	0.06492	0.00001	0.62247	0.00037
23	0.85657	0.00020	0.83542	0.00039	0.97287	0.00001	0.02713	0.00001	0.84127	0.00033
24	0.87391	0.00007	0.86607	0.00012	0.97667	0.00000	0.02333	0.00000	0.86755	0.00009
25	0.93214	0.00005	0.93573	0.00005	0.98776	0.00000	0.01224	0.00000	0.93190	0.00004
26	0.93647	0.00006	0.93929	0.00009	0.98853	0.00000	0.01147	0.00000	0.93601	0.00008
27	0.88995	0.00027	0.88296	0.00024	0.97976	0.00001	0.02024	0.00001	0.88417	0.00026
28	0.90627	0.00014	0.90630	0.00016	0.98275	0.00000	0.01725	0.00000	0.90432	0.00015
29	0.88427	0.00025	0.87485	0.00024	0.97855	0.00001	0.02145	0.00001	0.87709	0.00025
30	0.90058	0.00019	0.89987	0.00026	0.98173	0.00001	0.01827	0.00001	0.89806	0.00023
31	0.91866	0.00008	0.92516	0.00007	0.98525	0.00000	0.01475	0.00000	0.91932	0.00007
32	0.92728	0.00022	0.93209	0.00021	0.98694	0.00001	0.01306	0.00001	0.92810	0.00022
33	0.67550	0.00308	0.54001	0.00043	0.93017	0.00001	0.06983	0.00001	0.52283	0.00082
34	0.79515	0.00026	0.69571	0.00052	0.95219	0.00001	0.04781	0.00001	0.71702	0.00046
35	0.86824	0.00028	0.85293	0.00036	0.97523	0.00001	0.02477	0.00001	0.85668	0.00035
36	0.88856	0.00015	0.88578	0.00025	0.97952	0.00001	0.02048	0.00001	0.88478	0.00021
37	0.92522	0.00004	0.93061	0.00006	0.98670	0.00000	0.01330	0.00000	0.92585	0.00004
38	0.92801	0.00011	0.93294	0.00013	0.98718	0.00000	0.01282	0.00000	0.92841	0.00011
39	0.88839	0.00015	0.88363	0.00012	0.97942	0.00000	0.02058	0.00000	0.88376	0.00012
40	0.90123	0.00018	0.90255	0.00020	0.98178	0.00001	0.01822	0.00001	0.89934	0.00020
41	0.88045	0.00021	0.87165	0.00015	0.97769	0.00001	0.02231	0.00001	0.87320	0.00017
42	0.89930	0.00017	0.89910	0.00029	0.98135	0.00001	0.01865	0.00001	0.89651	0.00025
43	0.90610	0.00009	0.91385	0.00005	0.98280	0.00000	0.01720	0.00000	0.90657	0.00008
44	0.91378	0.00026	0.92096	0.00022	0.98439	0.00001	0.01561	0.00001	0.91490	0.00024
45	0.73334	0.00555	0.57931	0.00047	0.93788	0.00001	0.06212	0.00001	0.57005	0.00075
46	0.81114	0.00025	0.72392	0.00062	0.95667	0.00001	0.04333	0.00001	0.74469	0.00062
47	0.86547	0.00022	0.85241	0.00029	0.97465	0.00001	0.02535	0.00001	0.85469	0.00026
48	0.88603	0.00025	0.88323	0.00043	0.97889	0.00001	0.02111	0.00001	0.88189	0.00038
49	0.93651	0.00010	0.93740	0.00010	0.98867	0.00000	0.01133	0.00000	0.93583	0.00010
50	0.94330	0.00007	0.94393	0.00006	0.98988	0.00000	0.01012	0.00000	0.94248	0.00007
51	0.88964	0.00024	0.88032	0.00021	0.97990	0.00001	0.02010	0.00001	0.88304	0.00024
52	0.89849	0.00016	0.89534	0.00017	0.98164	0.00001	0.01836	0.00001	0.89568	0.00016
53	0.88294	0.00019	0.87182	0.00017	0.97860	0.00001	0.02140	0.00001	0.87495	0.00020
54	0.89252	0.00016	0.88809	0.00016	0.98043	0.00000	0.01957	0.00000	0.88884	0.00016
55	0.95618	0.00022	0.95334	0.00016	0.99186	0.00001	0.00814	0.00001	0.95411	0.00019
56	0.95733	0.00020	0.95453	0.00019	0.99200	0.00001	0.00800	0.00001	0.95507	0.00020
57	0.63320	0.00233	0.48529	0.00052	0.91855	0.00002	0.08145	0.00002	0.46326	0.00083
58	0.74986	0.00023	0.63548	0.00024	0.94159	0.00001	0.05841	0.00001	0.65783	0.00035
59	0.86983	0.00010	0.85856	0.00015	0.97605	0.00001	0.02395	0.00001	0.86108	0.00014
60	0.88330	0.00013	0.87830	0.00026	0.97860	0.00001	0.02140	0.00001	0.87888	0.00020

Table 10. Macro Averaged Performance Measurements for the LSA Classifier with 150 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.87612	0.00022	0.88596	0.00028	0.97711	0.00001	0.02289	0.00001	0.87493	0.00027
2	0.88699	0.00030	0.90123	0.00038	0.97976	0.00001	0.02024	0.00001	0.88992	0.00034
3	0.87228	0.00008	0.85940	0.00016	0.97537	0.00001	0.02463	0.00001	0.86068	0.00016
4	0.88013	0.00018	0.88134	0.00025	0.97735	0.00001	0.02265	0.00001	0.87558	0.00022
5	0.87195	0.00012	0.85577	0.00024	0.97537	0.00001	0.02463	0.00001	0.85846	0.00025
6	0.88508	0.00015	0.88434	0.00024	0.97827	0.00001	0.02173	0.00001	0.87993	0.00023
7	0.82760	0.00020	0.82944	0.00018	0.96655	0.00001	0.03345	0.00001	0.81855	0.00016
8	0.86130	0.00045	0.87570	0.00047	0.97484	0.00002	0.02516	0.00002	0.86264	0.00050
9	0.80577	0.00048	0.62401	0.00028	0.94607	0.00001	0.05393	0.00001	0.62518	0.00040
10	0.82721	0.00038	0.74604	0.00056	0.96111	0.00001	0.03889	0.00001	0.76727	0.00060
11	0.86233	0.00019	0.84071	0.00032	0.97335	0.00001	0.02665	0.00001	0.84540	0.00035
12	0.87547	0.00014	0.87068	0.00029	0.97629	0.00001	0.02371	0.00001	0.86797	0.00026
13	0.93239	0.00011	0.93276	0.00009	0.98786	0.00000	0.01214	0.00000	0.93178	0.00010
14	0.93571	0.00009	0.93512	0.00008	0.98839	0.00000	0.01161	0.00000	0.93462	0.00009
15	0.88661	0.00024	0.87295	0.00021	0.97904	0.00001	0.02096	0.00001	0.87777	0.00023
16	0.89463	0.00010	0.88745	0.00008	0.98063	0.00000	0.01937	0.00000	0.88961	0.00009
17	0.87812	0.00023	0.86018	0.00030	0.97740	0.00001	0.02260	0.00001	0.86616	0.00029
18	0.88784	0.00007	0.87851	0.00008	0.97928	0.00000	0.02072	0.00000	0.88133	0.00008
19	0.96203	0.00011	0.95548	0.00008	0.99258	0.00000	0.00742	0.00000	0.95763	0.00009
20	0.96438	0.00011	0.95808	0.00009	0.99301	0.00000	0.00699	0.00000	0.96007	0.00009
21	0.62941	0.00181	0.46814	0.00035	0.91475	0.00002	0.08525	0.00002	0.44155	0.00070
22	0.73345	0.00025	0.59158	0.00040	0.93528	0.00001	0.06472	0.00001	0.61461	0.00052
23	0.86472	0.00026	0.84180	0.00041	0.97460	0.00001	0.02540	0.00001	0.84889	0.00037
24	0.87978	0.00009	0.86816	0.00016	0.97764	0.00000	0.02236	0.00000	0.87162	0.00012
25	0.93379	0.00004	0.93725	0.00006	0.98810	0.00000	0.01190	0.00000	0.93347	0.00005
26	0.93711	0.00006	0.93986	0.00007	0.98867	0.00000	0.01133	0.00000	0.93673	0.00007
27	0.89973	0.00020	0.89203	0.00016	0.98149	0.00001	0.01851	0.00001	0.89391	0.00019
28	0.90910	0.00018	0.90786	0.00020	0.98333	0.00001	0.01667	0.00001	0.90701	0.00019
29	0.89353	0.00023	0.88344	0.00023	0.98029	0.00001	0.01971	0.00001	0.88628	0.00024
30	0.90438	0.00020	0.90279	0.00024	0.98246	0.00001	0.01754	0.00001	0.90192	0.00023
31	0.91948	0.00009	0.92596	0.00008	0.98540	0.00000	0.01460	0.00000	0.92014	0.00008
32	0.92833	0.00023	0.93317	0.00021	0.98713	0.00001	0.01287	0.00001	0.92924	0.00022
33	0.70724	0.00380	0.55246	0.00028	0.93316	0.00001	0.06684	0.00001	0.53735	0.00045
34	0.79680	0.00037	0.68443	0.00060	0.95142	0.00002	0.04858	0.00002	0.70812	0.00066
35	0.87962	0.00023	0.86534	0.00031	0.97749	0.00001	0.02251	0.00001	0.86889	0.00029
36	0.89190	0.00014	0.88813	0.00018	0.98014	0.00000	0.01986	0.00000	0.88768	0.00017
37	0.92643	0.00004	0.93170	0.00006	0.98694	0.00000	0.01306	0.00000	0.92717	0.00005
38	0.93014	0.00012	0.93553	0.00013	0.98761	0.00000	0.01239	0.00000	0.93095	0.00012
39	0.89283	0.00019	0.88806	0.00018	0.98034	0.00000	0.01966	0.00000	0.88838	0.00016
40	0.90650	0.00011	0.90752	0.00014	0.98280	0.00000	0.01720	0.00000	0.90479	0.00013
41	0.88814	0.00020	0.87940	0.00021	0.97933	0.00001	0.02067	0.00001	0.88146	0.00018
42	0.90230	0.00014	0.90110	0.00028	0.98193	0.00001	0.01807	0.00001	0.89922	0.00023
43	0.90684	0.00005	0.91451	0.00004	0.98284	0.00000	0.01716	0.00000	0.90712	0.00005
44	0.91444	0.00026	0.92133	0.00023	0.98453	0.00001	0.01547	0.00001	0.91552	0.00024
45	0.74557	0.00442	0.58860	0.00031	0.94029	0.00001	0.05971	0.00001	0.57856	0.00057
46	0.81562	0.00044	0.71669	0.00070	0.95648	0.00002	0.04352	0.00002	0.74007	0.00068
47	0.87744	0.00012	0.86366	0.00018	0.97692	0.00000	0.02308	0.00000	0.86700	0.00015
48	0.88995	0.00020	0.88567	0.00033	0.97961	0.00001	0.02039	0.00001	0.88511	0.00028
49	0.94033	0.00010	0.93993	0.00009	0.98930	0.00000	0.01070	0.00000	0.93900	0.00009
50	0.94518	0.00009	0.94477	0.00008	0.99017	0.00000	0.00983	0.00000	0.94391	0.00009
51	0.89475	0.00012	0.88411	0.00009	0.98082	0.00000	0.01918	0.00000	0.88728	0.00011
52	0.90197	0.00013	0.89742	0.00014	0.98217	0.00000	0.01783	0.00000	0.89821	0.00014
53	0.88730	0.00015	0.87465	0.00016	0.97942	0.00001	0.02058	0.00001	0.87843	0.00017
54	0.89666	0.00010	0.89113	0.00012	0.98120	0.00000	0.01880	0.00000	0.89240	0.00011
55	0.95880	0.00018	0.95600	0.00016	0.99234	0.00001	0.00766	0.00001	0.95676	0.00018
56	0.95961	0.00014	0.95618	0.00015	0.99234	0.00000	0.00766	0.00000	0.95695	0.00015
57	0.64014	0.00159	0.50018	0.00055	0.92246	0.00002	0.07754	0.00002	0.47677	0.00084
58	0.75768	0.00020	0.62466	0.00022	0.94145	0.00001	0.05855	0.00001	0.64763	0.00024
59	0.87652	0.00012	0.86385	0.00019	0.97749	0.00001	0.02251	0.00001	0.86713	0.00016
60	0.88832	0.00011	0.88139	0.00016	0.97942	0.00000	0.02058	0.00000	0.88276	0.00013

Table 11. Macro Averaged Performance Measurements for the LSA Classifier with 200 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.87712	0.00024	0.88660	0.00031	0.97735	0.00001	0.02265	0.00001	0.87593	0.00030
2	0.88780	0.00026	0.90128	0.00034	0.97986	0.00001	0.02014	0.00001	0.89034	0.00030
3	0.88056	0.00014	0.86694	0.00025	0.97701	0.00001	0.02299	0.00001	0.86887	0.00025
4	0.88391	0.00020	0.88453	0.00030	0.97817	0.00001	0.02183	0.00001	0.87982	0.00027
5	0.88108	0.00013	0.86379	0.00023	0.97716	0.00001	0.02284	0.00001	0.86762	0.00023
6	0.88621	0.00014	0.88533	0.00022	0.97870	0.00001	0.02130	0.00001	0.88169	0.00021
7	0.82785	0.00020	0.82978	0.00019	0.96660	0.00001	0.03340	0.00001	0.81879	0.00017
8	0.86049	0.00042	0.87465	0.00043	0.97470	0.00002	0.02530	0.00002	0.86174	0.00047
9	0.80597	0.00055	0.62743	0.00037	0.94752	0.00001	0.05248	0.00001	0.62384	0.00059
10	0.83236	0.00026	0.72918	0.00061	0.95976	0.00001	0.04024	0.00001	0.75269	0.00068
11	0.87243	0.00015	0.85015	0.00022	0.97537	0.00001	0.02463	0.00001	0.85574	0.00023
12	0.87941	0.00024	0.87399	0.00037	0.97716	0.00001	0.02284	0.00001	0.87260	0.00034
13	0.93573	0.00013	0.93425	0.00009	0.98839	0.00000	0.01161	0.00000	0.93425	0.00011
14	0.93876	0.00009	0.93690	0.00008	0.98882	0.00000	0.01118	0.00000	0.93706	0.00009
15	0.89275	0.00017	0.87724	0.00012	0.98010	0.00001	0.01990	0.00001	0.88278	0.00014
16	0.90165	0.00010	0.89217	0.00005	0.98178	0.00000	0.01822	0.00000	0.89522	0.00006
17	0.88757	0.00021	0.86836	0.00022	0.97899	0.00001	0.02101	0.00001	0.87504	0.00022
18	0.89443	0.00010	0.88395	0.00006	0.98048	0.00000	0.01952	0.00000	0.88725	0.00008
19	0.96470	0.00011	0.95887	0.00007	0.99311	0.00000	0.00689	0.00000	0.96077	0.00008
20	0.96512	0.00011	0.95941	0.00007	0.99320	0.00000	0.00680	0.00000	0.96121	0.00009
21	0.64267	0.00409	0.48807	0.00042	0.92048	0.00002	0.07952	0.00002	0.45965	0.00060
22	0.73721	0.00056	0.57191	0.00041	0.93378	0.00002	0.06622	0.00002	0.58844	0.00052
23	0.87499	0.00019	0.85156	0.00021	0.97658	0.00001	0.02342	0.00001	0.85911	0.00021
24	0.88482	0.00007	0.87005	0.00010	0.97846	0.00000	0.02154	0.00000	0.87469	0.00007
25	0.93668	0.00006	0.93964	0.00007	0.98863	0.00000	0.01137	0.00000	0.93631	0.00006
26	0.93859	0.00006	0.94098	0.00008	0.98892	0.00000	0.01108	0.00000	0.93803	0.00007
27	0.90511	0.00013	0.89492	0.00012	0.98246	0.00000	0.01754	0.00000	0.89800	0.00012
28	0.91292	0.00017	0.91011	0.00019	0.98395	0.00001	0.01605	0.00001	0.91010	0.00019
29	0.90054	0.00017	0.88821	0.00015	0.98145	0.00000	0.01855	0.00000	0.89222	0.00016
30	0.90822	0.00015	0.90319	0.00017	0.98313	0.00000	0.01687	0.00000	0.90413	0.00016
31	0.92097	0.00010	0.92741	0.00008	0.98573	0.00000	0.01427	0.00000	0.92188	0.00009
32	0.92982	0.00023	0.93459	0.00021	0.98742	0.00001	0.01258	0.00001	0.93081	0.00023
33	0.74617	0.00473	0.56312	0.00041	0.93619	0.00001	0.06381	0.00001	0.54752	0.00072
34	0.80737	0.00030	0.66470	0.00023	0.95007	0.00001	0.04993	0.00001	0.68714	0.00033
35	0.88565	0.00016	0.86946	0.00020	0.97860	0.00001	0.02140	0.00001	0.87431	0.00018
36	0.89778	0.00014	0.89255	0.00019	0.98125	0.00000	0.01875	0.00000	0.89328	0.00017
37	0.92897	0.00005	0.93414	0.00008	0.98742	0.00000	0.01258	0.00000	0.92968	0.00006
38	0.93143	0.00010	0.93641	0.00013	0.98776	0.00000	0.01224	0.00000	0.93210	0.00011
39	0.90159	0.00014	0.89443	0.00017	0.98193	0.00000	0.01807	0.00000	0.89615	0.00015
40	0.90670	0.00013	0.90710	0.00018	0.98289	0.00000	0.01711	0.00000	0.90500	0.00015
41	0.89840	0.00010	0.88751	0.00012	0.98116	0.00000	0.01884	0.00000	0.89094	0.00010
42	0.90600	0.00015	0.90410	0.00026	0.98265	0.00001	0.01735	0.00001	0.90302	0.00021
43	0.90526	0.00006	0.91308	0.00004	0.98265	0.00000	0.01735	0.00000	0.90573	0.00005
44	0.91547	0.00027	0.92229	0.00022	0.98472	0.00001	0.01528	0.00001	0.91658	0.00024
45	0.76295	0.00299	0.59072	0.00036	0.94164	0.00001	0.05836	0.00001	0.57637	0.00078
46	0.82047	0.00023	0.70129	0.00036	0.95571	0.00001	0.04429	0.00001	0.72515	0.00039
47	0.88728	0.00012	0.87128	0.00014	0.97880	0.00000	0.02120	0.00000	0.87608	0.00013
48	0.89370	0.00023	0.88825	0.00031	0.98034	0.00001	0.01966	0.00001	0.88868	0.00030
49	0.94416	0.00009	0.94250	0.00008	0.98983	0.00000	0.01017	0.00000	0.94209	0.00009
50	0.94714	0.00006	0.94627	0.00006	0.99046	0.00000	0.00954	0.00000	0.94559	0.00006
51	0.90320	0.00020	0.89076	0.00013	0.98207	0.00001	0.01793	0.00001	0.89474	0.00016
52	0.90702	0.00013	0.90091	0.00013	0.98304	0.00000	0.01696	0.00000	0.90245	0.00013
53	0.89671	0.00017	0.88241	0.00018	0.98092	0.00001	0.01908	0.00001	0.88701	0.00018
54	0.90000	0.00014	0.89230	0.00011	0.98169	0.00000	0.01831	0.00000	0.89441	0.00012
55	0.96036	0.00018	0.95729	0.00015	0.99258	0.00001	0.00742	0.00001	0.95811	0.00017
56	0.96075	0.00015	0.95709	0.00015	0.99253	0.00000	0.00747	0.00000	0.95801	0.00015
57	0.65680	0.00200	0.51589	0.00043	0.92699	0.00002	0.07301	0.00002	0.48920	0.00076
58	0.75891	0.00045	0.60161	0.00030	0.93937	0.00001	0.06063	0.00001	0.61864	0.00041
59	0.88413	0.00017	0.86894	0.00023	0.97880	0.00001	0.02120	0.00001	0.87337	0.00022
60	0.89229	0.00015	0.88306	0.00014	0.98014	0.00000	0.01986	0.00000	0.88561	0.00014

Table 12. Macro Averaged Performance Measurements for the LSA Classifier with 300 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.24096	0.00015	0.24096	0.00015	0.84819	0.00001	0.15181	0.00001	0.24096	0.00015
2	0.26096	0.00020	0.26096	0.00020	0.85219	0.00001	0.14781	0.00001	0.26096	0.00020
3	0.19880	0.00034	0.19880	0.00034	0.83976	0.00001	0.16024	0.00001	0.19880	0.00034
4	0.17349	0.00032	0.17349	0.00032	0.83470	0.00001	0.16530	0.00001	0.17349	0.00032
5	0.18651	0.00021	0.18651	0.00021	0.83730	0.00001	0.16270	0.00001	0.18651	0.00021
6	0.15494	0.00027	0.15494	0.00027	0.83099	0.00001	0.16901	0.00001	0.15494	0.00027
7	0.24747	0.00042	0.24747	0.00042	0.84949	0.00002	0.15051	0.00002	0.24747	0.00042
8	0.29133	0.00033	0.29133	0.00033	0.85827	0.00001	0.14173	0.00001	0.29133	0.00033
9	0.15663	0.00023	0.15663	0.00023	0.83133	0.00001	0.16867	0.00001	0.15663	0.00023
10	0.11759	0.00024	0.11759	0.00024	0.82352	0.00001	0.17648	0.00001	0.11759	0.00024
11	0.16819	0.00014	0.16819	0.00014	0.83364	0.00001	0.16636	0.00001	0.16819	0.00014
12	0.14602	0.00027	0.14602	0.00027	0.82920	0.00001	0.17080	0.00001	0.14602	0.00027
13	0.17928	0.00059	0.17928	0.00059	0.83586	0.00002	0.16414	0.00002	0.17928	0.00059
14	0.19976	0.00040	0.19976	0.00040	0.83995	0.00002	0.16005	0.00002	0.19976	0.00040
15	0.16096	0.00009	0.16096	0.00009	0.83219	0.00000	0.16781	0.00000	0.16096	0.00009
16	0.13325	0.00021	0.13325	0.00021	0.82665	0.00001	0.17335	0.00001	0.13325	0.00021
17	0.15711	0.00014	0.15711	0.00014	0.83142	0.00001	0.16858	0.00001	0.15711	0.00014
18	0.12940	0.00012	0.12940	0.00012	0.82588	0.00000	0.17412	0.00000	0.12940	0.00012
19	0.22313	0.00020	0.22313	0.00020	0.84463	0.00001	0.15537	0.00001	0.22313	0.00020
20	0.24892	0.00048	0.24892	0.00048	0.84978	0.00002	0.15022	0.00002	0.24892	0.00048
21	0.14458	0.00031	0.14458	0.00031	0.82892	0.00001	0.17108	0.00001	0.14458	0.00031
22	0.10795	0.00010	0.10795	0.00010	0.82159	0.00000	0.17841	0.00000	0.10795	0.00010
23	0.15639	0.00019	0.15639	0.00019	0.83128	0.00001	0.16872	0.00001	0.15639	0.00019
24	0.13229	0.00021	0.13229	0.00021	0.82646	0.00001	0.17354	0.00001	0.13229	0.00021
25	0.21277	0.00014	0.21277	0.00014	0.84255	0.00001	0.15745	0.00001	0.21277	0.00014
26	0.23181	0.00024	0.23181	0.00024	0.84636	0.00001	0.15364	0.00001	0.23181	0.00024
27	0.17639	0.00017	0.17639	0.00017	0.83528	0.00001	0.16472	0.00001	0.17639	0.00017
28	0.14048	0.00032	0.14048	0.00032	0.82810	0.00001	0.17190	0.00001	0.14048	0.00032
29	0.16747	0.00022	0.16747	0.00022	0.83349	0.00001	0.16651	0.00001	0.16747	0.00022
30	0.14578	0.00018	0.14578	0.00018	0.82916	0.00001	0.17084	0.00001	0.14578	0.00018
31	0.26361	0.00045	0.26361	0.00045	0.85272	0.00002	0.14728	0.00002	0.26361	0.00045
32	0.26530	0.00031	0.26530	0.00031	0.85306	0.00001	0.14694	0.00001	0.26530	0.00031
33	0.15614	0.00020	0.15614	0.00020	0.83123	0.00001	0.16877	0.00001	0.15614	0.00020
34	0.11229	0.00010	0.11229	0.00010	0.82246	0.00000	0.17754	0.00000	0.11229	0.00010
35	0.15976	0.00013	0.15976	0.00013	0.83195	0.00001	0.16805	0.00001	0.15976	0.00013
36	0.13590	0.00030	0.13590	0.00030	0.82718	0.00001	0.17282	0.00001	0.13590	0.00030
37	0.21470	0.00021	0.21470	0.00021	0.84294	0.00001	0.15706	0.00001	0.21470	0.00021
38	0.24145	0.00033	0.24145	0.00033	0.84829	0.00001	0.15171	0.00001	0.24145	0.00033
39	0.17349	0.00018	0.17349	0.00018	0.83470	0.00001	0.16530	0.00001	0.17349	0.00018
40	0.14386	0.00030	0.14386	0.00030	0.82877	0.00001	0.17123	0.00001	0.14386	0.00030
41	0.16410	0.00028	0.16410	0.00028	0.83282	0.00001	0.16718	0.00001	0.16410	0.00028
42	0.15253	0.00070	0.15253	0.00070	0.83051	0.00003	0.16949	0.00003	0.15253	0.00070
43	0.25952	0.00024	0.25952	0.00024	0.85190	0.00001	0.14810	0.00001	0.25952	0.00024
44	0.26964	0.00036	0.26964	0.00036	0.85393	0.00001	0.14607	0.00001	0.26964	0.00036
45	0.14988	0.00013	0.14988	0.00013	0.82998	0.00001	0.17002	0.00001	0.14988	0.00013
46	0.11349	0.00020	0.11349	0.00020	0.82270	0.00001	0.17730	0.00001	0.11349	0.00020
47	0.14843	0.00063	0.14843	0.00063	0.82969	0.00003	0.17031	0.00003	0.14843	0.00063
48	0.13614	0.00021	0.13614	0.00021	0.82723	0.00001	0.17277	0.00001	0.13614	0.00021
49	0.19036	0.00044	0.19036	0.00044	0.83807	0.00002	0.16193	0.00002	0.19036	0.00044
50	0.21012	0.00032	0.21012	0.00032	0.84202	0.00001	0.15798	0.00001	0.21012	0.00032
51	0.14940	0.00016	0.14940	0.00016	0.82988	0.00001	0.17012	0.00001	0.14940	0.00016
52	0.14458	0.00026	0.14458	0.00026	0.82892	0.00001	0.17108	0.00001	0.14458	0.00026
53	0.14819	0.00026	0.14819	0.00026	0.82964	0.00001	0.17036	0.00001	0.14819	0.00026
54	0.13639	0.00024	0.13639	0.00024	0.82728	0.00001	0.17272	0.00001	0.13639	0.00024
55	0.23036	0.00040	0.23036	0.00040	0.84607	0.00002	0.15393	0.00002	0.23036	0.00040
56	0.26096	0.00016	0.26096	0.00016	0.85219	0.00001	0.14781	0.00001	0.26096	0.00016
57	0.15157	0.00024	0.15157	0.00024	0.83031	0.00001	0.16969	0.00001	0.15157	0.00024
58	0.10867	0.00016	0.10867	0.00016	0.82173	0.00001	0.17827	0.00001	0.10867	0.00016
59	0.15205	0.00057	0.15205	0.00057	0.83041	0.00002	0.16959	0.00002	0.15205	0.00057
60	0.14024	0.00040	0.14024	0.00040	0.82805	0.00002	0.17195	0.00002	0.14024	0.00040

Table 13. Micro Averaged Performance Measurements for the LSA Classifier with 1 Feature Vector.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.84771	0.00040	0.84771	0.00040	0.96954	0.00002	0.03046	0.00002	0.84771	0.00040
2	0.87301	0.00036	0.87301	0.00036	0.97460	0.00001	0.02540	0.00001	0.87301	0.00036
3	0.82747	0.00045	0.82747	0.00045	0.96549	0.00002	0.03451	0.00002	0.82747	0.00045
4	0.85639	0.00027	0.85639	0.00027	0.97128	0.00001	0.02872	0.00001	0.85639	0.00027
5	0.82530	0.00068	0.82530	0.00068	0.96506	0.00003	0.03494	0.00003	0.82530	0.00068
6	0.85904	0.00029	0.85904	0.00029	0.97181	0.00001	0.02819	0.00001	0.85904	0.00029
7	0.79759	0.00031	0.79759	0.00031	0.95952	0.00001	0.04048	0.00001	0.79759	0.00031
8	0.84361	0.00056	0.84361	0.00056	0.96872	0.00002	0.03128	0.00002	0.84361	0.00056
9	0.38675	0.00258	0.38675	0.00258	0.87735	0.00010	0.12265	0.00010	0.38675	0.00258
10	0.73301	0.00060	0.73301	0.00060	0.94660	0.00002	0.05340	0.00002	0.73301	0.00060
11	0.80723	0.00061	0.80723	0.00061	0.96145	0.00002	0.03855	0.00002	0.80723	0.00061
12	0.84843	0.00037	0.84843	0.00037	0.96969	0.00001	0.03031	0.00001	0.84843	0.00037
13	0.91157	0.00011	0.91157	0.00011	0.98231	0.00000	0.01769	0.00000	0.91157	0.00011
14	0.92072	0.00006	0.92072	0.00006	0.98414	0.00000	0.01586	0.00000	0.92072	0.00006
15	0.85422	0.00027	0.85422	0.00027	0.97084	0.00001	0.02916	0.00001	0.85422	0.00027
16	0.86699	0.00023	0.86699	0.00023	0.97340	0.00001	0.02660	0.00001	0.86699	0.00023
17	0.84193	0.00030	0.84193	0.00030	0.96839	0.00001	0.03161	0.00001	0.84193	0.00030
18	0.86120	0.00017	0.86120	0.00017	0.97224	0.00001	0.02776	0.00001	0.86120	0.00017
19	0.93904	0.00014	0.93904	0.00014	0.98781	0.00001	0.01219	0.00001	0.93904	0.00014
20	0.94169	0.00013	0.94169	0.00013	0.98834	0.00001	0.01166	0.00001	0.94169	0.00013
21	0.18289	0.00039	0.18289	0.00039	0.83658	0.00002	0.16342	0.00002	0.18289	0.00039
22	0.59663	0.00095	0.59663	0.00095	0.91933	0.00004	0.08067	0.00004	0.59663	0.00095
23	0.82578	0.00035	0.82578	0.00035	0.96516	0.00001	0.03484	0.00001	0.82578	0.00035
24	0.84337	0.00024	0.84337	0.00024	0.96867	0.00001	0.03133	0.00001	0.84337	0.00024
25	0.91422	0.00015	0.91422	0.00015	0.98284	0.00001	0.01716	0.00001	0.91422	0.00015
26	0.92145	0.00012	0.92145	0.00012	0.98429	0.00000	0.01571	0.00000	0.92145	0.00012
27	0.86747	0.00032	0.86747	0.00032	0.97349	0.00001	0.02651	0.00001	0.86747	0.00032
28	0.88337	0.00012	0.88337	0.00012	0.97667	0.00000	0.02333	0.00000	0.88337	0.00012
29	0.86048	0.00035	0.86048	0.00035	0.97210	0.00001	0.02790	0.00001	0.86048	0.00035
30	0.87759	0.00016	0.87759	0.00016	0.97552	0.00001	0.02448	0.00001	0.87759	0.00016
31	0.89928	0.00011	0.89928	0.00011	0.97986	0.00000	0.02014	0.00000	0.89928	0.00011
32	0.91036	0.00019	0.91036	0.00019	0.98207	0.00001	0.01793	0.00001	0.91036	0.00019
33	0.23325	0.00067	0.23325	0.00067	0.84665	0.00003	0.15335	0.00003	0.23325	0.00067
34	0.68072	0.00129	0.68072	0.00129	0.93614	0.00005	0.06386	0.00005	0.68072	0.00129
35	0.84410	0.00031	0.84410	0.00031	0.96882	0.00001	0.03118	0.00001	0.84410	0.00031
36	0.86169	0.00021	0.86169	0.00021	0.97234	0.00001	0.02766	0.00001	0.86169	0.00021
37	0.90723	0.00019	0.90723	0.00019	0.98145	0.00001	0.01855	0.00001	0.90723	0.00019
38	0.91446	0.00015	0.91446	0.00015	0.98289	0.00001	0.01711	0.00001	0.91446	0.00015
39	0.86675	0.00029	0.86675	0.00029	0.97335	0.00001	0.02665	0.00001	0.86675	0.00029
40	0.88289	0.00014	0.88289	0.00014	0.97658	0.00001	0.02342	0.00001	0.88289	0.00014
41	0.86024	0.00033	0.86024	0.00033	0.97205	0.00001	0.02795	0.00001	0.86024	0.00033
42	0.87422	0.00017	0.87422	0.00017	0.97484	0.00001	0.02516	0.00001	0.87422	0.00017
43	0.88554	0.00008	0.88554	0.00008	0.97711	0.00000	0.02289	0.00000	0.88554	0.00008
44	0.89518	0.00021	0.89518	0.00021	0.97904	0.00001	0.02096	0.00001	0.89518	0.00021
45	0.27831	0.00137	0.27831	0.00137	0.85566	0.00005	0.14434	0.00005	0.27831	0.00137
46	0.70217	0.00080	0.70217	0.00080	0.94043	0.00003	0.05957	0.00003	0.70217	0.00080
47	0.84193	0.00039	0.84193	0.00039	0.96839	0.00002	0.03161	0.00002	0.84193	0.00039
48	0.85880	0.00018	0.85880	0.00018	0.97176	0.00001	0.02824	0.00001	0.85880	0.00018
49	0.92313	0.00015	0.92313	0.00015	0.98463	0.00001	0.01537	0.00001	0.92313	0.00015
50	0.92627	0.00009	0.92627	0.00009	0.98525	0.00000	0.01475	0.00000	0.92627	0.00009
51	0.86289	0.00028	0.86289	0.00028	0.97258	0.00001	0.02742	0.00001	0.86289	0.00028
52	0.87855	0.00017	0.87855	0.00017	0.97571	0.00001	0.02429	0.00001	0.87855	0.00017
53	0.85735	0.00019	0.85735	0.00019	0.97147	0.00001	0.02853	0.00001	0.85735	0.00019
54	0.87325	0.00016	0.87325	0.00016	0.97465	0.00001	0.02535	0.00001	0.87325	0.00016
55	0.92988	0.00021	0.92988	0.00021	0.98598	0.00001	0.01402	0.00001	0.92988	0.00021
56	0.93398	0.00016	0.93398	0.00016	0.98680	0.00001	0.01320	0.00001	0.93398	0.00016
57	0.18699	0.00042	0.18699	0.00042	0.83740	0.00002	0.16260	0.00002	0.18699	0.00042
58	0.63253	0.00134	0.63253	0.00134	0.92651	0.00005	0.07349	0.00005	0.63253	0.00134
59	0.84554	0.00023	0.84554	0.00023	0.96911	0.00001	0.03089	0.00001	0.84554	0.00023
60	0.85807	0.00019	0.85807	0.00019	0.97161	0.00001	0.02839	0.00001	0.85807	0.00019

Table 14. Micro Averaged Performance Measurements for the LSA Classifier with 25 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.87060	0.00040	0.87060	0.00040	0.97412	0.00002	0.02588	0.00002	0.87060	0.00040
2	0.88867	0.00033	0.88867	0.00033	0.97773	0.00001	0.02227	0.00001	0.88867	0.00033
3	0.84651	0.00039	0.84651	0.00039	0.96930	0.00002	0.03070	0.00002	0.84651	0.00039
4	0.86916	0.00033	0.86916	0.00033	0.97383	0.00001	0.02617	0.00001	0.86916	0.00033
5	0.84169	0.00046	0.84169	0.00046	0.96834	0.00002	0.03166	0.00002	0.84169	0.00046
6	0.86940	0.00039	0.86940	0.00039	0.97388	0.00002	0.02612	0.00002	0.86940	0.00039
7	0.81349	0.00019	0.81349	0.00019	0.96270	0.00001	0.03730	0.00001	0.81349	0.00019
8	0.86675	0.00039	0.86675	0.00039	0.97335	0.00002	0.02665	0.00002	0.86675	0.00039
9	0.61157	0.00139	0.61157	0.00139	0.92231	0.00006	0.07769	0.00006	0.61157	0.00139
10	0.78120	0.00062	0.78120	0.00062	0.95624	0.00002	0.04376	0.00002	0.78120	0.00062
11	0.83133	0.00025	0.83133	0.00025	0.96627	0.00001	0.03373	0.00001	0.83133	0.00025
12	0.86530	0.00026	0.86530	0.00026	0.97306	0.00001	0.02694	0.00001	0.86530	0.00026
13	0.92843	0.00006	0.92843	0.00006	0.98569	0.00000	0.01431	0.00000	0.92843	0.00006
14	0.93108	0.00005	0.93108	0.00005	0.98622	0.00000	0.01378	0.00000	0.93108	0.00005
15	0.86313	0.00040	0.86313	0.00040	0.97263	0.00002	0.02737	0.00002	0.86313	0.00040
16	0.88361	0.00020	0.88361	0.00020	0.97672	0.00001	0.02328	0.00001	0.88361	0.00020
17	0.85012	0.00035	0.85012	0.00035	0.97002	0.00001	0.02998	0.00001	0.85012	0.00035
18	0.87783	0.00029	0.87783	0.00029	0.97557	0.00001	0.02443	0.00001	0.87783	0.00029
19	0.94940	0.00011	0.94940	0.00011	0.98988	0.00000	0.01012	0.00000	0.94940	0.00011
20	0.95181	0.00012	0.95181	0.00012	0.99036	0.00000	0.00964	0.00000	0.95181	0.00012
21	0.21205	0.00045	0.21205	0.00045	0.84241	0.00002	0.15759	0.00002	0.21205	0.00045
22	0.65398	0.00072	0.65398	0.00072	0.93080	0.00003	0.06920	0.00003	0.65398	0.00072
23	0.83614	0.00032	0.83614	0.00032	0.96723	0.00001	0.03277	0.00001	0.83614	0.00032
24	0.86361	0.00026	0.86361	0.00026	0.97272	0.00001	0.02728	0.00001	0.86361	0.00026
25	0.92530	0.00008	0.92530	0.00008	0.98506	0.00000	0.01494	0.00000	0.92530	0.00008
26	0.93422	0.00013	0.93422	0.00013	0.98684	0.00001	0.01316	0.00001	0.93422	0.00013
27	0.87157	0.00021	0.87157	0.00021	0.97431	0.00001	0.02569	0.00001	0.87157	0.00021
28	0.89542	0.00019	0.89542	0.00019	0.97908	0.00001	0.02092	0.00001	0.89542	0.00019
29	0.86578	0.00030	0.86578	0.00030	0.97316	0.00001	0.02684	0.00001	0.86578	0.00030
30	0.89181	0.00017	0.89181	0.00017	0.97836	0.00001	0.02164	0.00001	0.89181	0.00017
31	0.90843	0.00006	0.90843	0.00006	0.98169	0.00000	0.01831	0.00000	0.90843	0.00006
32	0.92410	0.00019	0.92410	0.00019	0.98482	0.00001	0.01518	0.00001	0.92410	0.00019
33	0.40361	0.00372	0.40361	0.00372	0.88072	0.00015	0.11928	0.00015	0.40361	0.00372
34	0.73831	0.00102	0.73831	0.00102	0.94766	0.00004	0.05234	0.00004	0.73831	0.00102
35	0.84964	0.00024	0.84964	0.00024	0.96993	0.00001	0.03007	0.00001	0.84964	0.00024
36	0.87759	0.00029	0.87759	0.00029	0.97552	0.00001	0.02448	0.00001	0.87759	0.00029
37	0.91855	0.00007	0.91855	0.00007	0.98371	0.00000	0.01629	0.00000	0.91855	0.00007
38	0.92675	0.00009	0.92675	0.00009	0.98535	0.00000	0.01465	0.00000	0.92675	0.00009
39	0.87060	0.00022	0.87060	0.00022	0.97412	0.00001	0.02588	0.00001	0.87060	0.00022
40	0.89277	0.00029	0.89277	0.00029	0.97855	0.00001	0.02145	0.00001	0.89277	0.00029
41	0.86361	0.00025	0.86361	0.00025	0.97272	0.00001	0.02728	0.00001	0.86361	0.00025
42	0.88771	0.00019	0.88771	0.00019	0.97754	0.00001	0.02246	0.00001	0.88771	0.00019
43	0.89518	0.00009	0.89518	0.00009	0.97904	0.00000	0.02096	0.00000	0.89518	0.00009
44	0.91277	0.00015	0.91277	0.00015	0.98255	0.00001	0.01745	0.00001	0.91277	0.00015
45	0.53349	0.00128	0.53349	0.00128	0.90670	0.00005	0.09330	0.00005	0.53349	0.00128
46	0.76265	0.00079	0.76265	0.00079	0.95253	0.00003	0.04747	0.00003	0.76265	0.00079
47	0.84602	0.00036	0.84602	0.00036	0.96920	0.00001	0.03080	0.00001	0.84602	0.00036
48	0.87470	0.00020	0.87470	0.00020	0.97494	0.00001	0.02506	0.00001	0.87470	0.00020
49	0.93494	0.00010	0.93494	0.00010	0.98699	0.00000	0.01301	0.00000	0.93494	0.00010
50	0.94193	0.00009	0.94193	0.00009	0.98839	0.00000	0.01161	0.00000	0.94193	0.00009
51	0.87422	0.00031	0.87422	0.00031	0.97484	0.00001	0.02516	0.00001	0.87422	0.00031
52	0.89470	0.00018	0.89470	0.00018	0.97894	0.00001	0.02106	0.00001	0.89470	0.00018
53	0.86771	0.00023	0.86771	0.00023	0.97354	0.00001	0.02646	0.00001	0.86771	0.00023
54	0.88627	0.00023	0.88627	0.00023	0.97725	0.00001	0.02275	0.00001	0.88627	0.00023
55	0.94458	0.00024	0.94458	0.00024	0.98892	0.00001	0.01108	0.00001	0.94458	0.00024
56	0.94771	0.00014	0.94771	0.00014	0.98954	0.00001	0.01046	0.00001	0.94771	0.00014
57	0.24819	0.00112	0.24819	0.00112	0.84964	0.00004	0.15036	0.00004	0.24819	0.00112
58	0.68916	0.00112	0.68916	0.00112	0.93783	0.00004	0.06217	0.00004	0.68916	0.00112
59	0.85614	0.00023	0.85614	0.00023	0.97123	0.00001	0.02877	0.00001	0.85614	0.00023
60	0.87422	0.00024	0.87422	0.00024	0.97484	0.00001	0.02516	0.00001	0.87422	0.00024

Table 15. Micro Averaged Performance Measurements for the LSA Classifier with 50 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88145	0.00024	0.88145	0.00024	0.97629	0.00001	0.02371	0.00001	0.88145	0.00024
2	0.89639	0.00032	0.89639	0.00032	0.97928	0.00001	0.02072	0.00001	0.89639	0.00032
3	0.86289	0.00024	0.86289	0.00024	0.97258	0.00001	0.02742	0.00001	0.86289	0.00024
4	0.87831	0.00018	0.87831	0.00018	0.97566	0.00001	0.02434	0.00001	0.87831	0.00018
5	0.86072	0.00025	0.86072	0.00025	0.97214	0.00001	0.02786	0.00001	0.86072	0.00025
6	0.88024	0.00017	0.88024	0.00017	0.97605	0.00001	0.02395	0.00001	0.88024	0.00017
7	0.82723	0.00015	0.82723	0.00015	0.96545	0.00001	0.03455	0.00001	0.82723	0.00015
8	0.87084	0.00039	0.87084	0.00039	0.97417	0.00002	0.02583	0.00002	0.87084	0.00039
9	0.69687	0.00026	0.69687	0.00026	0.93937	0.00001	0.06063	0.00001	0.69687	0.00026
10	0.80313	0.00041	0.80313	0.00041	0.96063	0.00002	0.03937	0.00002	0.80313	0.00041
11	0.84819	0.00029	0.84819	0.00029	0.96964	0.00001	0.03036	0.00001	0.84819	0.00029
12	0.87518	0.00010	0.87518	0.00010	0.97504	0.00000	0.02496	0.00000	0.87518	0.00010
13	0.93277	0.00011	0.93277	0.00011	0.98655	0.00000	0.01345	0.00000	0.93277	0.00011
14	0.93807	0.00010	0.93807	0.00010	0.98761	0.00000	0.01239	0.00000	0.93807	0.00010
15	0.87422	0.00031	0.87422	0.00031	0.97484	0.00001	0.02516	0.00001	0.87422	0.00031
16	0.89494	0.00011	0.89494	0.00011	0.97899	0.00000	0.02101	0.00000	0.89494	0.00011
17	0.86506	0.00034	0.86506	0.00034	0.97301	0.00001	0.02699	0.00001	0.86506	0.00034
18	0.88892	0.00013	0.88892	0.00013	0.97778	0.00001	0.02222	0.00001	0.88892	0.00013
19	0.95855	0.00012	0.95855	0.00012	0.99171	0.00000	0.00829	0.00000	0.95855	0.00012
20	0.95855	0.00010	0.95855	0.00010	0.99171	0.00000	0.00829	0.00000	0.95855	0.00010
21	0.45542	0.00128	0.45542	0.00128	0.89108	0.00005	0.10892	0.00005	0.45542	0.00128
22	0.67060	0.00046	0.67060	0.00046	0.93412	0.00002	0.06588	0.00002	0.67060	0.00046
23	0.84940	0.00057	0.84940	0.00057	0.96988	0.00002	0.03012	0.00002	0.84940	0.00057
24	0.87855	0.00013	0.87855	0.00013	0.97571	0.00001	0.02429	0.00001	0.87855	0.00013
25	0.93566	0.00005	0.93566	0.00005	0.98713	0.00000	0.01287	0.00000	0.93566	0.00005
26	0.93976	0.00009	0.93976	0.00009	0.98795	0.00000	0.01205	0.00000	0.93976	0.00009
27	0.89060	0.00019	0.89060	0.00019	0.97812	0.00001	0.02188	0.00001	0.89060	0.00019
28	0.90723	0.00015	0.90723	0.00015	0.98145	0.00001	0.01855	0.00001	0.90723	0.00015
29	0.88265	0.00022	0.88265	0.00022	0.97653	0.00001	0.02347	0.00001	0.88265	0.00022
30	0.90120	0.00013	0.90120	0.00013	0.98024	0.00001	0.01976	0.00001	0.90120	0.00013
31	0.92120	0.00009	0.92120	0.00009	0.98424	0.00000	0.01576	0.00000	0.92120	0.00009
32	0.93277	0.00019	0.93277	0.00019	0.98655	0.00001	0.01345	0.00001	0.93277	0.00019
33	0.62193	0.00068	0.62193	0.00068	0.92439	0.00003	0.07561	0.00003	0.62193	0.00068
34	0.75470	0.00058	0.75470	0.00058	0.95094	0.00002	0.04906	0.00002	0.75470	0.00058
35	0.86699	0.00029	0.86699	0.00029	0.97340	0.00001	0.02660	0.00001	0.86699	0.00029
36	0.88940	0.00018	0.88940	0.00018	0.97788	0.00001	0.02212	0.00001	0.88940	0.00018
37	0.92771	0.00006	0.92771	0.00006	0.98554	0.00000	0.01446	0.00000	0.92771	0.00006
38	0.93253	0.00007	0.93253	0.00007	0.98651	0.00000	0.01349	0.00000	0.93253	0.00007
39	0.88795	0.00009	0.88795	0.00009	0.97759	0.00000	0.02241	0.00000	0.88795	0.00009
40	0.90482	0.00016	0.90482	0.00016	0.98096	0.00001	0.01904	0.00001	0.90482	0.00016
41	0.87928	0.00011	0.87928	0.00011	0.97586	0.00000	0.02414	0.00000	0.87928	0.00011
42	0.90024	0.00015	0.90024	0.00015	0.98005	0.00001	0.01995	0.00001	0.90024	0.00015
43	0.90988	0.00008	0.90988	0.00008	0.98198	0.00000	0.01802	0.00000	0.90988	0.00008
44	0.92048	0.00019	0.92048	0.00019	0.98410	0.00001	0.01590	0.00001	0.92048	0.00019
45	0.65783	0.00068	0.65783	0.00068	0.93157	0.00003	0.06843	0.00003	0.65783	0.00068
46	0.77952	0.00043	0.77952	0.00043	0.95590	0.00002	0.04410	0.00002	0.77952	0.00043
47	0.86554	0.00023	0.86554	0.00023	0.97311	0.00001	0.02689	0.00001	0.86554	0.00023
48	0.88892	0.00018	0.88892	0.00018	0.97778	0.00001	0.02222	0.00001	0.88892	0.00018
49	0.93976	0.00007	0.93976	0.00007	0.98795	0.00000	0.01205	0.00000	0.93976	0.00007
50	0.94627	0.00005	0.94627	0.00005	0.98925	0.00000	0.01075	0.00000	0.94627	0.00005
51	0.88867	0.00018	0.88867	0.00018	0.97773	0.00001	0.02227	0.00001	0.88867	0.00018
52	0.90024	0.00014	0.90024	0.00014	0.98005	0.00001	0.01995	0.00001	0.90024	0.00014
53	0.88386	0.00019	0.88386	0.00019	0.97677	0.00001	0.02323	0.00001	0.88386	0.00019
54	0.89422	0.00011	0.89422	0.00011	0.97884	0.00000	0.02116	0.00000	0.89422	0.00011
55	0.95494	0.00021	0.95494	0.00021	0.99099	0.00001	0.00901	0.00001	0.95494	0.00021
56	0.95735	0.00015	0.95735	0.00015	0.99147	0.00001	0.00853	0.00001	0.95735	0.00015
57	0.53928	0.00090	0.53928	0.00090	0.90786	0.00004	0.09214	0.00004	0.53928	0.00090
58	0.70410	0.00050	0.70410	0.00050	0.94082	0.00002	0.05918	0.00002	0.70410	0.00050
59	0.87108	0.00018	0.87108	0.00018	0.97422	0.00001	0.02578	0.00001	0.87108	0.00018
60	0.88651	0.00010	0.88651	0.00010	0.97730	0.00000	0.02270	0.00000	0.88651	0.00010

Table 16. Micro Averaged Performance Measurements for the LSA Classifier with 100 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88313	0.00025	0.88313	0.00025	0.97663	0.00001	0.02337	0.00001	0.88313	0.00025
2	0.89735	0.00028	0.89735	0.00028	0.97947	0.00001	0.02053	0.00001	0.89735	0.00028
3	0.87253	0.00017	0.87253	0.00017	0.97451	0.00001	0.02549	0.00001	0.87253	0.00017
4	0.88530	0.00018	0.88530	0.00018	0.97706	0.00001	0.02294	0.00001	0.88530	0.00018
5	0.87229	0.00015	0.87229	0.00015	0.97446	0.00001	0.02554	0.00001	0.87229	0.00015
6	0.88627	0.00024	0.88627	0.00024	0.97725	0.00001	0.02275	0.00001	0.88627	0.00024
7	0.83084	0.00018	0.83084	0.00018	0.96617	0.00001	0.03383	0.00001	0.83084	0.00018
8	0.87253	0.00041	0.87253	0.00041	0.97451	0.00002	0.02549	0.00002	0.87253	0.00041
9	0.72434	0.00010	0.72434	0.00010	0.94487	0.00000	0.05513	0.00000	0.72434	0.00010
10	0.80747	0.00047	0.80747	0.00047	0.96149	0.00002	0.03851	0.00002	0.80747	0.00047
11	0.86096	0.00025	0.86096	0.00025	0.97219	0.00001	0.02781	0.00001	0.86096	0.00025
12	0.87855	0.00023	0.87855	0.00023	0.97571	0.00001	0.02429	0.00001	0.87855	0.00023
13	0.93639	0.00009	0.93639	0.00009	0.98728	0.00000	0.01272	0.00000	0.93639	0.00009
14	0.94000	0.00008	0.94000	0.00008	0.98800	0.00000	0.01200	0.00000	0.94000	0.00008
15	0.88602	0.00020	0.88602	0.00020	0.97720	0.00001	0.02280	0.00001	0.88602	0.00020
16	0.90072	0.00006	0.90072	0.00006	0.98014	0.00000	0.01986	0.00000	0.90072	0.00006
17	0.87663	0.00032	0.87663	0.00032	0.97533	0.00001	0.02467	0.00001	0.87663	0.00032
18	0.89301	0.00007	0.89301	0.00007	0.97860	0.00000	0.02140	0.00000	0.89301	0.00007
19	0.96096	0.00011	0.96096	0.00011	0.99219	0.00000	0.00781	0.00000	0.96096	0.00011
20	0.96217	0.00008	0.96217	0.00008	0.99243	0.00000	0.00757	0.00000	0.96217	0.00008
21	0.52795	0.00044	0.52795	0.00044	0.90559	0.00002	0.09441	0.00002	0.52795	0.00044
22	0.67542	0.00015	0.67542	0.00015	0.93508	0.00001	0.06492	0.00001	0.67542	0.00015
23	0.86434	0.00028	0.86434	0.00028	0.97287	0.00001	0.02713	0.00001	0.86434	0.00028
24	0.88337	0.00006	0.88337	0.00006	0.97667	0.00000	0.02333	0.00000	0.88337	0.00006
25	0.93880	0.00004	0.93880	0.00004	0.98776	0.00000	0.01224	0.00000	0.93880	0.00004
26	0.94265	0.00006	0.94265	0.00006	0.98853	0.00000	0.01147	0.00000	0.94265	0.00006
27	0.89880	0.00022	0.89880	0.00022	0.97976	0.00001	0.02024	0.00001	0.89880	0.00022
28	0.91373	0.00011	0.91373	0.00011	0.98275	0.00000	0.01725	0.00000	0.91373	0.00011
29	0.89277	0.00021	0.89277	0.00021	0.97855	0.00001	0.02145	0.00001	0.89277	0.00021
30	0.90867	0.00016	0.90867	0.00016	0.98173	0.00001	0.01827	0.00001	0.90867	0.00016
31	0.92627	0.00007	0.92627	0.00007	0.98525	0.00000	0.01475	0.00000	0.92627	0.00007
32	0.93470	0.00017	0.93470	0.00017	0.98694	0.00001	0.01306	0.00001	0.93470	0.00017
33	0.65084	0.00035	0.65084	0.00035	0.93017	0.00001	0.06983	0.00001	0.65084	0.00035
34	0.76096	0.00032	0.76096	0.00032	0.95219	0.00001	0.04781	0.00001	0.76096	0.00032
35	0.87614	0.00032	0.87614	0.00032	0.97523	0.00001	0.02477	0.00001	0.87614	0.00032
36	0.89759	0.00015	0.89759	0.00015	0.97952	0.00001	0.02048	0.00001	0.89759	0.00015
37	0.93349	0.00004	0.93349	0.00004	0.98670	0.00000	0.01330	0.00000	0.93349	0.00004
38	0.93590	0.00010	0.93590	0.00010	0.98718	0.00000	0.01282	0.00000	0.93590	0.00010
39	0.89711	0.00011	0.89711	0.00011	0.97942	0.00000	0.02058	0.00000	0.89711	0.00011
40	0.90892	0.00015	0.90892	0.00015	0.98178	0.00001	0.01822	0.00001	0.90892	0.00015
41	0.88843	0.00016	0.88843	0.00016	0.97769	0.00001	0.02231	0.00001	0.88843	0.00016
42	0.90675	0.00018	0.90675	0.00018	0.98135	0.00001	0.01865	0.00001	0.90675	0.00018
43	0.91398	0.00008	0.91398	0.00008	0.98280	0.00000	0.01720	0.00000	0.91398	0.00008
44	0.92193	0.00019	0.92193	0.00019	0.98439	0.00001	0.01561	0.00001	0.92193	0.00019
45	0.68940	0.00026	0.68940	0.00026	0.93788	0.00001	0.06212	0.00001	0.68940	0.00026
46	0.78337	0.00035	0.78337	0.00035	0.95667	0.00001	0.04333	0.00001	0.78337	0.00035
47	0.87325	0.00021	0.87325	0.00021	0.97465	0.00001	0.02535	0.00001	0.87325	0.00021
48	0.89446	0.00028	0.89446	0.00028	0.97889	0.00001	0.02111	0.00001	0.89446	0.00028
49	0.94337	0.00009	0.94337	0.00009	0.98867	0.00000	0.01133	0.00000	0.94337	0.00009
50	0.94940	0.00006	0.94940	0.00006	0.98988	0.00000	0.01012	0.00000	0.94940	0.00006
51	0.89952	0.00021	0.89952	0.00021	0.97990	0.00001	0.02010	0.00001	0.89952	0.00021
52	0.90819	0.00013	0.90819	0.00013	0.98164	0.00001	0.01836	0.00001	0.90819	0.00013
53	0.89301	0.00020	0.89301	0.00020	0.97860	0.00001	0.02140	0.00001	0.89301	0.00020
54	0.90217	0.00012	0.90217	0.00012	0.98043	0.00000	0.01957	0.00000	0.90217	0.00012
55	0.95928	0.00017	0.95928	0.00017	0.99186	0.00001	0.00814	0.00001	0.95928	0.00017
56	0.96000	0.00016	0.96000	0.00016	0.99200	0.00001	0.00800	0.00001	0.96000	0.00016
57	0.59277	0.00058	0.59277	0.00058	0.91855	0.00002	0.08145	0.00002	0.59277	0.00058
58	0.70795	0.00018	0.70795	0.00018	0.94159	0.00001	0.05841	0.00001	0.70795	0.00018
59	0.88024	0.00013	0.88024	0.00013	0.97605	0.00001	0.02395	0.00001	0.88024	0.00013
60	0.89301	0.00013	0.89301	0.00013	0.97860	0.00001	0.02140	0.00001	0.89301	0.00013

Table 17. Micro Averaged Performance Measurements for the LSA Classifier with 150 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88554	0.00023	0.88554	0.00023	0.97711	0.00001	0.02289	0.00001	0.88554	0.00023
2	0.89880	0.00030	0.89880	0.00030	0.97976	0.00001	0.02024	0.00001	0.89880	0.00030
3	0.87687	0.00013	0.87687	0.00013	0.97537	0.00001	0.02463	0.00001	0.87687	0.00013
4	0.88675	0.00021	0.88675	0.00021	0.97735	0.00001	0.02265	0.00001	0.88675	0.00021
5	0.87687	0.00017	0.87687	0.00017	0.97537	0.00001	0.02463	0.00001	0.87687	0.00017
6	0.89133	0.00020	0.89133	0.00020	0.97827	0.00001	0.02173	0.00001	0.89133	0.00020
7	0.83277	0.00018	0.83277	0.00018	0.96655	0.00001	0.03345	0.00001	0.83277	0.00018
8	0.87422	0.00043	0.87422	0.00043	0.97484	0.00002	0.02516	0.00002	0.87422	0.00043
9	0.73036	0.00013	0.73036	0.00013	0.94607	0.00001	0.05393	0.00001	0.73036	0.00013
10	0.80554	0.00036	0.80554	0.00036	0.96111	0.00001	0.03889	0.00001	0.80554	0.00036
11	0.86675	0.00023	0.86675	0.00023	0.97335	0.00001	0.02665	0.00001	0.86675	0.00023
12	0.88145	0.00020	0.88145	0.00020	0.97629	0.00001	0.02371	0.00001	0.88145	0.00020
13	0.93928	0.00010	0.93928	0.00010	0.98786	0.00000	0.01214	0.00000	0.93928	0.00010
14	0.94193	0.00009	0.94193	0.00009	0.98839	0.00000	0.01161	0.00000	0.94193	0.00009
15	0.89518	0.00021	0.89518	0.00021	0.97904	0.00001	0.02096	0.00001	0.89518	0.00021
16	0.90313	0.00006	0.90313	0.00006	0.98063	0.00000	0.01937	0.00000	0.90313	0.00006
17	0.88699	0.00024	0.88699	0.00024	0.97740	0.00001	0.02260	0.00001	0.88699	0.00024
18	0.89639	0.00005	0.89639	0.00005	0.97928	0.00000	0.02072	0.00000	0.89639	0.00005
19	0.96289	0.00009	0.96289	0.00009	0.99258	0.00000	0.00742	0.00000	0.96289	0.00009
20	0.96506	0.00010	0.96506	0.00010	0.99301	0.00000	0.00699	0.00000	0.96506	0.00010
21	0.57373	0.00049	0.57373	0.00049	0.91475	0.00002	0.08525	0.00002	0.57373	0.00049
22	0.67639	0.00036	0.67639	0.00036	0.93528	0.00001	0.06472	0.00001	0.67639	0.00036
23	0.87301	0.00030	0.87301	0.00030	0.97460	0.00001	0.02540	0.00001	0.87301	0.00030
24	0.88819	0.00008	0.88819	0.00008	0.97764	0.00000	0.02236	0.00000	0.88819	0.00008
25	0.94048	0.00003	0.94048	0.00003	0.98810	0.00000	0.01190	0.00000	0.94048	0.00003
26	0.94337	0.00005	0.94337	0.00005	0.98867	0.00000	0.01133	0.00000	0.94337	0.00005
27	0.90747	0.00016	0.90747	0.00016	0.98149	0.00001	0.01851	0.00001	0.90747	0.00016
28	0.91663	0.00015	0.91663	0.00015	0.98333	0.00001	0.01667	0.00001	0.91663	0.00015
29	0.90145	0.00020	0.90145	0.00020	0.98029	0.00001	0.01971	0.00001	0.90145	0.00020
30	0.91229	0.00017	0.91229	0.00017	0.98246	0.00001	0.01754	0.00001	0.91229	0.00017
31	0.92699	0.00008	0.92699	0.00008	0.98540	0.00000	0.01460	0.00000	0.92699	0.00008
32	0.93566	0.00017	0.93566	0.00017	0.98713	0.00001	0.01287	0.00001	0.93566	0.00017
33	0.66578	0.00037	0.66578	0.00037	0.93316	0.00001	0.06684	0.00001	0.66578	0.00037
34	0.75711	0.00040	0.75711	0.00040	0.95142	0.00002	0.04858	0.00002	0.75711	0.00040
35	0.88747	0.00025	0.88747	0.00025	0.97749	0.00001	0.02251	0.00001	0.88747	0.00025
36	0.90072	0.00012	0.90072	0.00012	0.98014	0.00000	0.01986	0.00000	0.90072	0.00012
37	0.93470	0.00004	0.93470	0.00004	0.98694	0.00000	0.01306	0.00000	0.93470	0.00004
38	0.93807	0.00010	0.93807	0.00010	0.98761	0.00000	0.01239	0.00000	0.93807	0.00010
39	0.90169	0.00012	0.90169	0.00012	0.98034	0.00000	0.01966	0.00000	0.90169	0.00012
40	0.91398	0.00009	0.91398	0.00009	0.98280	0.00000	0.01720	0.00000	0.91398	0.00009
41	0.89663	0.00014	0.89663	0.00014	0.97933	0.00001	0.02067	0.00001	0.89663	0.00014
42	0.90964	0.00014	0.90964	0.00014	0.98193	0.00001	0.01807	0.00001	0.90964	0.00014
43	0.91422	0.00005	0.91422	0.00005	0.98284	0.00000	0.01716	0.00000	0.91422	0.00005
44	0.92265	0.00019	0.92265	0.00019	0.98453	0.00001	0.01547	0.00001	0.92265	0.00019
45	0.70145	0.00019	0.70145	0.00019	0.94029	0.00001	0.05971	0.00001	0.70145	0.00019
46	0.78241	0.00042	0.78241	0.00042	0.95648	0.00002	0.04352	0.00002	0.78241	0.00042
47	0.88458	0.00012	0.88458	0.00012	0.97692	0.00000	0.02308	0.00000	0.88458	0.00012
48	0.89807	0.00021	0.89807	0.00021	0.97961	0.00001	0.02039	0.00001	0.89807	0.00021
49	0.94651	0.00008	0.94651	0.00008	0.98930	0.00000	0.01070	0.00000	0.94651	0.00008
50	0.95084	0.00008	0.95084	0.00008	0.99017	0.00000	0.00983	0.00000	0.95084	0.00008
51	0.90410	0.00011	0.90410	0.00011	0.98082	0.00000	0.01918	0.00000	0.90410	0.00011
52	0.91084	0.00011	0.91084	0.00011	0.98217	0.00000	0.01783	0.00000	0.91084	0.00011
53	0.89711	0.00014	0.89711	0.00014	0.97942	0.00001	0.02058	0.00001	0.89711	0.00014
54	0.90602	0.00009	0.90602	0.00009	0.98120	0.00000	0.01880	0.00000	0.90602	0.00009
55	0.96169	0.00015	0.96169	0.00015	0.99234	0.00001	0.00766	0.00001	0.96169	0.00015
56	0.96169	0.00012	0.96169	0.00012	0.99234	0.00000	0.00766	0.00000	0.96169	0.00012
57	0.61229	0.00060	0.61229	0.00060	0.92246	0.00002	0.07754	0.00002	0.61229	0.00060
58	0.70723	0.00023	0.70723	0.00023	0.94145	0.00001	0.05855	0.00001	0.70723	0.00023
59	0.88747	0.00014	0.88747	0.00014	0.97749	0.00001	0.02251	0.00001	0.88747	0.00014
60	0.89711	0.00009	0.89711	0.00009	0.97942	0.00000	0.02058	0.00000	0.89711	0.00009

Table 18. Micro Averaged Performance Measurements for the LSA Classifier with 200 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88675	0.00026	0.88675	0.00026	0.97735	0.00001	0.02265	0.00001	0.88675	0.00026
2	0.89928	0.00027	0.89928	0.00027	0.97986	0.00001	0.02014	0.00001	0.89928	0.00027
3	0.88506	0.00016	0.88506	0.00016	0.97701	0.00001	0.02299	0.00001	0.88506	0.00016
4	0.89084	0.00021	0.89084	0.00021	0.97817	0.00001	0.02183	0.00001	0.89084	0.00021
5	0.88578	0.00013	0.88578	0.00013	0.97716	0.00001	0.02284	0.00001	0.88578	0.00013
6	0.89349	0.00016	0.89349	0.00016	0.97870	0.00001	0.02130	0.00001	0.89349	0.00016
7	0.83301	0.00019	0.83301	0.00019	0.96660	0.00001	0.03340	0.00001	0.83301	0.00019
8	0.87349	0.00040	0.87349	0.00040	0.97470	0.00002	0.02530	0.00002	0.87349	0.00040
9	0.73759	0.00023	0.73759	0.00023	0.94752	0.00001	0.05248	0.00001	0.73759	0.00023
10	0.79880	0.00029	0.79880	0.00029	0.95976	0.00001	0.04024	0.00001	0.79880	0.00029
11	0.87687	0.00016	0.87687	0.00016	0.97537	0.00001	0.02463	0.00001	0.87687	0.00016
12	0.88578	0.00025	0.88578	0.00025	0.97716	0.00001	0.02284	0.00001	0.88578	0.00025
13	0.94193	0.00011	0.94193	0.00011	0.98839	0.00000	0.01161	0.00000	0.94193	0.00011
14	0.94410	0.00009	0.94410	0.00009	0.98882	0.00000	0.01118	0.00000	0.94410	0.00009
15	0.90048	0.00013	0.90048	0.00013	0.98010	0.00001	0.01990	0.00001	0.90048	0.00013
16	0.90892	0.00006	0.90892	0.00006	0.98178	0.00000	0.01822	0.00000	0.90892	0.00006
17	0.89494	0.00018	0.89494	0.00018	0.97899	0.00001	0.02101	0.00001	0.89494	0.00018
18	0.90241	0.00006	0.90241	0.00006	0.98048	0.00000	0.01952	0.00000	0.90241	0.00006
19	0.96554	0.00008	0.96554	0.00008	0.99311	0.00000	0.00689	0.00000	0.96554	0.00008
20	0.96602	0.00009	0.96602	0.00009	0.99320	0.00000	0.00680	0.00000	0.96602	0.00009
21	0.60241	0.00045	0.60241	0.00045	0.92048	0.00002	0.07952	0.00002	0.60241	0.00045
22	0.66892	0.00044	0.66892	0.00044	0.93378	0.00002	0.06622	0.00002	0.66892	0.00044
23	0.88289	0.00016	0.88289	0.00016	0.97658	0.00001	0.02342	0.00001	0.88289	0.00016
24	0.89229	0.00005	0.89229	0.00005	0.97846	0.00000	0.02154	0.00000	0.89229	0.00005
25	0.94313	0.00005	0.94313	0.00005	0.98863	0.00000	0.01137	0.00000	0.94313	0.00005
26	0.94458	0.00006	0.94458	0.00006	0.98892	0.00000	0.01108	0.00000	0.94458	0.00006
27	0.91229	0.00008	0.91229	0.00008	0.98246	0.00000	0.01754	0.00000	0.91229	0.00008
28	0.91976	0.00014	0.91976	0.00014	0.98395	0.00001	0.01605	0.00001	0.91976	0.00014
29	0.90723	0.00012	0.90723	0.00012	0.98145	0.00000	0.01855	0.00000	0.90723	0.00012
30	0.91566	0.00011	0.91566	0.00011	0.98313	0.00000	0.01687	0.00000	0.91566	0.00011
31	0.92867	0.00008	0.92867	0.00008	0.98573	0.00000	0.01427	0.00000	0.92867	0.00008
32	0.93711	0.00017	0.93711	0.00017	0.98742	0.00001	0.01258	0.00001	0.93711	0.00017
33	0.68096	0.00034	0.68096	0.00034	0.93619	0.00001	0.06381	0.00001	0.68096	0.00034
34	0.75036	0.00018	0.75036	0.00018	0.95007	0.00001	0.04993	0.00001	0.75036	0.00018
35	0.89301	0.00014	0.89301	0.00014	0.97860	0.00001	0.02140	0.00001	0.89301	0.00014
36	0.90627	0.00011	0.90627	0.00011	0.98125	0.00000	0.01875	0.00000	0.90627	0.00011
37	0.93711	0.00005	0.93711	0.00005	0.98742	0.00000	0.01258	0.00000	0.93711	0.00005
38	0.93880	0.00010	0.93880	0.00010	0.98776	0.00000	0.01224	0.00000	0.93880	0.00010
39	0.90964	0.00012	0.90964	0.00012	0.98193	0.00000	0.01807	0.00000	0.90964	0.00012
40	0.91446	0.00010	0.91446	0.00010	0.98289	0.00000	0.01711	0.00000	0.91446	0.00010
41	0.90578	0.00008	0.90578	0.00008	0.98116	0.00000	0.01884	0.00000	0.90578	0.00008
42	0.91325	0.00013	0.91325	0.00013	0.98265	0.00001	0.01735	0.00001	0.91325	0.00013
43	0.91325	0.00005	0.91325	0.00005	0.98265	0.00000	0.01735	0.00000	0.91325	0.00005
44	0.92361	0.00019	0.92361	0.00019	0.98472	0.00001	0.01528	0.00001	0.92361	0.00019
45	0.70819	0.00019	0.70819	0.00019	0.94164	0.00001	0.05836	0.00001	0.70819	0.00019
46	0.77855	0.00023	0.77855	0.00023	0.95571	0.00001	0.04429	0.00001	0.77855	0.00023
47	0.89398	0.00009	0.89398	0.00009	0.97880	0.00000	0.02120	0.00000	0.89398	0.00009
48	0.90169	0.00019	0.90169	0.00019	0.98034	0.00001	0.01966	0.00001	0.90169	0.00019
49	0.94916	0.00008	0.94916	0.00008	0.98983	0.00000	0.01017	0.00000	0.94916	0.00008
50	0.95229	0.00005	0.95229	0.00005	0.99046	0.00000	0.00954	0.00000	0.95229	0.00005
51	0.91036	0.00014	0.91036	0.00014	0.98207	0.00001	0.01793	0.00001	0.91036	0.00014
52	0.91518	0.00010	0.91518	0.00010	0.98304	0.00000	0.01696	0.00000	0.91518	0.00010
53	0.90458	0.00016	0.90458	0.00016	0.98092	0.00001	0.01908	0.00001	0.90458	0.00016
54	0.90843	0.00010	0.90843	0.00010	0.98169	0.00000	0.01831	0.00000	0.90843	0.00010
55	0.96289	0.00015	0.96289	0.00015	0.99258	0.00001	0.00742	0.00001	0.96289	0.00015
56	0.96265	0.00012	0.96265	0.00012	0.99253	0.00000	0.00747	0.00000	0.96265	0.00012
57	0.63494	0.00044	0.63494	0.00044	0.92699	0.00002	0.07301	0.00002	0.63494	0.00044
58	0.69687	0.00028	0.69687	0.00028	0.93937	0.00001	0.06063	0.00001	0.69687	0.00028
59	0.89398	0.00016	0.89398	0.00016	0.97880	0.00001	0.02120	0.00001	0.89398	0.00016
60	0.90072	0.00011	0.90072	0.00011	0.98014	0.00000	0.01986	0.00000	0.90072	0.00011

Table 19. Micro Averaged Performance Measurements for the LSA Classifier with 300 Feature Vectors.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.83388	0.00030	0.83592	0.00034	0.96969	0.00001	0.03031	0.00001	0.82922	0.00028
2	0.85194	0.00043	0.85360	0.00044	0.97287	0.00001	0.02713	0.00001	0.84815	0.00039
3	0.79457	0.00022	0.76802	0.00059	0.96087	0.00002	0.03913	0.00002	0.77067	0.00054
4	0.81247	0.00032	0.79375	0.00050	0.96390	0.00001	0.03610	0.00001	0.79339	0.00044
5	0.77987	0.00074	0.74224	0.00105	0.95711	0.00003	0.04289	0.00003	0.74613	0.00096
6	0.80111	0.00071	0.77546	0.00080	0.96106	0.00003	0.03894	0.00003	0.77803	0.00073
7	0.81273	0.00044	0.81220	0.00082	0.96453	0.00003	0.03547	0.00003	0.80245	0.00073
8	0.83569	0.00045	0.83853	0.00050	0.96911	0.00001	0.03089	0.00001	0.82972	0.00043
9	0.56970	0.00011	0.42523	0.00242	0.89976	0.00011	0.10024	0.00011	0.43776	0.00220
10	0.59367	0.00199	0.46776	0.00061	0.90795	0.00001	0.09205	0.00001	0.48250	0.00069
11	0.76682	0.00088	0.73132	0.00142	0.95475	0.00004	0.04525	0.00004	0.73769	0.00136
12	0.78083	0.00036	0.75929	0.00055	0.95778	0.00002	0.04222	0.00002	0.76284	0.00048
13	0.90194	0.00022	0.90281	0.00016	0.98231	0.00001	0.01769	0.00001	0.90064	0.00019
14	0.90755	0.00020	0.90725	0.00020	0.98337	0.00001	0.01663	0.00001	0.90592	0.00020
15	0.79713	0.00043	0.78466	0.00042	0.96217	0.00001	0.03783	0.00001	0.78608	0.00038
16	0.82199	0.00026	0.80532	0.00057	0.96583	0.00001	0.03417	0.00001	0.80880	0.00043
17	0.77573	0.00118	0.75109	0.00107	0.95730	0.00003	0.04270	0.00003	0.75799	0.00115
18	0.79868	0.00066	0.77225	0.00086	0.96072	0.00002	0.03928	0.00002	0.78017	0.00079
19	0.94582	0.00006	0.93441	0.00010	0.98945	0.00000	0.01055	0.00000	0.93870	0.00009
20	0.93649	0.00021	0.92848	0.00030	0.98810	0.00001	0.01190	0.00001	0.93145	0.00027
21	0.38817	0.00454	0.27571	0.00262	0.86631	0.00020	0.13369	0.00020	0.27176	0.00374
22	0.41012	0.00182	0.29629	0.00204	0.86949	0.00016	0.13051	0.00016	0.30084	0.00265
23	0.76263	0.00053	0.73601	0.00069	0.95393	0.00001	0.04607	0.00001	0.74163	0.00059
24	0.77725	0.00042	0.74774	0.00044	0.95619	0.00001	0.04381	0.00001	0.75516	0.00039
25	0.89714	0.00007	0.90172	0.00010	0.98149	0.00000	0.01851	0.00000	0.89731	0.00009
26	0.89881	0.00013	0.90146	0.00018	0.98178	0.00000	0.01822	0.00000	0.89799	0.00015
27	0.83189	0.00034	0.81432	0.00031	0.96853	0.00001	0.03147	0.00001	0.81833	0.00031
28	0.84935	0.00030	0.83178	0.00033	0.97133	0.00001	0.02867	0.00001	0.83554	0.00033
29	0.82296	0.00033	0.80158	0.00036	0.96631	0.00001	0.03369	0.00001	0.80564	0.00033
30	0.83647	0.00030	0.82001	0.00038	0.96882	0.00001	0.03118	0.00001	0.82176	0.00034
31	0.89832	0.00010	0.90222	0.00011	0.98145	0.00000	0.01855	0.00000	0.89783	0.00010
32	0.90164	0.00015	0.90305	0.00015	0.98198	0.00000	0.01802	0.00000	0.89997	0.00015
33	0.51133	0.00258	0.35552	0.00256	0.88361	0.00018	0.11639	0.00018	0.36556	0.00279
34	0.52137	0.00179	0.37626	0.00199	0.88699	0.00013	0.11301	0.00013	0.39342	0.00203
35	0.79245	0.00059	0.76844	0.00051	0.96058	0.00002	0.03942	0.00002	0.77403	0.00056
36	0.80954	0.00049	0.78668	0.00073	0.96337	0.00002	0.03663	0.00002	0.79185	0.00068
37	0.88871	0.00022	0.89339	0.00020	0.97986	0.00001	0.02014	0.00001	0.88795	0.00019
38	0.89509	0.00009	0.89701	0.00016	0.98106	0.00000	0.01894	0.00000	0.89346	0.00012
39	0.82752	0.00038	0.80463	0.00024	0.96718	0.00001	0.03282	0.00001	0.80917	0.00028
40	0.83615	0.00021	0.81802	0.00028	0.96930	0.00001	0.03070	0.00001	0.82105	0.00031
41	0.82773	0.00049	0.79718	0.00050	0.96675	0.00001	0.03325	0.00001	0.80466	0.00053
42	0.82682	0.00046	0.80212	0.00052	0.96675	0.00001	0.03325	0.00001	0.80755	0.00052
43	0.88338	0.00017	0.88661	0.00021	0.97855	0.00001	0.02145	0.00001	0.88159	0.00018
44	0.88703	0.00020	0.88912	0.00020	0.97918	0.00001	0.02082	0.00001	0.88493	0.00019
45	0.52544	0.00270	0.39201	0.00214	0.89330	0.00011	0.10670	0.00011	0.39734	0.00221
46	0.54627	0.00217	0.42592	0.00081	0.89995	0.00003	0.10005	0.00003	0.43881	0.00074
47	0.80744	0.00036	0.77731	0.00018	0.96284	0.00001	0.03716	0.00001	0.78459	0.00020
48	0.81682	0.00045	0.79226	0.00038	0.96487	0.00001	0.03513	0.00001	0.79653	0.00036
49	0.91860	0.00020	0.91746	0.00018	0.98530	0.00001	0.01470	0.00001	0.91685	0.00018
50	0.91629	0.00005	0.91316	0.00008	0.98492	0.00000	0.01508	0.00000	0.91367	0.00005
51	0.83736	0.00021	0.82575	0.00041	0.96998	0.00001	0.03002	0.00001	0.82782	0.00036
52	0.85446	0.00036	0.84168	0.00058	0.97234	0.00001	0.02766	0.00001	0.84439	0.00047
53	0.81994	0.00091	0.79791	0.00085	0.96612	0.00002	0.03388	0.00002	0.80352	0.00087
54	0.83119	0.00067	0.81003	0.00100	0.96733	0.00003	0.03267	0.00003	0.81486	0.00090
55	0.92504	0.00019	0.92141	0.00025	0.98627	0.00001	0.01373	0.00001	0.92208	0.00022
56	0.91855	0.00028	0.91314	0.00029	0.98501	0.00001	0.01499	0.00001	0.91453	0.00027
57	0.40647	0.00224	0.30226	0.00130	0.87388	0.00005	0.12612	0.00005	0.29745	0.00168
58	0.44764	0.00289	0.33273	0.00166	0.87851	0.00008	0.12149	0.00008	0.33918	0.00177
59	0.80375	0.00058	0.78017	0.00048	0.96265	0.00002	0.03735	0.00002	0.78548	0.00052
60	0.81068	0.00041	0.78734	0.00066	0.96357	0.00002	0.03643	0.00002	0.79354	0.00062

Table 20. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 1 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.86762	0.00024	0.86860	0.00034	0.97590	0.00001	0.02410	0.00001	0.86311	0.00033
2	0.88265	0.00045	0.88340	0.00040	0.97851	0.00001	0.02149	0.00001	0.87876	0.00041
3	0.83679	0.00021	0.80952	0.00047	0.96911	0.00001	0.03089	0.00001	0.81511	0.00045
4	0.84933	0.00024	0.83875	0.00035	0.97219	0.00001	0.02781	0.00001	0.83833	0.00033
5	0.82985	0.00057	0.79336	0.00102	0.96742	0.00003	0.03258	0.00003	0.80189	0.00096
6	0.84417	0.00048	0.82222	0.00059	0.97084	0.00002	0.02916	0.00002	0.82579	0.00061
7	0.84980	0.00043	0.85091	0.00072	0.97166	0.00002	0.02834	0.00002	0.84117	0.00065
8	0.86514	0.00030	0.86254	0.00041	0.97441	0.00001	0.02559	0.00001	0.85664	0.00038
9	0.65289	0.00100	0.48935	0.00191	0.91547	0.00008	0.08453	0.00008	0.49676	0.00207
10	0.67693	0.00153	0.53387	0.00137	0.92289	0.00004	0.07711	0.00004	0.54937	0.00133
11	0.82723	0.00048	0.78943	0.00052	0.96665	0.00002	0.03335	0.00002	0.79879	0.00048
12	0.84386	0.00017	0.82048	0.00018	0.97055	0.00001	0.02945	0.00001	0.82670	0.00015
13	0.93373	0.00015	0.93406	0.00010	0.98814	0.00000	0.01186	0.00000	0.93307	0.00012
14	0.93450	0.00016	0.93354	0.00011	0.98829	0.00000	0.01171	0.00000	0.93327	0.00012
15	0.86064	0.00032	0.84350	0.00028	0.97373	0.00001	0.02627	0.00001	0.84792	0.00034
16	0.86898	0.00038	0.85350	0.00038	0.97537	0.00001	0.02463	0.00001	0.85784	0.00035
17	0.85347	0.00041	0.83127	0.00041	0.97229	0.00001	0.02771	0.00001	0.83737	0.00040
18	0.86255	0.00019	0.84043	0.00034	0.97345	0.00001	0.02655	0.00001	0.84666	0.00024
19	0.95896	0.00008	0.94423	0.00012	0.99128	0.00000	0.00872	0.00000	0.95006	0.00011
20	0.94915	0.00008	0.93508	0.00012	0.98964	0.00000	0.01036	0.00000	0.94050	0.00010
21	0.47008	0.00526	0.35479	0.00215	0.88655	0.00011	0.11345	0.00011	0.35275	0.00250
22	0.50004	0.00162	0.37537	0.00131	0.88901	0.00008	0.11099	0.00008	0.38385	0.00148
23	0.82577	0.00049	0.80287	0.00055	0.96723	0.00001	0.03277	0.00001	0.80899	0.00056
24	0.83571	0.00028	0.80824	0.00050	0.96829	0.00001	0.03171	0.00001	0.81629	0.00042
25	0.92148	0.00015	0.92498	0.00012	0.98583	0.00001	0.01417	0.00001	0.92153	0.00015
26	0.92527	0.00019	0.92712	0.00015	0.98655	0.00001	0.01345	0.00001	0.92461	0.00016
27	0.88233	0.00010	0.86094	0.00008	0.97749	0.00000	0.02251	0.00000	0.86754	0.00010
28	0.88799	0.00007	0.87661	0.00015	0.97913	0.00000	0.02087	0.00000	0.87961	0.00010
29	0.86590	0.00035	0.84423	0.00041	0.97460	0.00001	0.02540	0.00001	0.85037	0.00038
30	0.87502	0.00025	0.86169	0.00042	0.97667	0.00001	0.02333	0.00001	0.86527	0.00033
31	0.91007	0.00016	0.91224	0.00017	0.98352	0.00001	0.01648	0.00001	0.90961	0.00018
32	0.91176	0.00011	0.91308	0.00012	0.98381	0.00000	0.01619	0.00000	0.91108	0.00012
33	0.56858	0.00083	0.41911	0.00166	0.90101	0.00006	0.09899	0.00006	0.42348	0.00153
34	0.60551	0.00238	0.46002	0.00127	0.90819	0.00005	0.09181	0.00005	0.47682	0.00100
35	0.86015	0.00019	0.83355	0.00027	0.97272	0.00001	0.02728	0.00001	0.83978	0.00028
36	0.86548	0.00017	0.84600	0.00020	0.97427	0.00001	0.02573	0.00001	0.85080	0.00019
37	0.91212	0.00014	0.91654	0.00012	0.98410	0.00001	0.01590	0.00001	0.91196	0.00015
38	0.91349	0.00020	0.91470	0.00027	0.98439	0.00001	0.01561	0.00001	0.91176	0.00024
39	0.86720	0.00016	0.85153	0.00010	0.97518	0.00001	0.02482	0.00001	0.85519	0.00011
40	0.87224	0.00016	0.86111	0.00017	0.97653	0.00000	0.02347	0.00000	0.86271	0.00018
41	0.86306	0.00030	0.83867	0.00038	0.97398	0.00001	0.02602	0.00001	0.84593	0.00037
42	0.86737	0.00028	0.85194	0.00030	0.97547	0.00001	0.02453	0.00001	0.85520	0.00030
43	0.89646	0.00033	0.90047	0.00030	0.98116	0.00001	0.01884	0.00001	0.89655	0.00033
44	0.89889	0.00014	0.90072	0.00015	0.98140	0.00001	0.01860	0.00001	0.89746	0.00015
45	0.61592	0.00234	0.43512	0.00273	0.90414	0.00015	0.09586	0.00015	0.44435	0.00285
46	0.66859	0.00491	0.50581	0.00104	0.91827	0.00003	0.08173	0.00003	0.52048	0.00132
47	0.85032	0.00008	0.82143	0.00009	0.97094	0.00000	0.02906	0.00000	0.82855	0.00012
48	0.85474	0.00024	0.83646	0.00024	0.97277	0.00001	0.02723	0.00001	0.84130	0.00022
49	0.93471	0.00016	0.93314	0.00014	0.98829	0.00000	0.01171	0.00000	0.93313	0.00014
50	0.93362	0.00019	0.93286	0.00019	0.98814	0.00001	0.01186	0.00001	0.93242	0.00018
51	0.88696	0.00010	0.86867	0.00024	0.97865	0.00000	0.02135	0.00000	0.87371	0.00019
52	0.89182	0.00021	0.87758	0.00037	0.97976	0.00001	0.02024	0.00001	0.88208	0.00028
53	0.87152	0.00025	0.84952	0.00036	0.97557	0.00001	0.02443	0.00001	0.85550	0.00030
54	0.87278	0.00028	0.85404	0.00056	0.97586	0.00001	0.02414	0.00001	0.85930	0.00042
55	0.94198	0.00014	0.93511	0.00018	0.98906	0.00000	0.01094	0.00000	0.93777	0.00016
56	0.93824	0.00015	0.93158	0.00017	0.98843	0.00001	0.01157	0.00001	0.93417	0.00015
57	0.51617	0.00209	0.38073	0.00070	0.89219	0.00002	0.10781	0.00002	0.37741	0.00086
58	0.52384	0.00173	0.39843	0.00070	0.89523	0.00002	0.10477	0.00002	0.40591	0.00071
59	0.85357	0.00038	0.83133	0.00041	0.97253	0.00001	0.02747	0.00001	0.83704	0.00039
60	0.86246	0.00015	0.84377	0.00020	0.97393	0.00001	0.02607	0.00001	0.84932	0.00016

Table 21. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 1 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89234	0.00018	0.88378	0.00030	0.97981	0.00001	0.02019	0.00001	0.88419	0.00027
2	0.90184	0.00015	0.90057	0.00017	0.98198	0.00001	0.01802	0.00001	0.89774	0.00017
3	0.87022	0.00014	0.84862	0.00008	0.97518	0.00001	0.02482	0.00001	0.85485	0.00011
4	0.86993	0.00025	0.85517	0.00034	0.97523	0.00001	0.02477	0.00001	0.85766	0.00033
5	0.86951	0.00023	0.84298	0.00028	0.97475	0.00001	0.02525	0.00001	0.85115	0.00028
6	0.86368	0.00027	0.84408	0.00044	0.97427	0.00001	0.02573	0.00001	0.84870	0.00039
7	0.88380	0.00009	0.87610	0.00025	0.97846	0.00000	0.02154	0.00000	0.87501	0.00022
8	0.89324	0.00032	0.88623	0.00058	0.97986	0.00001	0.02014	0.00001	0.88392	0.00052
9	0.71687	0.00094	0.56325	0.00065	0.93277	0.00004	0.06723	0.00004	0.56059	0.00085
10	0.72152	0.00291	0.61810	0.00115	0.94063	0.00003	0.05937	0.00003	0.62433	0.00155
11	0.86220	0.00019	0.83378	0.00029	0.97340	0.00001	0.02660	0.00001	0.84309	0.00028
12	0.85800	0.00035	0.83835	0.00047	0.97311	0.00001	0.02689	0.00001	0.84354	0.00047
13	0.95452	0.00010	0.94856	0.00009	0.99181	0.00000	0.00819	0.00000	0.95064	0.00009
14	0.95085	0.00012	0.94599	0.00011	0.99113	0.00000	0.00887	0.00000	0.94756	0.00011
15	0.90281	0.00019	0.88447	0.00017	0.98135	0.00001	0.01865	0.00001	0.89008	0.00019
16	0.90300	0.00018	0.89154	0.00022	0.98183	0.00001	0.01817	0.00001	0.89503	0.00020
17	0.89147	0.00015	0.87159	0.00021	0.97923	0.00001	0.02077	0.00001	0.87731	0.00023
18	0.90087	0.00015	0.88507	0.00017	0.98120	0.00000	0.01880	0.00000	0.88986	0.00017
19	0.97282	0.00008	0.95817	0.00016	0.99359	0.00000	0.00641	0.00000	0.96401	0.00013
20	0.96862	0.00011	0.95437	0.00019	0.99301	0.00001	0.00699	0.00001	0.96017	0.00016
21	0.54369	0.00215	0.42607	0.00053	0.90458	0.00002	0.09542	0.00002	0.41482	0.00085
22	0.59056	0.00250	0.45728	0.00081	0.91080	0.00003	0.08920	0.00003	0.45745	0.00086
23	0.87500	0.00024	0.85307	0.00023	0.97595	0.00001	0.02405	0.00001	0.85914	0.00023
24	0.88046	0.00014	0.85580	0.00031	0.97667	0.00001	0.02333	0.00001	0.86331	0.00024
25	0.93389	0.00010	0.93485	0.00006	0.98800	0.00000	0.01200	0.00000	0.93270	0.00008
26	0.93590	0.00009	0.93627	0.00008	0.98853	0.00000	0.01147	0.00000	0.93448	0.00007
27	0.90640	0.00013	0.88681	0.00023	0.98202	0.00000	0.01798	0.00000	0.89360	0.00020
28	0.90441	0.00018	0.89510	0.00018	0.98227	0.00000	0.01773	0.00000	0.89777	0.00019
29	0.90367	0.00029	0.88133	0.00045	0.98125	0.00001	0.01875	0.00001	0.88935	0.00039
30	0.90240	0.00010	0.88801	0.00014	0.98173	0.00000	0.01827	0.00000	0.89299	0.00011
31	0.93769	0.00013	0.93912	0.00013	0.98863	0.00001	0.01137	0.00001	0.93730	0.00013
32	0.93926	0.00010	0.93714	0.00020	0.98892	0.00000	0.01108	0.00000	0.93690	0.00015
33	0.66228	0.00232	0.50679	0.00050	0.92169	0.00003	0.07831	0.00003	0.50502	0.00052
34	0.68751	0.00281	0.55536	0.00059	0.92978	0.00002	0.07022	0.00002	0.55930	0.00085
35	0.89038	0.00020	0.86707	0.00019	0.97884	0.00000	0.02116	0.00000	0.87475	0.00019
36	0.88678	0.00014	0.87184	0.00015	0.97880	0.00000	0.02120	0.00000	0.87650	0.00016
37	0.93053	0.00010	0.93074	0.00016	0.98733	0.00000	0.01267	0.00000	0.92910	0.00014
38	0.92890	0.00010	0.92802	0.00017	0.98699	0.00000	0.01301	0.00000	0.92590	0.00014
39	0.90166	0.00021	0.88422	0.00036	0.98125	0.00001	0.01875	0.00001	0.89050	0.00030
40	0.89404	0.00013	0.88090	0.00021	0.98034	0.00000	0.01966	0.00000	0.88426	0.00018
41	0.89851	0.00030	0.87553	0.00027	0.98024	0.00001	0.01976	0.00001	0.88313	0.00032
42	0.89146	0.00016	0.87556	0.00011	0.97966	0.00000	0.02034	0.00000	0.88026	0.00008
43	0.93016	0.00015	0.93188	0.00021	0.98737	0.00001	0.01263	0.00001	0.92926	0.00019
44	0.92926	0.00016	0.92762	0.00029	0.98694	0.00001	0.01306	0.00001	0.92592	0.00024
45	0.70119	0.00134	0.52198	0.00389	0.92434	0.00017	0.07566	0.00017	0.52185	0.00326
46	0.69697	0.00220	0.58407	0.00060	0.93561	0.00002	0.06439	0.00002	0.58870	0.00083
47	0.88901	0.00030	0.86346	0.00038	0.97817	0.00001	0.02183	0.00001	0.87132	0.00039
48	0.88548	0.00033	0.86918	0.00057	0.97836	0.00001	0.02164	0.00001	0.87353	0.00049
49	0.95350	0.00013	0.95088	0.00010	0.99152	0.00000	0.00848	0.00000	0.95137	0.00011
50	0.94325	0.00007	0.94197	0.00012	0.98988	0.00000	0.01012	0.00000	0.94156	0.00009
51	0.91198	0.00016	0.89788	0.00016	0.98313	0.00000	0.01687	0.00000	0.90235	0.00016
52	0.91260	0.00007	0.90325	0.00005	0.98361	0.00000	0.01639	0.00000	0.90600	0.00004
53	0.90099	0.00010	0.88211	0.00014	0.98111	0.00000	0.01889	0.00000	0.88803	0.00013
54	0.90609	0.00012	0.89253	0.00013	0.98222	0.00000	0.01778	0.00000	0.89715	0.00011
55	0.96907	0.00010	0.95885	0.00018	0.99340	0.00000	0.00660	0.00000	0.96301	0.00014
56	0.96631	0.00005	0.95540	0.00011	0.99301	0.00000	0.00699	0.00000	0.95990	0.00008
57	0.60519	0.00120	0.45614	0.00088	0.91017	0.00003	0.08983	0.00003	0.45105	0.00100
58	0.63313	0.00359	0.49789	0.00085	0.91846	0.00002	0.08154	0.00002	0.50042	0.00113
59	0.88653	0.00011	0.86058	0.00014	0.97812	0.00000	0.02188	0.00000	0.86740	0.00017
60	0.88785	0.00018	0.87119	0.00020	0.97865	0.00000	0.02135	0.00000	0.87621	0.00018

Table 22. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 1 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89503	0.00009	0.87690	0.00014	0.97952	0.00000	0.02048	0.00000	0.88157	0.00012
2	0.90199	0.00012	0.89301	0.00030	0.98159	0.00001	0.01841	0.00001	0.89372	0.00024
3	0.88427	0.00024	0.84491	0.00035	0.97605	0.00001	0.02395	0.00001	0.85513	0.00033
4	0.87540	0.00010	0.85086	0.00012	0.97566	0.00000	0.02434	0.00000	0.85734	0.00011
5	0.88381	0.00026	0.84180	0.00033	0.97571	0.00001	0.02429	0.00001	0.85282	0.00033
6	0.87398	0.00009	0.84981	0.00014	0.97537	0.00000	0.02463	0.00000	0.85653	0.00013
7	0.89075	0.00019	0.87098	0.00046	0.97889	0.00001	0.02111	0.00001	0.87628	0.00036
8	0.90061	0.00019	0.88484	0.00032	0.98082	0.00001	0.01918	0.00001	0.88798	0.00030
9	0.80414	0.00088	0.62667	0.00031	0.94520	0.00001	0.05480	0.00001	0.63152	0.00040
10	0.80117	0.00080	0.65922	0.00072	0.95113	0.00002	0.04887	0.00002	0.66875	0.00080
11	0.88057	0.00016	0.83548	0.00028	0.97489	0.00001	0.02511	0.00001	0.84748	0.00028
12	0.86520	0.00005	0.83804	0.00020	0.97383	0.00000	0.02617	0.00000	0.84573	0.00016
13	0.96810	0.00008	0.95718	0.00013	0.99359	0.00000	0.00641	0.00000	0.96163	0.00011
14	0.95998	0.00007	0.94968	0.00010	0.99234	0.00000	0.00766	0.00000	0.95362	0.00008
15	0.92173	0.00008	0.89406	0.00018	0.98386	0.00000	0.01614	0.00000	0.90239	0.00018
16	0.92115	0.00003	0.89495	0.00008	0.98429	0.00000	0.01571	0.00000	0.90348	0.00003
17	0.91527	0.00015	0.88360	0.00015	0.98246	0.00000	0.01754	0.00000	0.89302	0.00019
18	0.91226	0.00001	0.88112	0.00007	0.98251	0.00000	0.01749	0.00000	0.89153	0.00003
19	0.98270	0.00005	0.96961	0.00011	0.99528	0.00000	0.00472	0.00000	0.97485	0.00009
20	0.97956	0.00005	0.96642	0.00010	0.99504	0.00000	0.00496	0.00000	0.97178	0.00008
21	0.64075	0.00649	0.46669	0.00155	0.91417	0.00006	0.08583	0.00006	0.45146	0.00217
22	0.69537	0.00213	0.52388	0.00050	0.92598	0.00002	0.07402	0.00002	0.52415	0.00046
23	0.90434	0.00008	0.87215	0.00006	0.98063	0.00000	0.01937	0.00000	0.88207	0.00008
24	0.90111	0.00005	0.86818	0.00006	0.98029	0.00000	0.01971	0.00000	0.87925	0.00004
25	0.95185	0.00009	0.94686	0.00009	0.99094	0.00000	0.00906	0.00000	0.94836	0.00009
26	0.95023	0.00003	0.94298	0.00010	0.99070	0.00000	0.00930	0.00000	0.94507	0.00006
27	0.92672	0.00009	0.90706	0.00014	0.98569	0.00000	0.01431	0.00000	0.91400	0.00012
28	0.91871	0.00004	0.90145	0.00013	0.98467	0.00000	0.01533	0.00000	0.90708	0.00009
29	0.91675	0.00019	0.89271	0.00016	0.98357	0.00000	0.01643	0.00000	0.90117	0.00018
30	0.91378	0.00004	0.89631	0.00011	0.98376	0.00000	0.01624	0.00000	0.90156	0.00008
31	0.95816	0.00011	0.95335	0.00009	0.99224	0.00000	0.00776	0.00000	0.95481	0.00010
32	0.95590	0.00013	0.94913	0.00019	0.99186	0.00000	0.00814	0.00000	0.95096	0.00017
33	0.74300	0.00225	0.56885	0.00053	0.93523	0.00002	0.06477	0.00002	0.56626	0.00068
34	0.74895	0.00183	0.59215	0.00071	0.93957	0.00002	0.06043	0.00002	0.59408	0.00071
35	0.90813	0.00016	0.88074	0.00017	0.98198	0.00000	0.01802	0.00000	0.89009	0.00017
36	0.90640	0.00007	0.88532	0.00013	0.98202	0.00000	0.01798	0.00000	0.89216	0.00012
37	0.93890	0.00012	0.93285	0.00009	0.98843	0.00000	0.01157	0.00000	0.93430	0.00011
38	0.93343	0.00009	0.92529	0.00012	0.98761	0.00000	0.01239	0.00000	0.92678	0.00011
39	0.91453	0.00011	0.89578	0.00026	0.98352	0.00000	0.01648	0.00000	0.90208	0.00021
40	0.90486	0.00011	0.89074	0.00020	0.98227	0.00000	0.01773	0.00000	0.89453	0.00016
41	0.90976	0.00016	0.88573	0.00025	0.98231	0.00001	0.01769	0.00001	0.89362	0.00026
42	0.90058	0.00006	0.88259	0.00013	0.98120	0.00000	0.01880	0.00000	0.88794	0.00011
43	0.94028	0.00013	0.93324	0.00014	0.98906	0.00000	0.01094	0.00000	0.93500	0.00013
44	0.93870	0.00008	0.93073	0.00017	0.98882	0.00000	0.01118	0.00000	0.93202	0.00013
45	0.77745	0.00168	0.60313	0.00032	0.94135	0.00001	0.05865	0.00001	0.60213	0.00048
46	0.78433	0.00147	0.62791	0.00032	0.94554	0.00001	0.05446	0.00001	0.63367	0.00037
47	0.90374	0.00013	0.87441	0.00017	0.98067	0.00001	0.01933	0.00001	0.88386	0.00018
48	0.89580	0.00011	0.87651	0.00021	0.98019	0.00000	0.01981	0.00000	0.88230	0.00020
49	0.96538	0.00005	0.95843	0.00007	0.99330	0.00000	0.00670	0.00000	0.96126	0.00006
50	0.96292	0.00011	0.95469	0.00010	0.99296	0.00000	0.00704	0.00000	0.95794	0.00010
51	0.92961	0.00006	0.90827	0.00012	0.98598	0.00000	0.01402	0.00000	0.91550	0.00010
52	0.92698	0.00012	0.90700	0.00022	0.98578	0.00000	0.01422	0.00000	0.91337	0.00020
53	0.92119	0.00004	0.89713	0.00011	0.98429	0.00000	0.01571	0.00000	0.90443	0.00010
54	0.91542	0.00004	0.89273	0.00014	0.98366	0.00000	0.01634	0.00000	0.90048	0.00011
55	0.97970	0.00004	0.96785	0.00009	0.99513	0.00000	0.00487	0.00000	0.97270	0.00007
56	0.97667	0.00005	0.96572	0.00009	0.99489	0.00000	0.00511	0.00000	0.97018	0.00007
57	0.69270	0.00451	0.51305	0.00086	0.92453	0.00003	0.07547	0.00003	0.49800	0.00130
58	0.70502	0.00431	0.54201	0.00083	0.93007	0.00003	0.06993	0.00003	0.54204	0.00095
59	0.90636	0.00007	0.88040	0.00013	0.98159	0.00000	0.01841	0.00000	0.88841	0.00013
60	0.90527	0.00007	0.87880	0.00014	0.98145	0.00000	0.01855	0.00000	0.88770	0.00012

Table 23. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 1 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.84843	0.00027	0.84843	0.00027	0.96969	0.00001	0.03031	0.00001	0.84843	0.00027
2	0.86434	0.00033	0.86434	0.00033	0.97287	0.00001	0.02713	0.00001	0.86434	0.00033
3	0.80434	0.00038	0.80434	0.00038	0.96087	0.00002	0.03913	0.00002	0.80434	0.00038
4	0.81952	0.00030	0.81952	0.00030	0.96390	0.00001	0.03610	0.00001	0.81952	0.00030
5	0.78554	0.00066	0.78554	0.00066	0.95711	0.00003	0.04289	0.00003	0.78554	0.00066
6	0.80530	0.00064	0.80530	0.00064	0.96106	0.00003	0.03894	0.00003	0.80530	0.00064
7	0.82265	0.00067	0.82265	0.00067	0.96453	0.00003	0.03547	0.00003	0.82265	0.00067
8	0.84554	0.00026	0.84554	0.00026	0.96911	0.00001	0.03089	0.00001	0.84554	0.00026
9	0.49880	0.00266	0.49880	0.00266	0.89976	0.00011	0.10024	0.00011	0.49880	0.00266
10	0.53976	0.00029	0.53976	0.00029	0.90795	0.00001	0.09205	0.00001	0.53976	0.00029
11	0.77373	0.00112	0.77373	0.00112	0.95475	0.00004	0.04525	0.00004	0.77373	0.00112
12	0.78892	0.00045	0.78892	0.00045	0.95778	0.00002	0.04222	0.00002	0.78892	0.00045
13	0.91157	0.00018	0.91157	0.00018	0.98231	0.00001	0.01769	0.00001	0.91157	0.00018
14	0.91687	0.00017	0.91687	0.00017	0.98337	0.00001	0.01663	0.00001	0.91687	0.00017
15	0.81084	0.00028	0.81084	0.00028	0.96217	0.00001	0.03783	0.00001	0.81084	0.00028
16	0.82916	0.00024	0.82916	0.00024	0.96583	0.00001	0.03417	0.00001	0.82916	0.00024
17	0.78651	0.00075	0.78651	0.00075	0.95730	0.00003	0.04270	0.00003	0.78651	0.00075
18	0.80361	0.00057	0.80361	0.00057	0.96072	0.00002	0.03928	0.00002	0.80361	0.00057
19	0.94723	0.00008	0.94723	0.00008	0.98945	0.00000	0.01055	0.00000	0.94723	0.00008
20	0.94048	0.00022	0.94048	0.00022	0.98810	0.00001	0.01190	0.00001	0.94048	0.00022
21	0.33157	0.00495	0.33157	0.00495	0.86631	0.00020	0.13369	0.00020	0.33157	0.00495
22	0.34747	0.00390	0.34747	0.00390	0.86949	0.00016	0.13051	0.00016	0.34747	0.00390
23	0.76964	0.00022	0.76964	0.00022	0.95393	0.00001	0.04607	0.00001	0.76964	0.00022
24	0.78096	0.00022	0.78096	0.00022	0.95619	0.00001	0.04381	0.00001	0.78096	0.00022
25	0.90747	0.00007	0.90747	0.00007	0.98149	0.00000	0.01851	0.00000	0.90747	0.00007
26	0.90892	0.00011	0.90892	0.00011	0.98178	0.00000	0.01822	0.00000	0.90892	0.00011
27	0.84265	0.00027	0.84265	0.00027	0.96853	0.00001	0.03147	0.00001	0.84265	0.00027
28	0.85663	0.00032	0.85663	0.00032	0.97133	0.00001	0.02867	0.00001	0.85663	0.00032
29	0.83157	0.00025	0.83157	0.00025	0.96631	0.00001	0.03369	0.00001	0.83157	0.00025
30	0.84410	0.00021	0.84410	0.00021	0.96882	0.00001	0.03118	0.00001	0.84410	0.00021
31	0.90723	0.00008	0.90723	0.00008	0.98145	0.00000	0.01855	0.00000	0.90723	0.00008
32	0.90988	0.00012	0.90988	0.00012	0.98198	0.00000	0.01802	0.00000	0.90988	0.00012
33	0.41807	0.00443	0.41807	0.00443	0.88361	0.00018	0.11639	0.00018	0.41807	0.00443
34	0.43494	0.00331	0.43494	0.00331	0.88699	0.00013	0.11301	0.00013	0.43494	0.00331
35	0.80289	0.00038	0.80289	0.00038	0.96058	0.00002	0.03942	0.00002	0.80289	0.00038
36	0.81687	0.00050	0.81687	0.00050	0.96337	0.00002	0.03663	0.00002	0.81687	0.00050
37	0.89928	0.00017	0.89928	0.00017	0.97986	0.00001	0.02014	0.00001	0.89928	0.00017
38	0.90530	0.00009	0.90530	0.00009	0.98106	0.00000	0.01894	0.00000	0.90530	0.00009
39	0.83590	0.00028	0.83590	0.00028	0.96718	0.00001	0.03282	0.00001	0.83590	0.00028
40	0.84651	0.00023	0.84651	0.00023	0.96930	0.00001	0.03070	0.00001	0.84651	0.00023
41	0.83373	0.00032	0.83373	0.00032	0.96675	0.00001	0.03325	0.00001	0.83373	0.00032
42	0.83373	0.00029	0.83373	0.00029	0.96675	0.00001	0.03325	0.00001	0.83373	0.00029
43	0.89277	0.00013	0.89277	0.00013	0.97855	0.00001	0.02145	0.00001	0.89277	0.00013
44	0.89590	0.00014	0.89590	0.00014	0.97918	0.00001	0.02082	0.00001	0.89590	0.00014
45	0.46651	0.00276	0.46651	0.00276	0.89330	0.00011	0.10670	0.00011	0.46651	0.00276
46	0.49976	0.00069	0.49976	0.00069	0.89995	0.00003	0.10005	0.00003	0.49976	0.00069
47	0.81422	0.00023	0.81422	0.00023	0.96284	0.00001	0.03716	0.00001	0.81422	0.00023
48	0.82434	0.00021	0.82434	0.00021	0.96487	0.00001	0.03513	0.00001	0.82434	0.00021
49	0.92651	0.00014	0.92651	0.00014	0.98530	0.00001	0.01470	0.00001	0.92651	0.00014
50	0.92458	0.00005	0.92458	0.00005	0.98492	0.00000	0.01508	0.00000	0.92458	0.00005
51	0.84988	0.00024	0.84988	0.00024	0.96998	0.00001	0.03002	0.00001	0.84988	0.00024
52	0.86169	0.00032	0.86169	0.00032	0.97234	0.00001	0.02766	0.00001	0.86169	0.00032
53	0.83060	0.00056	0.83060	0.00056	0.96612	0.00002	0.03388	0.00002	0.83060	0.00056
54	0.83663	0.00064	0.83663	0.00064	0.96733	0.00003	0.03267	0.00003	0.83663	0.00064
55	0.93133	0.00018	0.93133	0.00018	0.98627	0.00001	0.01373	0.00001	0.93133	0.00018
56	0.92506	0.00020	0.92506	0.00020	0.98501	0.00001	0.01499	0.00001	0.92506	0.00020
57	0.36940	0.00129	0.36940	0.00129	0.87388	0.00005	0.12612	0.00005	0.36940	0.00129
58	0.39253	0.00189	0.39253	0.00189	0.87851	0.00008	0.12149	0.00008	0.39253	0.00189
59	0.81325	0.00038	0.81325	0.00038	0.96265	0.00002	0.03735	0.00002	0.81325	0.00038
60	0.81783	0.00041	0.81783	0.00041	0.96357	0.00002	0.03643	0.00002	0.81783	0.00041

Table 24. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 1 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.87952	0.00022	0.87952	0.00022	0.97590	0.00001	0.02410	0.00001	0.87952	0.00022
2	0.89253	0.00031	0.89253	0.00031	0.97851	0.00001	0.02149	0.00001	0.89253	0.00031
3	0.84554	0.00020	0.84554	0.00020	0.96911	0.00001	0.03089	0.00001	0.84554	0.00020
4	0.86096	0.00019	0.86096	0.00019	0.97219	0.00001	0.02781	0.00001	0.86096	0.00019
5	0.83711	0.00074	0.83711	0.00074	0.96742	0.00003	0.03258	0.00003	0.83711	0.00074
6	0.85422	0.00042	0.85422	0.00042	0.97084	0.00002	0.02916	0.00002	0.85422	0.00042
7	0.85831	0.00059	0.85831	0.00059	0.97166	0.00002	0.02834	0.00002	0.85831	0.00059
8	0.87205	0.00028	0.87205	0.00028	0.97441	0.00001	0.02559	0.00001	0.87205	0.00028
9	0.57735	0.00209	0.57735	0.00209	0.91547	0.00008	0.08453	0.00008	0.57735	0.00209
10	0.61446	0.00112	0.61446	0.00112	0.92289	0.00004	0.07711	0.00004	0.61446	0.00112
11	0.83325	0.00043	0.83325	0.00043	0.96665	0.00002	0.03335	0.00002	0.83325	0.00043
12	0.85277	0.00013	0.85277	0.00013	0.97055	0.00001	0.02945	0.00001	0.85277	0.00013
13	0.94072	0.00010	0.94072	0.00010	0.98814	0.00000	0.01186	0.00000	0.94072	0.00010
14	0.94145	0.00010	0.94145	0.00010	0.98829	0.00000	0.01171	0.00000	0.94145	0.00010
15	0.86867	0.00025	0.86867	0.00025	0.97373	0.00001	0.02627	0.00001	0.86867	0.00025
16	0.87687	0.00026	0.87687	0.00026	0.97537	0.00001	0.02463	0.00001	0.87687	0.00026
17	0.86145	0.00026	0.86145	0.00026	0.97229	0.00001	0.02771	0.00001	0.86145	0.00026
18	0.86723	0.00016	0.86723	0.00016	0.97345	0.00001	0.02655	0.00001	0.86723	0.00016
19	0.95639	0.00009	0.95639	0.00009	0.99128	0.00000	0.00872	0.00000	0.95639	0.00009
20	0.94819	0.00008	0.94819	0.00008	0.98964	0.00000	0.01036	0.00000	0.94819	0.00008
21	0.43277	0.00272	0.43277	0.00272	0.88655	0.00011	0.11345	0.00011	0.43277	0.00272
22	0.44506	0.00203	0.44506	0.00203	0.88901	0.00008	0.11099	0.00008	0.44506	0.00203
23	0.83614	0.00037	0.83614	0.00037	0.96723	0.00001	0.03277	0.00001	0.83614	0.00037
24	0.84145	0.00018	0.84145	0.00018	0.96829	0.00001	0.03171	0.00001	0.84145	0.00018
25	0.92916	0.00013	0.92916	0.00013	0.98583	0.00001	0.01417	0.00001	0.92916	0.00013
26	0.93277	0.00014	0.93277	0.00014	0.98655	0.00001	0.01345	0.00001	0.93277	0.00014
27	0.88747	0.00008	0.88747	0.00008	0.97749	0.00000	0.02251	0.00000	0.88747	0.00008
28	0.89566	0.00007	0.89566	0.00007	0.97913	0.00000	0.02087	0.00000	0.89566	0.00007
29	0.87301	0.00031	0.87301	0.00031	0.97460	0.00001	0.02540	0.00001	0.87301	0.00031
30	0.88337	0.00023	0.88337	0.00023	0.97667	0.00001	0.02333	0.00001	0.88337	0.00023
31	0.91759	0.00015	0.91759	0.00015	0.98352	0.00001	0.01648	0.00001	0.91759	0.00015
32	0.91904	0.00010	0.91904	0.00010	0.98381	0.00000	0.01619	0.00000	0.91904	0.00010
33	0.50506	0.00159	0.50506	0.00159	0.90101	0.00006	0.09899	0.00006	0.50506	0.00159
34	0.54096	0.00127	0.54096	0.00127	0.90819	0.00005	0.09181	0.00005	0.54096	0.00127
35	0.86361	0.00016	0.86361	0.00016	0.97272	0.00001	0.02728	0.00001	0.86361	0.00016
36	0.87133	0.00019	0.87133	0.00019	0.97427	0.00001	0.02573	0.00001	0.87133	0.00019
37	0.92048	0.00013	0.92048	0.00013	0.98410	0.00001	0.01590	0.00001	0.92048	0.00013
38	0.92193	0.00015	0.92193	0.00015	0.98439	0.00001	0.01561	0.00001	0.92193	0.00015
39	0.87590	0.00014	0.87590	0.00014	0.97518	0.00001	0.02482	0.00001	0.87590	0.00014
40	0.88265	0.00011	0.88265	0.00011	0.97653	0.00000	0.02347	0.00000	0.88265	0.00011
41	0.86988	0.00031	0.86988	0.00031	0.97398	0.00001	0.02602	0.00001	0.86988	0.00031
42	0.87735	0.00021	0.87735	0.00021	0.97547	0.00001	0.02453	0.00001	0.87735	0.00021
43	0.90578	0.00030	0.90578	0.00030	0.98116	0.00001	0.01884	0.00001	0.90578	0.00030
44	0.90699	0.00013	0.90699	0.00013	0.98140	0.00001	0.01860	0.00001	0.90699	0.00013
45	0.52072	0.00363	0.52072	0.00363	0.90414	0.00015	0.09586	0.00015	0.52072	0.00363
46	0.59133	0.00073	0.59133	0.00073	0.91827	0.00003	0.08173	0.00003	0.59133	0.00073
47	0.85470	0.00008	0.85470	0.00008	0.97094	0.00000	0.02906	0.00000	0.85470	0.00008
48	0.86386	0.00017	0.86386	0.00017	0.97277	0.00001	0.02723	0.00001	0.86386	0.00017
49	0.94145	0.00011	0.94145	0.00011	0.98829	0.00000	0.01171	0.00000	0.94145	0.00011
50	0.94072	0.00015	0.94072	0.00015	0.98814	0.00001	0.01186	0.00001	0.94072	0.00015
51	0.89325	0.00011	0.89325	0.00011	0.97865	0.00000	0.02135	0.00000	0.89325	0.00011
52	0.89880	0.00020	0.89880	0.00020	0.97976	0.00001	0.02024	0.00001	0.89880	0.00020
53	0.87783	0.00021	0.87783	0.00021	0.97557	0.00001	0.02443	0.00001	0.87783	0.00021
54	0.87928	0.00031	0.87928	0.00031	0.97586	0.00001	0.02414	0.00001	0.87928	0.00031
55	0.94530	0.00012	0.94530	0.00012	0.98906	0.00000	0.01094	0.00000	0.94530	0.00012
56	0.94217	0.00014	0.94217	0.00014	0.98843	0.00001	0.01157	0.00001	0.94217	0.00014
57	0.46096	0.00050	0.46096	0.00050	0.89219	0.00002	0.10781	0.00002	0.46096	0.00050
58	0.47614	0.00054	0.47614	0.00054	0.89523	0.00002	0.10477	0.00002	0.47614	0.00054
59	0.86265	0.00025	0.86265	0.00025	0.97253	0.00001	0.02747	0.00001	0.86265	0.00025
60	0.86964	0.00014	0.86964	0.00014	0.97393	0.00001	0.02607	0.00001	0.86964	0.00014

Table 25. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 1 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89904	0.00020	0.89904	0.00020	0.97981	0.00001	0.02019	0.00001	0.89904	0.00020
2	0.90988	0.00016	0.90988	0.00016	0.98198	0.00001	0.01802	0.00001	0.90988	0.00016
3	0.87590	0.00015	0.87590	0.00015	0.97518	0.00001	0.02482	0.00001	0.87590	0.00015
4	0.87614	0.00024	0.87614	0.00024	0.97523	0.00001	0.02477	0.00001	0.87614	0.00024
5	0.87373	0.00022	0.87373	0.00022	0.97475	0.00001	0.02525	0.00001	0.87373	0.00022
6	0.87133	0.00026	0.87133	0.00026	0.97427	0.00001	0.02573	0.00001	0.87133	0.00026
7	0.89229	0.00012	0.89229	0.00012	0.97846	0.00000	0.02154	0.00000	0.89229	0.00012
8	0.89928	0.00031	0.89928	0.00031	0.97986	0.00001	0.02014	0.00001	0.89928	0.00031
9	0.66386	0.00089	0.66386	0.00089	0.93277	0.00004	0.06723	0.00004	0.66386	0.00089
10	0.70313	0.00082	0.70313	0.00082	0.94063	0.00003	0.05937	0.00003	0.70313	0.00082
11	0.86699	0.00021	0.86699	0.00021	0.97340	0.00001	0.02660	0.00001	0.86699	0.00021
12	0.86554	0.00033	0.86554	0.00033	0.97311	0.00001	0.02689	0.00001	0.86554	0.00033
13	0.95904	0.00006	0.95904	0.00006	0.99181	0.00000	0.00819	0.00000	0.95904	0.00006
14	0.95566	0.00009	0.95566	0.00009	0.99113	0.00000	0.00887	0.00000	0.95566	0.00009
15	0.90675	0.00013	0.90675	0.00013	0.98135	0.00001	0.01865	0.00001	0.90675	0.00013
16	0.90916	0.00015	0.90916	0.00015	0.98183	0.00001	0.01817	0.00001	0.90916	0.00015
17	0.89614	0.00015	0.89614	0.00015	0.97923	0.00001	0.02077	0.00001	0.89614	0.00015
18	0.90602	0.00011	0.90602	0.00011	0.98120	0.00000	0.01880	0.00000	0.90602	0.00011
19	0.96795	0.00011	0.96795	0.00011	0.99359	0.00000	0.00641	0.00000	0.96795	0.00011
20	0.96506	0.00013	0.96506	0.00013	0.99301	0.00001	0.00699	0.00001	0.96506	0.00013
21	0.52289	0.00050	0.52289	0.00050	0.90458	0.00002	0.09542	0.00002	0.52289	0.00050
22	0.55398	0.00071	0.55398	0.00071	0.91080	0.00003	0.08920	0.00003	0.55398	0.00071
23	0.87976	0.00018	0.87976	0.00018	0.97595	0.00001	0.02405	0.00001	0.87976	0.00018
24	0.88337	0.00016	0.88337	0.00016	0.97667	0.00001	0.02333	0.00001	0.88337	0.00016
25	0.94000	0.00008	0.94000	0.00008	0.98800	0.00000	0.01200	0.00000	0.94000	0.00008
26	0.94265	0.00007	0.94265	0.00007	0.98853	0.00000	0.01147	0.00000	0.94265	0.00007
27	0.91012	0.00012	0.91012	0.00012	0.98202	0.00000	0.01798	0.00000	0.91012	0.00012
28	0.91133	0.00012	0.91133	0.00012	0.98227	0.00000	0.01773	0.00000	0.91133	0.00012
29	0.90627	0.00027	0.90627	0.00027	0.98125	0.00001	0.01875	0.00001	0.90627	0.00027
30	0.90867	0.00007	0.90867	0.00007	0.98173	0.00000	0.01827	0.00000	0.90867	0.00007
31	0.94313	0.00013	0.94313	0.00013	0.98863	0.00001	0.01137	0.00001	0.94313	0.00013
32	0.94458	0.00011	0.94458	0.00011	0.98892	0.00000	0.01108	0.00000	0.94458	0.00011
33	0.60843	0.00064	0.60843	0.00064	0.92169	0.00003	0.07831	0.00003	0.60843	0.00064
34	0.64892	0.00051	0.64892	0.00051	0.92978	0.00002	0.07022	0.00002	0.64892	0.00051
35	0.89422	0.00011	0.89422	0.00011	0.97884	0.00000	0.02116	0.00000	0.89422	0.00011
36	0.89398	0.00012	0.89398	0.00012	0.97880	0.00000	0.02120	0.00000	0.89398	0.00012
37	0.93663	0.00011	0.93663	0.00011	0.98733	0.00000	0.01267	0.00000	0.93663	0.00011
38	0.93494	0.00009	0.93494	0.00009	0.98699	0.00000	0.01301	0.00000	0.93494	0.00009
39	0.90627	0.00022	0.90627	0.00022	0.98125	0.00001	0.01875	0.00001	0.90627	0.00022
40	0.90169	0.00010	0.90169	0.00010	0.98034	0.00000	0.01966	0.00000	0.90169	0.00010
41	0.90120	0.00023	0.90120	0.00023	0.98024	0.00001	0.01976	0.00001	0.90120	0.00023
42	0.89831	0.00008	0.89831	0.00008	0.97966	0.00000	0.02034	0.00000	0.89831	0.00008
43	0.93687	0.00014	0.93687	0.00014	0.98737	0.00001	0.01263	0.00001	0.93687	0.00014
44	0.93470	0.00016	0.93470	0.00016	0.98694	0.00001	0.01306	0.00001	0.93470	0.00016
45	0.62169	0.00427	0.62169	0.00427	0.92434	0.00017	0.07566	0.00017	0.62169	0.00427
46	0.67807	0.00043	0.67807	0.00043	0.93561	0.00002	0.06439	0.00002	0.67807	0.00043
47	0.89084	0.00026	0.89084	0.00026	0.97817	0.00001	0.02183	0.00001	0.89084	0.00026
48	0.89181	0.00035	0.89181	0.00035	0.97836	0.00001	0.02164	0.00001	0.89181	0.00035
49	0.95759	0.00011	0.95759	0.00011	0.99152	0.00000	0.00848	0.00000	0.95759	0.00011
50	0.94940	0.00006	0.94940	0.00006	0.98988	0.00000	0.01012	0.00000	0.94940	0.00006
51	0.91566	0.00012	0.91566	0.00012	0.98313	0.00000	0.01687	0.00000	0.91566	0.00012
52	0.91807	0.00003	0.91807	0.00003	0.98361	0.00000	0.01639	0.00000	0.91807	0.00003
53	0.90554	0.00010	0.90554	0.00010	0.98111	0.00000	0.01889	0.00000	0.90554	0.00010
54	0.91108	0.00008	0.91108	0.00008	0.98222	0.00000	0.01778	0.00000	0.91108	0.00008
55	0.96699	0.00011	0.96699	0.00011	0.99340	0.00000	0.00660	0.00000	0.96699	0.00011
56	0.96506	0.00007	0.96506	0.00007	0.99301	0.00000	0.00699	0.00000	0.96506	0.00007
57	0.55084	0.00077	0.55084	0.00077	0.91017	0.00003	0.08983	0.00003	0.55084	0.00077
58	0.59229	0.00050	0.59229	0.00050	0.91846	0.00002	0.08154	0.00002	0.59229	0.00050
59	0.89060	0.00011	0.89060	0.00011	0.97812	0.00000	0.02188	0.00000	0.89060	0.00011
60	0.89325	0.00012	0.89325	0.00012	0.97865	0.00000	0.02135	0.00000	0.89325	0.00012

Table 26. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 1 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89759	0.00010	0.89759	0.00010	0.97952	0.00000	0.02048	0.00000	0.89759	0.00010
2	0.90795	0.00015	0.90795	0.00015	0.98159	0.00001	0.01841	0.00001	0.90795	0.00015
3	0.88024	0.00023	0.88024	0.00023	0.97605	0.00001	0.02395	0.00001	0.88024	0.00023
4	0.87831	0.00010	0.87831	0.00010	0.97566	0.00000	0.02434	0.00000	0.87831	0.00010
5	0.87855	0.00021	0.87855	0.00021	0.97571	0.00001	0.02429	0.00001	0.87855	0.00021
6	0.87687	0.00007	0.87687	0.00007	0.97537	0.00000	0.02463	0.00000	0.87687	0.00007
7	0.89446	0.00028	0.89446	0.00028	0.97889	0.00001	0.02111	0.00001	0.89446	0.00028
8	0.90410	0.00017	0.90410	0.00017	0.98082	0.00001	0.01918	0.00001	0.90410	0.00017
9	0.72602	0.00018	0.72602	0.00018	0.94520	0.00001	0.05480	0.00001	0.72602	0.00018
10	0.75566	0.00044	0.75566	0.00044	0.95113	0.00002	0.04887	0.00002	0.75566	0.00044
11	0.87446	0.00016	0.87446	0.00016	0.97489	0.00001	0.02511	0.00001	0.87446	0.00016
12	0.86916	0.00006	0.86916	0.00006	0.97383	0.00000	0.02617	0.00000	0.86916	0.00006
13	0.96795	0.00008	0.96795	0.00008	0.99359	0.00000	0.00641	0.00000	0.96795	0.00008
14	0.96169	0.00005	0.96169	0.00005	0.99234	0.00000	0.00766	0.00000	0.96169	0.00005
15	0.91928	0.00007	0.91928	0.00007	0.98386	0.00000	0.01614	0.00000	0.91928	0.00007
16	0.92145	0.00001	0.92145	0.00001	0.98429	0.00000	0.01571	0.00000	0.92145	0.00001
17	0.91229	0.00009	0.91229	0.00009	0.98246	0.00000	0.01754	0.00000	0.91229	0.00009
18	0.91253	0.00001	0.91253	0.00001	0.98251	0.00000	0.01749	0.00000	0.91253	0.00001
19	0.97639	0.00007	0.97639	0.00007	0.99528	0.00000	0.00472	0.00000	0.97639	0.00007
20	0.97518	0.00007	0.97518	0.00007	0.99504	0.00000	0.00496	0.00000	0.97518	0.00007
21	0.57084	0.00146	0.57084	0.00146	0.91417	0.00006	0.08583	0.00006	0.57084	0.00146
22	0.62988	0.00043	0.62988	0.00043	0.92598	0.00002	0.07402	0.00002	0.62988	0.00043
23	0.90313	0.00004	0.90313	0.00004	0.98063	0.00000	0.01937	0.00000	0.90313	0.00004
24	0.90145	0.00002	0.90145	0.00002	0.98029	0.00000	0.01971	0.00000	0.90145	0.00002
25	0.95470	0.00007	0.95470	0.00007	0.99094	0.00000	0.00906	0.00000	0.95470	0.00007
26	0.95349	0.00004	0.95349	0.00004	0.99070	0.00000	0.00930	0.00000	0.95349	0.00004
27	0.92843	0.00007	0.92843	0.00007	0.98569	0.00000	0.01431	0.00000	0.92843	0.00007
28	0.92337	0.00004	0.92337	0.00004	0.98467	0.00000	0.01533	0.00000	0.92337	0.00004
29	0.91783	0.00009	0.91783	0.00009	0.98357	0.00000	0.01643	0.00000	0.91783	0.00009
30	0.91880	0.00003	0.91880	0.00003	0.98376	0.00000	0.01624	0.00000	0.91880	0.00003
31	0.96120	0.00008	0.96120	0.00008	0.99224	0.00000	0.00776	0.00000	0.96120	0.00008
32	0.95928	0.00010	0.95928	0.00010	0.99186	0.00000	0.00814	0.00000	0.95928	0.00010
33	0.67614	0.00049	0.67614	0.00049	0.93523	0.00002	0.06477	0.00002	0.67614	0.00049
34	0.69783	0.00060	0.69783	0.00060	0.93957	0.00002	0.06043	0.00002	0.69783	0.00060
35	0.90988	0.00009	0.90988	0.00009	0.98198	0.00000	0.01802	0.00000	0.90988	0.00009
36	0.91012	0.00004	0.91012	0.00004	0.98202	0.00000	0.01798	0.00000	0.91012	0.00004
37	0.94217	0.00010	0.94217	0.00010	0.98843	0.00000	0.01157	0.00000	0.94217	0.00010
38	0.93807	0.00008	0.93807	0.00008	0.98761	0.00000	0.01239	0.00000	0.93807	0.00008
39	0.91759	0.00011	0.91759	0.00011	0.98352	0.00000	0.01648	0.00000	0.91759	0.00011
40	0.91133	0.00009	0.91133	0.00009	0.98227	0.00000	0.01773	0.00000	0.91133	0.00009
41	0.91157	0.00014	0.91157	0.00014	0.98231	0.00001	0.01769	0.00001	0.91157	0.00014
42	0.90602	0.00006	0.90602	0.00006	0.98120	0.00000	0.01880	0.00000	0.90602	0.00006
43	0.94530	0.00010	0.94530	0.00010	0.98906	0.00000	0.01094	0.00000	0.94530	0.00010
44	0.94410	0.00008	0.94410	0.00008	0.98882	0.00000	0.01118	0.00000	0.94410	0.00008
45	0.70675	0.00031	0.70675	0.00031	0.94135	0.00001	0.05865	0.00001	0.70675	0.00031
46	0.72771	0.00018	0.72771	0.00018	0.94554	0.00001	0.05446	0.00001	0.72771	0.00018
47	0.90337	0.00013	0.90337	0.00013	0.98067	0.00001	0.01933	0.00001	0.90337	0.00013
48	0.90096	0.00010	0.90096	0.00010	0.98019	0.00000	0.01981	0.00000	0.90096	0.00010
49	0.96651	0.00004	0.96651	0.00004	0.99330	0.00000	0.00670	0.00000	0.96651	0.00004
50	0.96482	0.00008	0.96482	0.00008	0.99296	0.00000	0.00704	0.00000	0.96482	0.00008
51	0.92988	0.00006	0.92988	0.00006	0.98598	0.00000	0.01402	0.00000	0.92988	0.00006
52	0.92892	0.00009	0.92892	0.00009	0.98578	0.00000	0.01422	0.00000	0.92892	0.00009
53	0.92145	0.00004	0.92145	0.00004	0.98429	0.00000	0.01571	0.00000	0.92145	0.00004
54	0.91831	0.00004	0.91831	0.00004	0.98366	0.00000	0.01634	0.00000	0.91831	0.00004
55	0.97566	0.00006	0.97566	0.00006	0.99513	0.00000	0.00487	0.00000	0.97566	0.00006
56	0.97446	0.00006	0.97446	0.00006	0.99489	0.00000	0.00511	0.00000	0.97446	0.00006
57	0.62265	0.00078	0.62265	0.00078	0.92453	0.00003	0.07547	0.00003	0.62265	0.00078
58	0.65036	0.00063	0.65036	0.00063	0.93007	0.00003	0.06993	0.00003	0.65036	0.00063
59	0.90795	0.00007	0.90795	0.00007	0.98159	0.00000	0.01841	0.00000	0.90795	0.00007
60	0.90723	0.00006	0.90723	0.00006	0.98145	0.00000	0.01855	0.00000	0.90723	0.00006

Table 27. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 1 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.78564	0.00066	0.79845	0.00071	0.96222	0.00002	0.03778	0.00002	0.78824	0.00072
2	0.78325	0.00047	0.79623	0.00055	0.96183	0.00001	0.03817	0.00001	0.78614	0.00053
3	0.82863	0.00065	0.83559	0.00061	0.96906	0.00002	0.03094	0.00002	0.82914	0.00060
4	0.82123	0.00054	0.83045	0.00063	0.96790	0.00002	0.03210	0.00002	0.82255	0.00056
5	0.82495	0.00035	0.83351	0.00031	0.96824	0.00001	0.03176	0.00001	0.82600	0.00031
6	0.82218	0.00035	0.82971	0.00030	0.96786	0.00001	0.03214	0.00001	0.82293	0.00031
7	0.81171	0.00029	0.81373	0.00023	0.96530	0.00001	0.03470	0.00001	0.80890	0.00020
8	0.81217	0.00017	0.81174	0.00017	0.96545	0.00001	0.03455	0.00001	0.80862	0.00012
9	0.73450	0.00053	0.73825	0.00055	0.95104	0.00002	0.04896	0.00002	0.73260	0.00057
10	0.72870	0.00072	0.73321	0.00056	0.94949	0.00002	0.05051	0.00002	0.72606	0.00065
11	0.81567	0.00059	0.82041	0.00058	0.96680	0.00002	0.03320	0.00002	0.81558	0.00055
12	0.81172	0.00100	0.81602	0.00090	0.96607	0.00003	0.03393	0.00003	0.81141	0.00093
13	0.70368	0.00231	0.71169	0.00321	0.94520	0.00011	0.05480	0.00011	0.69995	0.00284
14	0.70244	0.00237	0.71153	0.00291	0.94458	0.00011	0.05542	0.00011	0.69828	0.00274
15	0.73037	0.00080	0.73306	0.00070	0.94925	0.00002	0.05075	0.00002	0.72665	0.00076
16	0.72450	0.00123	0.72811	0.00105	0.94839	0.00003	0.05161	0.00003	0.72104	0.00120
17	0.73233	0.00056	0.74137	0.00041	0.95142	0.00002	0.04858	0.00002	0.73221	0.00047
18	0.72707	0.00052	0.73476	0.00037	0.95002	0.00002	0.04998	0.00002	0.72598	0.00042
19	0.79309	0.00161	0.79340	0.00174	0.96058	0.00012	0.03942	0.00012	0.78761	0.00183
20	0.79040	0.00147	0.78988	0.00156	0.96005	0.00011	0.03995	0.00011	0.78451	0.00169
21	0.57519	0.00084	0.58411	0.00083	0.91884	0.00003	0.08116	0.00003	0.57470	0.00082
22	0.56963	0.00084	0.57790	0.00081	0.91730	0.00003	0.08270	0.00003	0.56805	0.00080
23	0.69194	0.00127	0.69936	0.00115	0.94434	0.00003	0.05566	0.00003	0.69062	0.00117
24	0.68963	0.00110	0.69981	0.00095	0.94361	0.00002	0.05639	0.00002	0.68900	0.00097
25	0.78031	0.00130	0.78686	0.00112	0.95961	0.00004	0.04039	0.00004	0.77752	0.00118
26	0.78260	0.00146	0.78876	0.00142	0.95933	0.00005	0.04067	0.00005	0.77939	0.00141
27	0.82809	0.00042	0.83198	0.00030	0.96829	0.00002	0.03171	0.00002	0.82648	0.00036
28	0.82261	0.00028	0.82705	0.00030	0.96737	0.00002	0.03263	0.00002	0.82134	0.00029
29	0.81785	0.00071	0.82219	0.00078	0.96694	0.00003	0.03306	0.00003	0.81633	0.00081
30	0.81236	0.00075	0.81838	0.00066	0.96593	0.00003	0.03407	0.00003	0.81176	0.00075
31	0.82464	0.00079	0.82569	0.00060	0.96814	0.00002	0.03186	0.00002	0.82178	0.00064
32	0.81515	0.00098	0.81674	0.00071	0.96651	0.00002	0.03349	0.00002	0.81186	0.00079
33	0.66514	0.00030	0.67015	0.00019	0.93696	0.00001	0.06304	0.00001	0.66341	0.00022
34	0.65763	0.00029	0.66355	0.00019	0.93518	0.00001	0.06482	0.00001	0.65598	0.00020
35	0.80802	0.00077	0.81141	0.00051	0.96573	0.00002	0.03427	0.00002	0.80682	0.00064
36	0.80072	0.00073	0.80384	0.00043	0.96395	0.00002	0.03605	0.00002	0.79870	0.00059
37	0.77945	0.00062	0.78937	0.00051	0.96058	0.00002	0.03942	0.00002	0.77993	0.00056
38	0.77914	0.00053	0.78822	0.00044	0.96043	0.00002	0.03957	0.00002	0.77978	0.00047
39	0.82806	0.00044	0.83388	0.00044	0.96877	0.00001	0.03123	0.00001	0.82732	0.00042
40	0.82695	0.00068	0.83386	0.00058	0.96882	0.00002	0.03118	0.00002	0.82718	0.00062
41	0.82263	0.00083	0.82876	0.00064	0.96757	0.00003	0.03243	0.00003	0.82175	0.00076
42	0.81675	0.00073	0.82288	0.00054	0.96631	0.00003	0.03369	0.00003	0.81560	0.00066
43	0.82081	0.00038	0.82389	0.00027	0.96757	0.00001	0.03243	0.00001	0.81974	0.00030
44	0.81458	0.00044	0.81772	0.00030	0.96680	0.00001	0.03320	0.00001	0.81350	0.00034
45	0.69174	0.00047	0.69421	0.00066	0.94169	0.00002	0.05831	0.00002	0.68857	0.00058
46	0.68722	0.00047	0.69199	0.00088	0.94106	0.00002	0.05894	0.00002	0.68439	0.00066
47	0.81129	0.00043	0.81777	0.00029	0.96612	0.00002	0.03388	0.00002	0.81116	0.00032
48	0.81059	0.00040	0.81838	0.00026	0.96593	0.00001	0.03407	0.00001	0.81106	0.00029
49	0.75413	0.00335	0.75900	0.00305	0.95446	0.00010	0.04554	0.00010	0.75064	0.00322
50	0.75592	0.00265	0.75830	0.00254	0.95431	0.00009	0.04569	0.00009	0.75008	0.00265
51	0.78973	0.00049	0.79310	0.00052	0.96125	0.00002	0.03875	0.00002	0.78705	0.00053
52	0.78565	0.00044	0.79060	0.00044	0.96067	0.00001	0.03933	0.00001	0.78365	0.00048
53	0.77716	0.00057	0.78065	0.00074	0.95880	0.00002	0.04120	0.00002	0.77459	0.00070
54	0.77857	0.00083	0.78292	0.00084	0.95894	0.00003	0.04106	0.00003	0.77623	0.00091
55	0.82242	0.00061	0.82045	0.00061	0.96733	0.00002	0.03267	0.00002	0.81729	0.00065
56	0.81660	0.00079	0.81527	0.00079	0.96631	0.00003	0.03369	0.00003	0.81178	0.00081
57	0.62047	0.00097	0.62538	0.00088	0.92790	0.00004	0.07210	0.00004	0.61790	0.00094
58	0.61384	0.00115	0.62057	0.00107	0.92680	0.00004	0.07320	0.00004	0.61127	0.00104
59	0.74030	0.00113	0.74814	0.00089	0.95306	0.00004	0.04694	0.00004	0.74037	0.00105
60	0.74154	0.00095	0.74889	0.00068	0.95311	0.00004	0.04689	0.00004	0.74137	0.00086

Table 28. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 0.3 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.81108	0.00047	0.81108	0.00047	0.96222	0.00002	0.03778	0.00002	0.81108	0.00047
2	0.80916	0.00035	0.80916	0.00035	0.96183	0.00001	0.03817	0.00001	0.80916	0.00035
3	0.84530	0.00045	0.84530	0.00045	0.96906	0.00002	0.03094	0.00002	0.84530	0.00045
4	0.83952	0.00046	0.83952	0.00046	0.96790	0.00002	0.03210	0.00002	0.83952	0.00046
5	0.84120	0.00021	0.84120	0.00021	0.96824	0.00001	0.03176	0.00001	0.84120	0.00021
6	0.83928	0.00020	0.83928	0.00020	0.96786	0.00001	0.03214	0.00001	0.83928	0.00020
7	0.82651	0.00021	0.82651	0.00021	0.96530	0.00001	0.03470	0.00001	0.82651	0.00021
8	0.82723	0.00013	0.82723	0.00013	0.96545	0.00001	0.03455	0.00001	0.82723	0.00013
9	0.75518	0.00047	0.75518	0.00047	0.95104	0.00002	0.04896	0.00002	0.75518	0.00047
10	0.74747	0.00058	0.74747	0.00058	0.94949	0.00002	0.05051	0.00002	0.74747	0.00058
11	0.83398	0.00047	0.83398	0.00047	0.96680	0.00002	0.03320	0.00002	0.83398	0.00047
12	0.83036	0.00076	0.83036	0.00076	0.96607	0.00003	0.03393	0.00003	0.83036	0.00076
13	0.72602	0.00286	0.72602	0.00286	0.94520	0.00011	0.05480	0.00011	0.72602	0.00286
14	0.72289	0.00267	0.72289	0.00267	0.94458	0.00011	0.05542	0.00011	0.72289	0.00267
15	0.74627	0.00051	0.74627	0.00051	0.94925	0.00002	0.05075	0.00002	0.74627	0.00051
16	0.74193	0.00085	0.74193	0.00085	0.94839	0.00003	0.05161	0.00003	0.74193	0.00085
17	0.75711	0.00044	0.75711	0.00044	0.95142	0.00002	0.04858	0.00002	0.75711	0.00044
18	0.75012	0.00041	0.75012	0.00041	0.95002	0.00002	0.04998	0.00002	0.75012	0.00041
19	0.80289	0.00295	0.80289	0.00295	0.96058	0.00012	0.03942	0.00012	0.80289	0.00295
20	0.80024	0.00269	0.80024	0.00269	0.96005	0.00011	0.03995	0.00011	0.80024	0.00269
21	0.59422	0.00076	0.59422	0.00076	0.91884	0.00003	0.08116	0.00003	0.59422	0.00076
22	0.58651	0.00079	0.58651	0.00079	0.91730	0.00003	0.08270	0.00003	0.58651	0.00079
23	0.72169	0.00068	0.72169	0.00068	0.94434	0.00003	0.05566	0.00003	0.72169	0.00068
24	0.71807	0.00062	0.71807	0.00062	0.94361	0.00002	0.05639	0.00002	0.71807	0.00062
25	0.79807	0.00094	0.79807	0.00094	0.95961	0.00004	0.04039	0.00004	0.79807	0.00094
26	0.79663	0.00121	0.79663	0.00121	0.95933	0.00005	0.04067	0.00005	0.79663	0.00121
27	0.84145	0.00046	0.84145	0.00046	0.96829	0.00002	0.03171	0.00002	0.84145	0.00046
28	0.83687	0.00038	0.83687	0.00038	0.96737	0.00002	0.03263	0.00002	0.83687	0.00038
29	0.83470	0.00069	0.83470	0.00069	0.96694	0.00003	0.03306	0.00003	0.83470	0.00069
30	0.82964	0.00068	0.82964	0.00068	0.96593	0.00003	0.03407	0.00003	0.82964	0.00068
31	0.84072	0.00053	0.84072	0.00053	0.96814	0.00002	0.03186	0.00002	0.84072	0.00053
32	0.83253	0.00057	0.83253	0.00057	0.96651	0.00002	0.03349	0.00002	0.83253	0.00057
33	0.68482	0.00026	0.68482	0.00026	0.93696	0.00001	0.06304	0.00001	0.68482	0.00026
34	0.67590	0.00028	0.67590	0.00028	0.93518	0.00001	0.06482	0.00001	0.67590	0.00028
35	0.82867	0.00050	0.82867	0.00050	0.96573	0.00002	0.03427	0.00002	0.82867	0.00050
36	0.81976	0.00041	0.81976	0.00041	0.96395	0.00002	0.03605	0.00002	0.81976	0.00041
37	0.80289	0.00052	0.80289	0.00052	0.96058	0.00002	0.03942	0.00002	0.80289	0.00052
38	0.80217	0.00040	0.80217	0.00040	0.96043	0.00002	0.03957	0.00002	0.80217	0.00040
39	0.84386	0.00033	0.84386	0.00033	0.96877	0.00001	0.03123	0.00001	0.84386	0.00033
40	0.84410	0.00050	0.84410	0.00050	0.96882	0.00002	0.03118	0.00002	0.84410	0.00050
41	0.83783	0.00072	0.83783	0.00072	0.96757	0.00003	0.03243	0.00003	0.83783	0.00072
42	0.83157	0.00069	0.83157	0.00069	0.96631	0.00003	0.03369	0.00003	0.83157	0.00069
43	0.83783	0.00022	0.83783	0.00022	0.96757	0.00001	0.03243	0.00001	0.83783	0.00022
44	0.83398	0.00023	0.83398	0.00023	0.96680	0.00001	0.03320	0.00001	0.83398	0.00023
45	0.70843	0.00049	0.70843	0.00049	0.94169	0.00002	0.05831	0.00002	0.70843	0.00049
46	0.70530	0.00043	0.70530	0.00043	0.94106	0.00002	0.05894	0.00002	0.70530	0.00043
47	0.83060	0.00038	0.83060	0.00038	0.96612	0.00002	0.03388	0.00002	0.83060	0.00038
48	0.82964	0.00028	0.82964	0.00028	0.96593	0.00001	0.03407	0.00001	0.82964	0.00028
49	0.77229	0.00249	0.77229	0.00249	0.95446	0.00010	0.04554	0.00010	0.77229	0.00249
50	0.77157	0.00218	0.77157	0.00218	0.95431	0.00009	0.04569	0.00009	0.77157	0.00218
51	0.80627	0.00042	0.80627	0.00042	0.96125	0.00002	0.03875	0.00002	0.80627	0.00042
52	0.80337	0.00036	0.80337	0.00036	0.96067	0.00001	0.03933	0.00001	0.80337	0.00036
53	0.79398	0.00059	0.79398	0.00059	0.95880	0.00002	0.04120	0.00002	0.79398	0.00059
54	0.79470	0.00083	0.79470	0.00083	0.95894	0.00003	0.04106	0.00003	0.79470	0.00083
55	0.83663	0.00061	0.83663	0.00061	0.96733	0.00002	0.03267	0.00002	0.83663	0.00061
56	0.83157	0.00075	0.83157	0.00075	0.96631	0.00003	0.03369	0.00003	0.83157	0.00075
57	0.63952	0.00112	0.63952	0.00112	0.92790	0.00004	0.07210	0.00004	0.63952	0.00112
58	0.63398	0.00105	0.63398	0.00105	0.92680	0.00004	0.07320	0.00004	0.63398	0.00105
59	0.76530	0.00106	0.76530	0.00106	0.95306	0.00004	0.04694	0.00004	0.76530	0.00106
60	0.76554	0.00093	0.76554	0.00093	0.95311	0.00004	0.04689	0.00004	0.76554	0.00093

Table 29. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 0.3 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.85086	0.00048	0.85688	0.00042	0.97296	0.00002	0.02704	0.00002	0.84966	0.00047
2	0.86045	0.00032	0.86557	0.00029	0.97460	0.00001	0.02540	0.00001	0.85943	0.00030
3	0.83354	0.00021	0.83088	0.00024	0.96896	0.00001	0.03104	0.00001	0.82786	0.00026
4	0.83916	0.00023	0.83819	0.00022	0.96993	0.00001	0.03007	0.00001	0.83374	0.00025
5	0.83009	0.00045	0.82302	0.00045	0.96829	0.00001	0.03171	0.00001	0.82218	0.00048
6	0.83265	0.00038	0.82724	0.00043	0.96877	0.00002	0.03123	0.00002	0.82547	0.00050
7	0.84585	0.00029	0.85023	0.00042	0.97157	0.00001	0.02843	0.00001	0.84319	0.00033
8	0.85064	0.00039	0.85444	0.00044	0.97267	0.00001	0.02733	0.00001	0.84897	0.00037
9	0.64711	0.00093	0.59563	0.00086	0.92790	0.00003	0.07210	0.00003	0.60612	0.00082
10	0.66423	0.00097	0.62346	0.00176	0.93186	0.00005	0.06814	0.00005	0.63237	0.00153
11	0.81386	0.00025	0.80362	0.00036	0.96540	0.00001	0.03460	0.00001	0.80463	0.00030
12	0.82394	0.00034	0.81676	0.00040	0.96675	0.00001	0.03325	0.00001	0.81577	0.00035
13	0.90207	0.00025	0.90146	0.00026	0.98275	0.00001	0.01725	0.00001	0.90055	0.00025
14	0.90559	0.00015	0.90386	0.00012	0.98328	0.00000	0.01672	0.00000	0.90353	0.00013
15	0.83087	0.00011	0.82318	0.00027	0.96877	0.00000	0.03123	0.00000	0.82394	0.00019
16	0.83552	0.00014	0.83071	0.00022	0.96964	0.00000	0.03036	0.00000	0.83005	0.00017
17	0.81072	0.00053	0.80428	0.00058	0.96443	0.00002	0.03557	0.00002	0.80397	0.00054
18	0.82302	0.00030	0.81847	0.00041	0.96670	0.00001	0.03330	0.00001	0.81715	0.00032
19	0.93662	0.00012	0.92679	0.00014	0.98790	0.00000	0.01210	0.00000	0.93064	0.00012
20	0.92835	0.00016	0.92062	0.00017	0.98651	0.00001	0.01349	0.00001	0.92335	0.00016
21	0.47654	0.00277	0.43480	0.00306	0.89446	0.00012	0.10554	0.00012	0.44113	0.00305
22	0.48718	0.00085	0.45169	0.00144	0.89677	0.00006	0.10323	0.00006	0.45725	0.00126
23	0.79058	0.00055	0.78527	0.00049	0.96092	0.00001	0.03908	0.00001	0.78426	0.00047
24	0.79302	0.00045	0.78879	0.00047	0.96106	0.00001	0.03894	0.00001	0.78704	0.00041
25	0.90272	0.00006	0.90535	0.00006	0.98255	0.00000	0.01745	0.00000	0.90271	0.00005
26	0.90107	0.00009	0.90252	0.00013	0.98227	0.00000	0.01773	0.00000	0.90058	0.00011
27	0.85961	0.00043	0.85654	0.00050	0.97475	0.00001	0.02525	0.00001	0.85564	0.00048
28	0.85955	0.00038	0.85751	0.00036	0.97475	0.00001	0.02525	0.00001	0.85601	0.00036
29	0.84715	0.00015	0.84290	0.00021	0.97219	0.00001	0.02781	0.00001	0.84226	0.00018
30	0.85247	0.00015	0.84879	0.00017	0.97306	0.00001	0.02694	0.00001	0.84742	0.00016
31	0.90180	0.00029	0.90214	0.00030	0.98198	0.00001	0.01802	0.00001	0.90050	0.00030
32	0.90004	0.00030	0.89812	0.00032	0.98159	0.00001	0.01841	0.00001	0.89756	0.00030
33	0.56756	0.00122	0.52187	0.00088	0.91301	0.00004	0.08699	0.00004	0.52844	0.00069
34	0.59044	0.00161	0.54753	0.00146	0.91687	0.00007	0.08313	0.00007	0.55770	0.00135
35	0.83994	0.00043	0.83418	0.00050	0.97041	0.00002	0.02959	0.00002	0.83413	0.00050
36	0.84266	0.00054	0.83711	0.00064	0.97104	0.00002	0.02896	0.00002	0.83671	0.00061
37	0.88889	0.00014	0.89299	0.00014	0.98010	0.00001	0.01990	0.00001	0.88895	0.00014
38	0.89362	0.00017	0.89628	0.00019	0.98072	0.00001	0.01928	0.00001	0.89277	0.00018
39	0.85692	0.00017	0.85411	0.00017	0.97398	0.00000	0.02602	0.00000	0.85298	0.00016
40	0.86149	0.00009	0.85715	0.00016	0.97475	0.00000	0.02525	0.00000	0.85679	0.00013
41	0.84708	0.00072	0.84321	0.00089	0.97190	0.00002	0.02810	0.00002	0.84235	0.00080
42	0.84564	0.00035	0.84138	0.00046	0.97152	0.00001	0.02848	0.00001	0.84035	0.00041
43	0.88329	0.00018	0.88591	0.00028	0.97865	0.00001	0.02135	0.00001	0.88272	0.00020
44	0.89288	0.00017	0.89267	0.00023	0.98034	0.00001	0.01966	0.00001	0.89089	0.00018
45	0.60322	0.00158	0.54809	0.00109	0.91817	0.00005	0.08183	0.00005	0.55946	0.00112
46	0.62650	0.00089	0.57199	0.00108	0.92130	0.00004	0.07870	0.00004	0.58438	0.00089
47	0.83777	0.00029	0.83320	0.00022	0.97060	0.00001	0.02940	0.00001	0.83262	0.00024
48	0.84023	0.00027	0.83464	0.00026	0.97070	0.00001	0.02930	0.00001	0.83388	0.00024
49	0.91230	0.00016	0.91143	0.00012	0.98439	0.00000	0.01561	0.00000	0.91038	0.00013
50	0.90879	0.00015	0.90847	0.00015	0.98386	0.00001	0.01614	0.00001	0.90713	0.00015
51	0.85310	0.00031	0.85361	0.00037	0.97349	0.00001	0.02651	0.00001	0.85121	0.00033
52	0.85846	0.00027	0.85763	0.00032	0.97436	0.00001	0.02564	0.00001	0.85575	0.00028
53	0.84573	0.00024	0.83958	0.00046	0.97118	0.00001	0.02882	0.00001	0.83884	0.00036
54	0.84821	0.00013	0.84242	0.00023	0.97166	0.00000	0.02834	0.00000	0.84146	0.00017
55	0.92744	0.00007	0.91852	0.00014	0.98636	0.00000	0.01364	0.00000	0.92185	0.00010
56	0.92197	0.00017	0.91407	0.00022	0.98549	0.00001	0.01451	0.00001	0.91669	0.00020
57	0.51600	0.00178	0.46482	0.00136	0.90125	0.00006	0.09875	0.00006	0.47348	0.00135
58	0.54531	0.00121	0.49796	0.00093	0.90670	0.00005	0.09330	0.00005	0.50972	0.00102
59	0.82503	0.00027	0.82324	0.00032	0.96814	0.00001	0.03186	0.00001	0.82177	0.00028
60	0.82619	0.00020	0.82397	0.00039	0.96795	0.00001	0.03205	0.00001	0.82228	0.00028

Table 30. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 0.7 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.87456	0.00022	0.87931	0.00035	0.97725	0.00001	0.02275	0.00001	0.87334	0.00028
2	0.88640	0.00038	0.89058	0.00054	0.97942	0.00001	0.02058	0.00001	0.88508	0.00047
3	0.86056	0.00032	0.85938	0.00047	0.97446	0.00001	0.02554	0.00001	0.85698	0.00042
4	0.85273	0.00035	0.85192	0.00047	0.97272	0.00001	0.02728	0.00001	0.84798	0.00045
5	0.86116	0.00024	0.85571	0.00040	0.97427	0.00001	0.02573	0.00001	0.85503	0.00033
6	0.85534	0.00030	0.85207	0.00049	0.97306	0.00001	0.02694	0.00001	0.84965	0.00044
7	0.86316	0.00026	0.86736	0.00027	0.97480	0.00001	0.02520	0.00001	0.86057	0.00029
8	0.86556	0.00015	0.86818	0.00018	0.97504	0.00001	0.02496	0.00001	0.86282	0.00017
9	0.74748	0.00089	0.68955	0.00130	0.94766	0.00005	0.05234	0.00005	0.70430	0.00123
10	0.76271	0.00078	0.71123	0.00124	0.95007	0.00003	0.04993	0.00003	0.72422	0.00111
11	0.85589	0.00029	0.85024	0.00036	0.97330	0.00001	0.02670	0.00001	0.84968	0.00034
12	0.85436	0.00025	0.84909	0.00035	0.97267	0.00001	0.02733	0.00001	0.84779	0.00035
13	0.92362	0.00014	0.92204	0.00009	0.98631	0.00000	0.01369	0.00000	0.92183	0.00011
14	0.92476	0.00006	0.92226	0.00003	0.98651	0.00000	0.01349	0.00000	0.92252	0.00004
15	0.87678	0.00012	0.87127	0.00015	0.97730	0.00001	0.02270	0.00001	0.87221	0.00015
16	0.88053	0.00008	0.87693	0.00015	0.97817	0.00000	0.02183	0.00000	0.87692	0.00011
17	0.86696	0.00021	0.86066	0.00024	0.97528	0.00001	0.02472	0.00001	0.86166	0.00020
18	0.86954	0.00015	0.86524	0.00017	0.97586	0.00000	0.02414	0.00000	0.86524	0.00016
19	0.95438	0.00008	0.94105	0.00008	0.99027	0.00000	0.00973	0.00000	0.94610	0.00008
20	0.94739	0.00006	0.93544	0.00009	0.98925	0.00000	0.01075	0.00000	0.94007	0.00008
21	0.57119	0.00291	0.51994	0.00164	0.91513	0.00006	0.08487	0.00006	0.52646	0.00188
22	0.60044	0.00157	0.55005	0.00107	0.91971	0.00004	0.08029	0.00004	0.55921	0.00122
23	0.85110	0.00025	0.84310	0.00025	0.97219	0.00001	0.02781	0.00001	0.84456	0.00025
24	0.85309	0.00021	0.84549	0.00016	0.97282	0.00001	0.02718	0.00001	0.84691	0.00017
25	0.92266	0.00012	0.92352	0.00007	0.98602	0.00000	0.01398	0.00000	0.92170	0.00009
26	0.91906	0.00013	0.92066	0.00011	0.98545	0.00000	0.01455	0.00000	0.91853	0.00011
27	0.89343	0.00029	0.89048	0.00034	0.98063	0.00001	0.01937	0.00001	0.89050	0.00031
28	0.88734	0.00018	0.88417	0.00023	0.97961	0.00001	0.02039	0.00001	0.88413	0.00020
29	0.88688	0.00013	0.88474	0.00018	0.97937	0.00000	0.02063	0.00000	0.88388	0.00015
30	0.88433	0.00022	0.88192	0.00031	0.97894	0.00001	0.02106	0.00001	0.88092	0.00025
31	0.91030	0.00035	0.90911	0.00033	0.98347	0.00001	0.01653	0.00001	0.90834	0.00035
32	0.91717	0.00015	0.91498	0.00021	0.98463	0.00001	0.01537	0.00001	0.91463	0.00018
33	0.67514	0.00101	0.62023	0.00060	0.93465	0.00004	0.06535	0.00004	0.63079	0.00054
34	0.69375	0.00099	0.64138	0.00064	0.93783	0.00003	0.06217	0.00003	0.65357	0.00065
35	0.88396	0.00004	0.87848	0.00007	0.97860	0.00000	0.02140	0.00000	0.87912	0.00005
36	0.88112	0.00006	0.87544	0.00011	0.97793	0.00000	0.02207	0.00000	0.87570	0.00009
37	0.90561	0.00013	0.90811	0.00012	0.98284	0.00000	0.01716	0.00000	0.90501	0.00013
38	0.90357	0.00022	0.90614	0.00029	0.98255	0.00001	0.01745	0.00001	0.90281	0.00026
39	0.88870	0.00016	0.88631	0.00029	0.97981	0.00001	0.02019	0.00001	0.88588	0.00024
40	0.88468	0.00018	0.88390	0.00020	0.97923	0.00001	0.02077	0.00001	0.88233	0.00018
41	0.88774	0.00025	0.88440	0.00023	0.97961	0.00001	0.02039	0.00001	0.88471	0.00025
42	0.88658	0.00018	0.88402	0.00023	0.97923	0.00001	0.02077	0.00001	0.88299	0.00022
43	0.89635	0.00025	0.89848	0.00028	0.98101	0.00001	0.01899	0.00001	0.89554	0.00026
44	0.89649	0.00031	0.89644	0.00038	0.98101	0.00001	0.01899	0.00001	0.89452	0.00034
45	0.70931	0.00071	0.65521	0.00028	0.94149	0.00001	0.05851	0.00001	0.66775	0.00034
46	0.73094	0.00036	0.68170	0.00056	0.94467	0.00001	0.05533	0.00001	0.69463	0.00057
47	0.87872	0.00024	0.87101	0.00023	0.97745	0.00001	0.02255	0.00001	0.87220	0.00024
48	0.87450	0.00011	0.87057	0.00018	0.97716	0.00000	0.02284	0.00000	0.87038	0.00014
49	0.93416	0.00017	0.93185	0.00014	0.98819	0.00001	0.01181	0.00001	0.93189	0.00016
50	0.93026	0.00013	0.92830	0.00009	0.98752	0.00000	0.01248	0.00000	0.92830	0.00011
51	0.89294	0.00012	0.89105	0.00010	0.98077	0.00000	0.01923	0.00000	0.89073	0.00011
52	0.89179	0.00014	0.89018	0.00014	0.98053	0.00001	0.01947	0.00001	0.88962	0.00013
53	0.88114	0.00019	0.87558	0.00020	0.97865	0.00001	0.02135	0.00001	0.87647	0.00020
54	0.88166	0.00021	0.87838	0.00026	0.97870	0.00001	0.02130	0.00001	0.87831	0.00022
55	0.94597	0.00009	0.93371	0.00016	0.98925	0.00000	0.01075	0.00000	0.93850	0.00013
56	0.94104	0.00009	0.92843	0.00011	0.98834	0.00000	0.01166	0.00000	0.93337	0.00010
57	0.63056	0.00138	0.57110	0.00139	0.92496	0.00008	0.07504	0.00008	0.58078	0.00124
58	0.65330	0.00093	0.60690	0.00061	0.92940	0.00004	0.07060	0.00004	0.61904	0.00063
59	0.86952	0.00055	0.86561	0.00044	0.97619	0.00002	0.02381	0.00002	0.86580	0.00049
60	0.87355	0.00022	0.86976	0.00021	0.97677	0.00001	0.02323	0.00001	0.86975	0.00022

Table 31. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 0.7 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88948	0.00024	0.89221	0.00026	0.97986	0.00001	0.02014	0.00001	0.88775	0.00024
2	0.89734	0.00027	0.89948	0.00025	0.98130	0.00001	0.01870	0.00001	0.89558	0.00027
3	0.88495	0.00006	0.88165	0.00012	0.97875	0.00000	0.02125	0.00000	0.88088	0.00009
4	0.87711	0.00013	0.87450	0.00026	0.97730	0.00000	0.02270	0.00000	0.87230	0.00020
5	0.88092	0.00021	0.87411	0.00025	0.97783	0.00001	0.02217	0.00001	0.87490	0.00023
6	0.87153	0.00011	0.86524	0.00007	0.97600	0.00000	0.02400	0.00000	0.86449	0.00009
7	0.88045	0.00032	0.88426	0.00036	0.97812	0.00001	0.02188	0.00001	0.87835	0.00036
8	0.88349	0.00041	0.88429	0.00048	0.97851	0.00001	0.02149	0.00001	0.87986	0.00045
9	0.79378	0.00027	0.74114	0.00050	0.95908	0.00001	0.04092	0.00001	0.75423	0.00051
10	0.80282	0.00015	0.76171	0.00040	0.96029	0.00001	0.03971	0.00001	0.77305	0.00036
11	0.87982	0.00020	0.87427	0.00018	0.97759	0.00001	0.02241	0.00001	0.87490	0.00019
12	0.86927	0.00007	0.86360	0.00017	0.97552	0.00000	0.02448	0.00000	0.86270	0.00014
13	0.93782	0.00020	0.93295	0.00025	0.98877	0.00001	0.01123	0.00001	0.93453	0.00023
14	0.93561	0.00019	0.93081	0.00017	0.98843	0.00000	0.01157	0.00000	0.93262	0.00017
15	0.90690	0.00010	0.90038	0.00010	0.98289	0.00000	0.01711	0.00000	0.90246	0.00011
16	0.90581	0.00014	0.89891	0.00016	0.98265	0.00000	0.01735	0.00000	0.90103	0.00015
17	0.89900	0.00025	0.89221	0.00020	0.98140	0.00001	0.01860	0.00001	0.89408	0.00022
18	0.89454	0.00010	0.88791	0.00014	0.98063	0.00000	0.01937	0.00000	0.88956	0.00011
19	0.96285	0.00012	0.94885	0.00013	0.99166	0.00000	0.00834	0.00000	0.95425	0.00013
20	0.96095	0.00007	0.94854	0.00011	0.99157	0.00000	0.00843	0.00000	0.95337	0.00010
21	0.68111	0.00121	0.61144	0.00050	0.93542	0.00001	0.06458	0.00001	0.61972	0.00060
22	0.70274	0.00051	0.63579	0.00055	0.93788	0.00001	0.06212	0.00001	0.64901	0.00072
23	0.88004	0.00013	0.87151	0.00014	0.97783	0.00001	0.02217	0.00001	0.87413	0.00012
24	0.88023	0.00018	0.87420	0.00018	0.97783	0.00001	0.02217	0.00001	0.87599	0.00018
25	0.92957	0.00008	0.93117	0.00011	0.98733	0.00000	0.01267	0.00000	0.92931	0.00010
26	0.92766	0.00010	0.92684	0.00017	0.98694	0.00000	0.01306	0.00000	0.92612	0.00013
27	0.91142	0.00015	0.90940	0.00023	0.98390	0.00000	0.01610	0.00000	0.90865	0.00019
28	0.90256	0.00009	0.90067	0.00013	0.98236	0.00000	0.01764	0.00000	0.89961	0.00011
29	0.90517	0.00011	0.90174	0.00019	0.98255	0.00000	0.01745	0.00000	0.90175	0.00015
30	0.89996	0.00013	0.89714	0.00020	0.98169	0.00000	0.01831	0.00000	0.89625	0.00016
31	0.93228	0.00020	0.93028	0.00025	0.98737	0.00001	0.01263	0.00001	0.93006	0.00022
32	0.93126	0.00021	0.92728	0.00025	0.98708	0.00001	0.01292	0.00001	0.92778	0.00023
33	0.75644	0.00039	0.69415	0.00068	0.95094	0.00001	0.04906	0.00001	0.70761	0.00076
34	0.77034	0.00060	0.71785	0.00071	0.95330	0.00001	0.04670	0.00001	0.73153	0.00071
35	0.89943	0.00018	0.89387	0.00019	0.98145	0.00000	0.01855	0.00000	0.89515	0.00018
36	0.89688	0.00011	0.89273	0.00016	0.98116	0.00000	0.01884	0.00000	0.89323	0.00014
37	0.91935	0.00011	0.91928	0.00010	0.98516	0.00000	0.01484	0.00000	0.91737	0.00012
38	0.92023	0.00009	0.91945	0.00008	0.98549	0.00000	0.01451	0.00000	0.91785	0.00008
39	0.90923	0.00011	0.90775	0.00010	0.98337	0.00000	0.01663	0.00000	0.90647	0.00009
40	0.90336	0.00012	0.90133	0.00011	0.98236	0.00000	0.01764	0.00000	0.89995	0.00010
41	0.90577	0.00015	0.90069	0.00019	0.98260	0.00000	0.01740	0.00000	0.90137	0.00017
42	0.89714	0.00013	0.89372	0.00016	0.98120	0.00000	0.01880	0.00000	0.89336	0.00016
43	0.91403	0.00029	0.91534	0.00033	0.98414	0.00001	0.01586	0.00001	0.91237	0.00030
44	0.91346	0.00020	0.91356	0.00029	0.98400	0.00001	0.01600	0.00001	0.91106	0.00023
45	0.77831	0.00042	0.72292	0.00016	0.95600	0.00001	0.04400	0.00001	0.73607	0.00021
46	0.78958	0.00025	0.73995	0.00016	0.95725	0.00001	0.04275	0.00001	0.75236	0.00020
47	0.89573	0.00010	0.89048	0.00014	0.98082	0.00000	0.01918	0.00000	0.89035	0.00013
48	0.88909	0.00006	0.88376	0.00010	0.97981	0.00000	0.02019	0.00000	0.88383	0.00007
49	0.94438	0.00012	0.94044	0.00012	0.98993	0.00000	0.01007	0.00000	0.94151	0.00012
50	0.94038	0.00016	0.93671	0.00013	0.98916	0.00000	0.01084	0.00000	0.93775	0.00014
51	0.90853	0.00014	0.90258	0.00009	0.98308	0.00000	0.01692	0.00000	0.90430	0.00010
52	0.90696	0.00011	0.90365	0.00011	0.98294	0.00000	0.01706	0.00000	0.90388	0.00010
53	0.90572	0.00032	0.89953	0.00024	0.98265	0.00001	0.01735	0.00001	0.90128	0.00028
54	0.90254	0.00027	0.89653	0.00031	0.98217	0.00001	0.01783	0.00001	0.89775	0.00029
55	0.95725	0.00012	0.94462	0.00015	0.99099	0.00000	0.00901	0.00000	0.94962	0.00013
56	0.95605	0.00010	0.94389	0.00014	0.99094	0.00000	0.00906	0.00000	0.94868	0.00012
57	0.71965	0.00086	0.65681	0.00075	0.94395	0.00002	0.05605	0.00002	0.66754	0.00081
58	0.73788	0.00026	0.67979	0.00034	0.94593	0.00001	0.05407	0.00001	0.69434	0.00040
59	0.89772	0.00013	0.89321	0.00021	0.98130	0.00000	0.01870	0.00000	0.89401	0.00018
60	0.89102	0.00011	0.88714	0.00028	0.98014	0.00000	0.01986	0.00000	0.88756	0.00021

Table 32. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 0.7 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88948	0.00024	0.89221	0.00026	0.97986	0.00001	0.02014	0.00001	0.88775	0.00024
2	0.89734	0.00027	0.89948	0.00025	0.98130	0.00001	0.01870	0.00001	0.89558	0.00027
3	0.87703	0.00015	0.86705	0.00025	0.97672	0.00001	0.02328	0.00001	0.86851	0.00020
4	0.86734	0.00008	0.85915	0.00012	0.97528	0.00000	0.02472	0.00000	0.85945	0.00008
5	0.87699	0.00011	0.86762	0.00016	0.97701	0.00000	0.02299	0.00000	0.86915	0.00012
6	0.86676	0.00010	0.85748	0.00014	0.97508	0.00000	0.02492	0.00000	0.85830	0.00015
7	0.88045	0.00032	0.88426	0.00036	0.97812	0.00001	0.02188	0.00001	0.87835	0.00036
8	0.88349	0.00041	0.88429	0.00048	0.97851	0.00001	0.02149	0.00001	0.87986	0.00045
9	0.83679	0.00018	0.78968	0.00026	0.96742	0.00001	0.03258	0.00001	0.80372	0.00029
10	0.83063	0.00020	0.78940	0.00025	0.96636	0.00001	0.03364	0.00001	0.80187	0.00022
11	0.87098	0.00012	0.85997	0.00013	0.97586	0.00000	0.02414	0.00000	0.86276	0.00011
12	0.86206	0.00009	0.85069	0.00020	0.97417	0.00000	0.02583	0.00000	0.85261	0.00018
13	0.93782	0.00020	0.93295	0.00025	0.98877	0.00001	0.01123	0.00001	0.93453	0.00023
14	0.93561	0.00019	0.93081	0.00017	0.98843	0.00000	0.01157	0.00000	0.93262	0.00017
15	0.91138	0.00007	0.90536	0.00011	0.98361	0.00000	0.01639	0.00000	0.90713	0.00010
16	0.91103	0.00006	0.90313	0.00015	0.98337	0.00000	0.01663	0.00000	0.90563	0.00011
17	0.90149	0.00013	0.89509	0.00019	0.98178	0.00000	0.01822	0.00000	0.89689	0.00016
18	0.90038	0.00009	0.89202	0.00009	0.98135	0.00000	0.01865	0.00000	0.89453	0.00008
19	0.96285	0.00012	0.94885	0.00013	0.99166	0.00000	0.00834	0.00000	0.95425	0.00013
20	0.96095	0.00007	0.94854	0.00011	0.99157	0.00000	0.00843	0.00000	0.95337	0.00010
21	0.73219	0.00047	0.65786	0.00063	0.94501	0.00001	0.05499	0.00001	0.66970	0.00065
22	0.74077	0.00039	0.66935	0.00041	0.94636	0.00001	0.05364	0.00001	0.68506	0.00042
23	0.88989	0.00011	0.88215	0.00017	0.97952	0.00000	0.02048	0.00000	0.88424	0.00014
24	0.88772	0.00018	0.87982	0.00027	0.97913	0.00001	0.02087	0.00001	0.88186	0.00022
25	0.92957	0.00008	0.93117	0.00011	0.98733	0.00000	0.01267	0.00000	0.92931	0.00010
26	0.92766	0.00010	0.92684	0.00017	0.98694	0.00000	0.01306	0.00000	0.92612	0.00013
27	0.91983	0.00015	0.91368	0.00019	0.98506	0.00000	0.01494	0.00000	0.91526	0.00016
28	0.90640	0.00011	0.90004	0.00012	0.98284	0.00000	0.01716	0.00000	0.90130	0.00010
29	0.91457	0.00006	0.90228	0.00012	0.98376	0.00000	0.01624	0.00000	0.90619	0.00010
30	0.90563	0.00005	0.89635	0.00007	0.98246	0.00000	0.01754	0.00000	0.89895	0.00006
31	0.93228	0.00020	0.93028	0.00025	0.98737	0.00001	0.01263	0.00001	0.93006	0.00022
32	0.93126	0.00021	0.92728	0.00025	0.98708	0.00001	0.01292	0.00001	0.92778	0.00023
33	0.79583	0.00031	0.73869	0.00029	0.95937	0.00001	0.04063	0.00001	0.75356	0.00035
34	0.79970	0.00013	0.74232	0.00016	0.95880	0.00001	0.04120	0.00001	0.75802	0.00013
35	0.90548	0.00016	0.89588	0.00016	0.98251	0.00000	0.01749	0.00000	0.89949	0.00015
36	0.89322	0.00016	0.88500	0.00020	0.98048	0.00001	0.01952	0.00001	0.88753	0.00018
37	0.91935	0.00011	0.91928	0.00010	0.98516	0.00000	0.01484	0.00000	0.91737	0.00012
38	0.92023	0.00009	0.91945	0.00008	0.98549	0.00000	0.01451	0.00000	0.91785	0.00008
39	0.91060	0.00016	0.90545	0.00023	0.98323	0.00001	0.01677	0.00001	0.90616	0.00020
40	0.90098	0.00004	0.89429	0.00013	0.98169	0.00000	0.01831	0.00000	0.89539	0.00007
41	0.90094	0.00012	0.89387	0.00013	0.98145	0.00000	0.01855	0.00000	0.89539	0.00012
42	0.88900	0.00011	0.88092	0.00024	0.97952	0.00000	0.02048	0.00000	0.88260	0.00019
43	0.91403	0.00029	0.91534	0.00033	0.98414	0.00001	0.01586	0.00001	0.91237	0.00030
44	0.91346	0.00020	0.91356	0.00029	0.98400	0.00001	0.01600	0.00001	0.91106	0.00023
45	0.81786	0.00010	0.76577	0.00027	0.96361	0.00000	0.03639	0.00000	0.77970	0.00032
46	0.81694	0.00026	0.76933	0.00024	0.96275	0.00001	0.03725	0.00001	0.78339	0.00026
47	0.89969	0.00004	0.89167	0.00004	0.98111	0.00000	0.01889	0.00000	0.89360	0.00002
48	0.88320	0.00016	0.87522	0.00026	0.97860	0.00001	0.02140	0.00001	0.87671	0.00020
49	0.94438	0.00012	0.94044	0.00012	0.98993	0.00000	0.01007	0.00000	0.94151	0.00012
50	0.94038	0.00016	0.93671	0.00013	0.98916	0.00000	0.01084	0.00000	0.93775	0.00014
51	0.92362	0.00017	0.91719	0.00012	0.98573	0.00000	0.01427	0.00000	0.91885	0.00013
52	0.91604	0.00012	0.91028	0.00011	0.98443	0.00000	0.01557	0.00000	0.91187	0.00010
53	0.91516	0.00024	0.90666	0.00020	0.98410	0.00001	0.01590	0.00001	0.90939	0.00021
54	0.90617	0.00023	0.89895	0.00025	0.98270	0.00001	0.01730	0.00001	0.90116	0.00024
55	0.95725	0.00012	0.94462	0.00015	0.99099	0.00000	0.00901	0.00000	0.94962	0.00013
56	0.95605	0.00010	0.94389	0.00014	0.99094	0.00000	0.00906	0.00000	0.94868	0.00012
57	0.77075	0.00039	0.70225	0.00045	0.95301	0.00001	0.04699	0.00001	0.71619	0.00048
58	0.77222	0.00040	0.70628	0.00039	0.95272	0.00001	0.04728	0.00001	0.72344	0.00041
59	0.89990	0.00030	0.89205	0.00027	0.98125	0.00001	0.01875	0.00001	0.89414	0.00028
60	0.89147	0.00017	0.88341	0.00014	0.97986	0.00000	0.02014	0.00000	0.88552	0.00014

Table 33. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 0.7 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.86482	0.00039	0.86482	0.00039	0.97296	0.00002	0.02704	0.00002	0.86482	0.00039
2	0.87301	0.00023	0.87301	0.00023	0.97460	0.00001	0.02540	0.00001	0.87301	0.00023
3	0.84482	0.00023	0.84482	0.00023	0.96896	0.00001	0.03104	0.00001	0.84482	0.00023
4	0.84964	0.00021	0.84964	0.00021	0.96993	0.00001	0.03007	0.00001	0.84964	0.00021
5	0.84145	0.00032	0.84145	0.00032	0.96829	0.00001	0.03171	0.00001	0.84145	0.00032
6	0.84386	0.00042	0.84386	0.00042	0.96877	0.00002	0.03123	0.00002	0.84386	0.00042
7	0.85783	0.00027	0.85783	0.00027	0.97157	0.00001	0.02843	0.00001	0.85783	0.00027
8	0.86337	0.00027	0.86337	0.00027	0.97267	0.00001	0.02733	0.00001	0.86337	0.00027
9	0.63952	0.00083	0.63952	0.00083	0.92790	0.00003	0.07210	0.00003	0.63952	0.00083
10	0.65928	0.00131	0.65928	0.00131	0.93186	0.00005	0.06814	0.00005	0.65928	0.00131
11	0.82699	0.00022	0.82699	0.00022	0.96540	0.00001	0.03460	0.00001	0.82699	0.00022
12	0.83373	0.00027	0.83373	0.00027	0.96675	0.00001	0.03325	0.00001	0.83373	0.00027
13	0.91373	0.00019	0.91373	0.00019	0.98275	0.00001	0.01725	0.00001	0.91373	0.00019
14	0.91639	0.00010	0.91639	0.00010	0.98328	0.00000	0.01672	0.00000	0.91639	0.00010
15	0.84386	0.00010	0.84386	0.00010	0.96877	0.00000	0.03123	0.00000	0.84386	0.00010
16	0.84819	0.00007	0.84819	0.00007	0.96964	0.00000	0.03036	0.00000	0.84819	0.00007
17	0.82217	0.00042	0.82217	0.00042	0.96443	0.00002	0.03557	0.00002	0.82217	0.00042
18	0.83349	0.00027	0.83349	0.00027	0.96670	0.00001	0.03330	0.00001	0.83349	0.00027
19	0.93952	0.00010	0.93952	0.00010	0.98790	0.00000	0.01210	0.00000	0.93952	0.00010
20	0.93253	0.00014	0.93253	0.00014	0.98651	0.00001	0.01349	0.00001	0.93253	0.00014
21	0.47229	0.00296	0.47229	0.00296	0.89446	0.00012	0.10554	0.00012	0.47229	0.00296
22	0.48386	0.00143	0.48386	0.00143	0.89677	0.00006	0.10323	0.00006	0.48386	0.00143
23	0.80458	0.00037	0.80458	0.00037	0.96092	0.00001	0.03908	0.00001	0.80458	0.00037
24	0.80530	0.00032	0.80530	0.00032	0.96106	0.00001	0.03894	0.00001	0.80530	0.00032
25	0.91277	0.00004	0.91277	0.00004	0.98255	0.00000	0.01745	0.00000	0.91277	0.00004
26	0.91133	0.00010	0.91133	0.00010	0.98227	0.00000	0.01773	0.00000	0.91133	0.00010
27	0.87373	0.00032	0.87373	0.00032	0.97475	0.00001	0.02525	0.00001	0.87373	0.00032
28	0.87373	0.00025	0.87373	0.00025	0.97475	0.00001	0.02525	0.00001	0.87373	0.00025
29	0.86096	0.00016	0.86096	0.00016	0.97219	0.00001	0.02781	0.00001	0.86096	0.00016
30	0.86530	0.00014	0.86530	0.00014	0.97306	0.00001	0.02694	0.00001	0.86530	0.00014
31	0.90988	0.00027	0.90988	0.00027	0.98198	0.00001	0.01802	0.00001	0.90988	0.00027
32	0.90795	0.00027	0.90795	0.00027	0.98159	0.00001	0.01841	0.00001	0.90795	0.00027
33	0.56506	0.00103	0.56506	0.00103	0.91301	0.00004	0.08699	0.00004	0.56506	0.00103
34	0.58434	0.00186	0.58434	0.00186	0.91687	0.00007	0.08313	0.00007	0.58434	0.00186
35	0.85205	0.00038	0.85205	0.00038	0.97041	0.00002	0.02959	0.00002	0.85205	0.00038
36	0.85518	0.00047	0.85518	0.00047	0.97104	0.00002	0.02896	0.00002	0.85518	0.00047
37	0.90048	0.00015	0.90048	0.00015	0.98010	0.00001	0.01990	0.00001	0.90048	0.00015
38	0.90361	0.00018	0.90361	0.00018	0.98072	0.00001	0.01928	0.00001	0.90361	0.00018
39	0.86988	0.00012	0.86988	0.00012	0.97398	0.00000	0.02602	0.00000	0.86988	0.00012
40	0.87373	0.00005	0.87373	0.00005	0.97475	0.00000	0.02525	0.00000	0.87373	0.00005
41	0.85952	0.00058	0.85952	0.00058	0.97190	0.00002	0.02810	0.00002	0.85952	0.00058
42	0.85759	0.00028	0.85759	0.00028	0.97152	0.00001	0.02848	0.00001	0.85759	0.00028
43	0.89325	0.00014	0.89325	0.00014	0.97865	0.00001	0.02135	0.00001	0.89325	0.00014
44	0.90169	0.00014	0.90169	0.00014	0.98034	0.00001	0.01966	0.00001	0.90169	0.00014
45	0.59084	0.00123	0.59084	0.00123	0.91817	0.00005	0.08183	0.00005	0.59084	0.00123
46	0.60651	0.00093	0.60651	0.00093	0.92130	0.00004	0.07870	0.00004	0.60651	0.00093
47	0.85301	0.00019	0.85301	0.00019	0.97060	0.00001	0.02940	0.00001	0.85301	0.00019
48	0.85349	0.00018	0.85349	0.00018	0.97070	0.00001	0.02930	0.00001	0.85349	0.00018
49	0.92193	0.00011	0.92193	0.00011	0.98439	0.00000	0.01561	0.00000	0.92193	0.00011
50	0.91928	0.00013	0.91928	0.00013	0.98386	0.00001	0.01614	0.00001	0.91928	0.00013
51	0.86747	0.00025	0.86747	0.00025	0.97349	0.00001	0.02651	0.00001	0.86747	0.00025
52	0.87181	0.00022	0.87181	0.00022	0.97436	0.00001	0.02564	0.00001	0.87181	0.00022
53	0.85590	0.00023	0.85590	0.00023	0.97118	0.00001	0.02882	0.00001	0.85590	0.00023
54	0.85831	0.00011	0.85831	0.00011	0.97166	0.00000	0.02834	0.00000	0.85831	0.00011
55	0.93181	0.00008	0.93181	0.00008	0.98636	0.00000	0.01364	0.00000	0.93181	0.00008
56	0.92747	0.00016	0.92747	0.00016	0.98549	0.00001	0.01451	0.00001	0.92747	0.00016
57	0.50627	0.00146	0.50627	0.00146	0.90125	0.00006	0.09875	0.00006	0.50627	0.00146
58	0.53349	0.00125	0.53349	0.00125	0.90670	0.00005	0.09330	0.00005	0.53349	0.00125
59	0.84072	0.00023	0.84072	0.00023	0.96814	0.00001	0.03186	0.00001	0.84072	0.00023
60	0.83976	0.00023	0.83976	0.00023	0.96795	0.00001	0.03205	0.00001	0.83976	0.00023

Table 34. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 0.7 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88627	0.00019	0.88627	0.00019	0.97725	0.00001	0.02275	0.00001	0.88627	0.00019
2	0.89711	0.00029	0.89711	0.00029	0.97942	0.00001	0.02058	0.00001	0.89711	0.00029
3	0.87229	0.00024	0.87229	0.00024	0.97446	0.00001	0.02554	0.00001	0.87229	0.00024
4	0.86361	0.00029	0.86361	0.00029	0.97272	0.00001	0.02728	0.00001	0.86361	0.00029
5	0.87133	0.00019	0.87133	0.00019	0.97427	0.00001	0.02573	0.00001	0.87133	0.00019
6	0.86530	0.00031	0.86530	0.00031	0.97306	0.00001	0.02694	0.00001	0.86530	0.00031
7	0.87398	0.00024	0.87398	0.00024	0.97480	0.00001	0.02520	0.00001	0.87398	0.00024
8	0.87518	0.00013	0.87518	0.00013	0.97504	0.00001	0.02496	0.00001	0.87518	0.00013
9	0.73831	0.00120	0.73831	0.00120	0.94766	0.00005	0.05234	0.00005	0.73831	0.00120
10	0.75036	0.00079	0.75036	0.00079	0.95007	0.00003	0.04993	0.00003	0.75036	0.00079
11	0.86651	0.00032	0.86651	0.00032	0.97330	0.00001	0.02670	0.00001	0.86651	0.00032
12	0.86337	0.00035	0.86337	0.00035	0.97267	0.00001	0.02733	0.00001	0.86337	0.00035
13	0.93157	0.00008	0.93157	0.00008	0.98631	0.00000	0.01369	0.00000	0.93157	0.00008
14	0.93253	0.00002	0.93253	0.00002	0.98651	0.00000	0.01349	0.00000	0.93253	0.00002
15	0.88651	0.00013	0.88651	0.00013	0.97730	0.00001	0.02270	0.00001	0.88651	0.00013
16	0.89084	0.00008	0.89084	0.00008	0.97817	0.00000	0.02183	0.00000	0.89084	0.00008
17	0.87639	0.00013	0.87639	0.00013	0.97528	0.00001	0.02472	0.00001	0.87639	0.00013
18	0.87928	0.00011	0.87928	0.00011	0.97586	0.00000	0.02414	0.00000	0.87928	0.00011
19	0.95133	0.00006	0.95133	0.00006	0.99027	0.00000	0.00973	0.00000	0.95133	0.00006
20	0.94627	0.00005	0.94627	0.00005	0.98925	0.00000	0.01075	0.00000	0.94627	0.00005
21	0.57566	0.00158	0.57566	0.00158	0.91513	0.00006	0.08487	0.00006	0.57566	0.00158
22	0.59855	0.00112	0.59855	0.00112	0.91971	0.00004	0.08029	0.00004	0.59855	0.00112
23	0.86096	0.00023	0.86096	0.00023	0.97219	0.00001	0.02781	0.00001	0.86096	0.00023
24	0.86410	0.00016	0.86410	0.00016	0.97282	0.00001	0.02718	0.00001	0.86410	0.00016
25	0.93012	0.00008	0.93012	0.00008	0.98602	0.00000	0.01398	0.00000	0.93012	0.00008
26	0.92723	0.00010	0.92723	0.00010	0.98545	0.00000	0.01455	0.00000	0.92723	0.00010
27	0.90313	0.00026	0.90313	0.00026	0.98063	0.00001	0.01937	0.00001	0.90313	0.00026
28	0.89807	0.00015	0.89807	0.00015	0.97961	0.00001	0.02039	0.00001	0.89807	0.00015
29	0.89687	0.00011	0.89687	0.00011	0.97937	0.00000	0.02063	0.00000	0.89687	0.00011
30	0.89470	0.00018	0.89470	0.00018	0.97894	0.00001	0.02106	0.00001	0.89470	0.00018
31	0.91735	0.00027	0.91735	0.00027	0.98347	0.00001	0.01653	0.00001	0.91735	0.00027
32	0.92313	0.00014	0.92313	0.00014	0.98463	0.00001	0.01537	0.00001	0.92313	0.00014
33	0.67325	0.00090	0.67325	0.00090	0.93465	0.00004	0.06535	0.00004	0.67325	0.00090
34	0.68916	0.00073	0.68916	0.00073	0.93783	0.00003	0.06217	0.00003	0.68916	0.00073
35	0.89301	0.00004	0.89301	0.00004	0.97860	0.00000	0.02140	0.00000	0.89301	0.00004
36	0.88964	0.00007	0.88964	0.00007	0.97793	0.00000	0.02207	0.00000	0.88964	0.00007
37	0.91422	0.00011	0.91422	0.00011	0.98284	0.00000	0.01716	0.00000	0.91422	0.00011
38	0.91277	0.00017	0.91277	0.00017	0.98255	0.00001	0.01745	0.00001	0.91277	0.00017
39	0.89904	0.00017	0.89904	0.00017	0.97981	0.00001	0.02019	0.00001	0.89904	0.00017
40	0.89614	0.00017	0.89614	0.00017	0.97923	0.00001	0.02077	0.00001	0.89614	0.00017
41	0.89807	0.00019	0.89807	0.00019	0.97961	0.00001	0.02039	0.00001	0.89807	0.00019
42	0.89614	0.00014	0.89614	0.00014	0.97923	0.00001	0.02077	0.00001	0.89614	0.00014
43	0.90506	0.00020	0.90506	0.00020	0.98101	0.00001	0.01899	0.00001	0.90506	0.00020
44	0.90506	0.00025	0.90506	0.00025	0.98101	0.00001	0.01899	0.00001	0.90506	0.00025
45	0.70747	0.00037	0.70747	0.00037	0.94149	0.00001	0.05851	0.00001	0.70747	0.00037
46	0.72337	0.00031	0.72337	0.00031	0.94467	0.00001	0.05533	0.00001	0.72337	0.00031
47	0.88723	0.00022	0.88723	0.00022	0.97745	0.00001	0.02255	0.00001	0.88723	0.00022
48	0.88578	0.00007	0.88578	0.00007	0.97716	0.00000	0.02284	0.00000	0.88578	0.00007
49	0.94096	0.00013	0.94096	0.00013	0.98819	0.00001	0.01181	0.00001	0.94096	0.00013
50	0.93759	0.00009	0.93759	0.00009	0.98752	0.00000	0.01248	0.00000	0.93759	0.00009
51	0.90386	0.00011	0.90386	0.00011	0.98077	0.00000	0.01923	0.00000	0.90386	0.00011
52	0.90265	0.00014	0.90265	0.00014	0.98053	0.00001	0.01947	0.00001	0.90265	0.00014
53	0.89325	0.00014	0.89325	0.00014	0.97865	0.00001	0.02135	0.00001	0.89325	0.00014
54	0.89349	0.00016	0.89349	0.00016	0.97870	0.00001	0.02130	0.00001	0.89349	0.00016
55	0.94627	0.00010	0.94627	0.00010	0.98925	0.00000	0.01075	0.00000	0.94627	0.00010
56	0.94169	0.00006	0.94169	0.00006	0.98834	0.00000	0.01166	0.00000	0.94169	0.00006
57	0.62482	0.00191	0.62482	0.00191	0.92496	0.00008	0.07504	0.00008	0.62482	0.00191
58	0.64699	0.00094	0.64699	0.00094	0.92940	0.00004	0.07060	0.00004	0.64699	0.00094
59	0.88096	0.00045	0.88096	0.00045	0.97619	0.00002	0.02381	0.00002	0.88096	0.00045
60	0.88386	0.00019	0.88386	0.00019	0.97677	0.00001	0.02323	0.00001	0.88386	0.00019

Table 35. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 0.7 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89928	0.00021	0.89928	0.00021	0.97986	0.00001	0.02014	0.00001	0.89928	0.00021
2	0.90651	0.00023	0.90651	0.00023	0.98130	0.00001	0.01870	0.00001	0.90651	0.00023
3	0.89373	0.00005	0.89373	0.00005	0.97875	0.00000	0.02125	0.00000	0.89373	0.00005
4	0.88651	0.00012	0.88651	0.00012	0.97730	0.00000	0.02270	0.00000	0.88651	0.00012
5	0.88916	0.00017	0.88916	0.00017	0.97783	0.00001	0.02217	0.00001	0.88916	0.00017
6	0.88000	0.00008	0.88000	0.00008	0.97600	0.00000	0.02400	0.00000	0.88000	0.00008
7	0.89060	0.00034	0.89060	0.00034	0.97812	0.00001	0.02188	0.00001	0.89060	0.00034
8	0.89253	0.00035	0.89253	0.00035	0.97851	0.00001	0.02149	0.00001	0.89253	0.00035
9	0.79542	0.00016	0.79542	0.00016	0.95908	0.00001	0.04092	0.00001	0.79542	0.00016
10	0.80145	0.00013	0.80145	0.00013	0.96029	0.00001	0.03971	0.00001	0.80145	0.00013
11	0.88795	0.00015	0.88795	0.00015	0.97759	0.00001	0.02241	0.00001	0.88795	0.00015
12	0.87759	0.00011	0.87759	0.00011	0.97552	0.00000	0.02448	0.00000	0.87759	0.00011
13	0.94386	0.00014	0.94386	0.00014	0.98877	0.00001	0.01123	0.00001	0.94386	0.00014
14	0.94217	0.00012	0.94217	0.00012	0.98843	0.00000	0.01157	0.00000	0.94217	0.00012
15	0.91446	0.00008	0.91446	0.00008	0.98289	0.00000	0.01711	0.00000	0.91446	0.00008
16	0.91325	0.00009	0.91325	0.00009	0.98265	0.00000	0.01735	0.00000	0.91325	0.00009
17	0.90699	0.00015	0.90699	0.00015	0.98140	0.00001	0.01860	0.00001	0.90699	0.00015
18	0.90313	0.00007	0.90313	0.00007	0.98063	0.00000	0.01937	0.00000	0.90313	0.00007
19	0.95831	0.00011	0.95831	0.00011	0.99166	0.00000	0.00834	0.00000	0.95831	0.00011
20	0.95783	0.00008	0.95783	0.00008	0.99157	0.00000	0.00843	0.00000	0.95783	0.00008
21	0.67711	0.00035	0.67711	0.00035	0.93542	0.00001	0.06458	0.00001	0.67711	0.00035
22	0.68940	0.00020	0.68940	0.00020	0.93788	0.00001	0.06212	0.00001	0.68940	0.00020
23	0.88916	0.00013	0.88916	0.00013	0.97783	0.00001	0.02217	0.00001	0.88916	0.00013
24	0.88916	0.00017	0.88916	0.00017	0.97783	0.00001	0.02217	0.00001	0.88916	0.00017
25	0.93663	0.00006	0.93663	0.00006	0.98733	0.00000	0.01267	0.00000	0.93663	0.00006
26	0.93470	0.00008	0.93470	0.00008	0.98694	0.00000	0.01306	0.00000	0.93470	0.00008
27	0.91952	0.00011	0.91952	0.00011	0.98390	0.00000	0.01610	0.00000	0.91952	0.00011
28	0.91181	0.00007	0.91181	0.00007	0.98236	0.00000	0.01764	0.00000	0.91181	0.00007
29	0.91277	0.00009	0.91277	0.00009	0.98255	0.00000	0.01745	0.00000	0.91277	0.00009
30	0.90843	0.00010	0.90843	0.00010	0.98169	0.00000	0.01831	0.00000	0.90843	0.00010
31	0.93687	0.00016	0.93687	0.00016	0.98737	0.00001	0.01263	0.00001	0.93687	0.00016
32	0.93542	0.00019	0.93542	0.00019	0.98708	0.00001	0.01292	0.00001	0.93542	0.00019
33	0.75470	0.00035	0.75470	0.00035	0.95094	0.00001	0.04906	0.00001	0.75470	0.00035
34	0.76651	0.00036	0.76651	0.00036	0.95330	0.00001	0.04670	0.00001	0.76651	0.00036
35	0.90723	0.00012	0.90723	0.00012	0.98145	0.00000	0.01855	0.00000	0.90723	0.00012
36	0.90578	0.00009	0.90578	0.00009	0.98116	0.00000	0.01884	0.00000	0.90578	0.00009
37	0.92578	0.00012	0.92578	0.00012	0.98516	0.00000	0.01484	0.00000	0.92578	0.00012
38	0.92747	0.00007	0.92747	0.00007	0.98549	0.00000	0.01451	0.00000	0.92747	0.00007
39	0.91687	0.00005	0.91687	0.00005	0.98337	0.00000	0.01663	0.00000	0.91687	0.00005
40	0.91181	0.00007	0.91181	0.00007	0.98236	0.00000	0.01764	0.00000	0.91181	0.00007
41	0.91301	0.00009	0.91301	0.00009	0.98260	0.00000	0.01740	0.00000	0.91301	0.00009
42	0.90602	0.00010	0.90602	0.00010	0.98120	0.00000	0.01880	0.00000	0.90602	0.00010
43	0.92072	0.00022	0.92072	0.00022	0.98414	0.00001	0.01586	0.00001	0.92072	0.00022
44	0.92000	0.00017	0.92000	0.00017	0.98400	0.00001	0.01600	0.00001	0.92000	0.00017
45	0.78000	0.00013	0.78000	0.00013	0.95600	0.00001	0.04400	0.00001	0.78000	0.00013
46	0.78627	0.00018	0.78627	0.00018	0.95725	0.00001	0.04275	0.00001	0.78627	0.00018
47	0.90410	0.00006	0.90410	0.00006	0.98082	0.00000	0.01918	0.00000	0.90410	0.00006
48	0.89904	0.00005	0.89904	0.00005	0.97981	0.00000	0.02019	0.00000	0.89904	0.00005
49	0.94964	0.00009	0.94964	0.00009	0.98993	0.00000	0.01007	0.00000	0.94964	0.00009
50	0.94578	0.00012	0.94578	0.00012	0.98916	0.00000	0.01084	0.00000	0.94578	0.00012
51	0.91542	0.00011	0.91542	0.00011	0.98308	0.00000	0.01692	0.00000	0.91542	0.00011
52	0.91470	0.00007	0.91470	0.00007	0.98294	0.00000	0.01706	0.00000	0.91470	0.00007
53	0.91325	0.00021	0.91325	0.00021	0.98265	0.00001	0.01735	0.00001	0.91325	0.00021
54	0.91084	0.00019	0.91084	0.00019	0.98217	0.00001	0.01783	0.00001	0.91084	0.00019
55	0.95494	0.00011	0.95494	0.00011	0.99099	0.00000	0.00901	0.00000	0.95494	0.00011
56	0.95470	0.00008	0.95470	0.00008	0.99094	0.00000	0.00906	0.00000	0.95470	0.00008
57	0.71976	0.00052	0.71976	0.00052	0.94395	0.00002	0.05605	0.00002	0.71976	0.00052
58	0.72964	0.00021	0.72964	0.00021	0.94593	0.00001	0.05407	0.00001	0.72964	0.00021
59	0.90651	0.00010	0.90651	0.00010	0.98130	0.00000	0.01870	0.00000	0.90651	0.00010
60	0.90072	0.00011	0.90072	0.00011	0.98014	0.00000	0.01986	0.00000	0.90072	0.00011

Table 36. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 0.7 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89928	0.00021	0.89928	0.00021	0.97986	0.00001	0.02014	0.00001	0.89928	0.00021
2	0.90651	0.00023	0.90651	0.00023	0.98130	0.00001	0.01870	0.00001	0.90651	0.00023
3	0.88361	0.00013	0.88361	0.00013	0.97672	0.00001	0.02328	0.00001	0.88361	0.00013
4	0.87639	0.00005	0.87639	0.00005	0.97528	0.00000	0.02472	0.00000	0.87639	0.00005
5	0.88506	0.00010	0.88506	0.00010	0.97701	0.00000	0.02299	0.00000	0.88506	0.00010
6	0.87542	0.00011	0.87542	0.00011	0.97508	0.00000	0.02492	0.00000	0.87542	0.00011
7	0.89060	0.00034	0.89060	0.00034	0.97812	0.00001	0.02188	0.00001	0.89060	0.00034
8	0.89253	0.00035	0.89253	0.00035	0.97851	0.00001	0.02149	0.00001	0.89253	0.00035
9	0.83711	0.00013	0.83711	0.00013	0.96742	0.00001	0.03258	0.00001	0.83711	0.00013
10	0.83181	0.00023	0.83181	0.00023	0.96636	0.00001	0.03364	0.00001	0.83181	0.00023
11	0.87928	0.00009	0.87928	0.00009	0.97586	0.00000	0.02414	0.00000	0.87928	0.00009
12	0.87084	0.00010	0.87084	0.00010	0.97417	0.00000	0.02583	0.00000	0.87084	0.00010
13	0.94386	0.00014	0.94386	0.00014	0.98877	0.00001	0.01123	0.00001	0.94386	0.00014
14	0.94217	0.00012	0.94217	0.00012	0.98843	0.00000	0.01157	0.00000	0.94217	0.00012
15	0.91807	0.00005	0.91807	0.00005	0.98361	0.00000	0.01639	0.00000	0.91807	0.00005
16	0.91687	0.00006	0.91687	0.00006	0.98337	0.00000	0.01663	0.00000	0.91687	0.00006
17	0.90892	0.00010	0.90892	0.00010	0.98178	0.00000	0.01822	0.00000	0.90892	0.00010
18	0.90675	0.00006	0.90675	0.00006	0.98135	0.00000	0.01865	0.00000	0.90675	0.00006
19	0.95831	0.00011	0.95831	0.00011	0.99166	0.00000	0.00834	0.00000	0.95831	0.00011
20	0.95783	0.00008	0.95783	0.00008	0.99157	0.00000	0.00843	0.00000	0.95783	0.00008
21	0.72506	0.00030	0.72506	0.00030	0.94501	0.00001	0.05499	0.00001	0.72506	0.00030
22	0.73181	0.00029	0.73181	0.00029	0.94636	0.00001	0.05364	0.00001	0.73181	0.00029
23	0.89759	0.00011	0.89759	0.00011	0.97952	0.00000	0.02048	0.00000	0.89759	0.00011
24	0.89566	0.00017	0.89566	0.00017	0.97913	0.00001	0.02087	0.00001	0.89566	0.00017
25	0.93663	0.00006	0.93663	0.00006	0.98733	0.00000	0.01267	0.00000	0.93663	0.00006
26	0.93470	0.00008	0.93470	0.00008	0.98694	0.00000	0.01306	0.00000	0.93470	0.00008
27	0.92530	0.00012	0.92530	0.00012	0.98506	0.00000	0.01494	0.00000	0.92530	0.00012
28	0.91422	0.00008	0.91422	0.00008	0.98284	0.00000	0.01716	0.00000	0.91422	0.00008
29	0.91880	0.00006	0.91880	0.00006	0.98376	0.00000	0.01624	0.00000	0.91880	0.00006
30	0.91229	0.00002	0.91229	0.00002	0.98246	0.00000	0.01754	0.00000	0.91229	0.00002
31	0.93687	0.00016	0.93687	0.00016	0.98737	0.00001	0.01263	0.00001	0.93687	0.00016
32	0.93542	0.00019	0.93542	0.00019	0.98708	0.00001	0.01292	0.00001	0.93542	0.00019
33	0.79687	0.00013	0.79687	0.00013	0.95937	0.00001	0.04063	0.00001	0.79687	0.00013
34	0.79398	0.00013	0.79398	0.00013	0.95880	0.00001	0.04120	0.00001	0.79398	0.00013
35	0.91253	0.00010	0.91253	0.00010	0.98251	0.00000	0.01749	0.00000	0.91253	0.00010
36	0.90241	0.00014	0.90241	0.00014	0.98048	0.00001	0.01952	0.00001	0.90241	0.00014
37	0.92578	0.00012	0.92578	0.00012	0.98516	0.00000	0.01484	0.00000	0.92578	0.00012
38	0.92747	0.00007	0.92747	0.00007	0.98549	0.00000	0.01451	0.00000	0.92747	0.00007
39	0.91614	0.00014	0.91614	0.00014	0.98323	0.00001	0.01677	0.00001	0.91614	0.00014
40	0.90843	0.00003	0.90843	0.00003	0.98169	0.00000	0.01831	0.00000	0.90843	0.00003
41	0.90723	0.00008	0.90723	0.00008	0.98145	0.00000	0.01855	0.00000	0.90723	0.00008
42	0.89759	0.00010	0.89759	0.00010	0.97952	0.00000	0.02048	0.00000	0.89759	0.00010
43	0.92072	0.00022	0.92072	0.00022	0.98414	0.00001	0.01586	0.00001	0.92072	0.00022
44	0.92000	0.00017	0.92000	0.00017	0.98400	0.00001	0.01600	0.00001	0.92000	0.00017
45	0.81807	0.00008	0.81807	0.00008	0.96361	0.00000	0.03639	0.00000	0.81807	0.00008
46	0.81373	0.00022	0.81373	0.00022	0.96275	0.00001	0.03725	0.00001	0.81373	0.00022
47	0.90554	0.00003	0.90554	0.00003	0.98111	0.00000	0.01889	0.00000	0.90554	0.00003
48	0.89301	0.00016	0.89301	0.00016	0.97860	0.00001	0.02140	0.00001	0.89301	0.00016
49	0.94964	0.00009	0.94964	0.00009	0.98993	0.00000	0.01007	0.00000	0.94964	0.00009
50	0.94578	0.00012	0.94578	0.00012	0.98916	0.00000	0.01084	0.00000	0.94578	0.00012
51	0.92867	0.00011	0.92867	0.00011	0.98573	0.00000	0.01427	0.00000	0.92867	0.00011
52	0.92217	0.00007	0.92217	0.00007	0.98443	0.00000	0.01557	0.00000	0.92217	0.00007
53	0.92048	0.00015	0.92048	0.00015	0.98410	0.00001	0.01590	0.00001	0.92048	0.00015
54	0.91349	0.00015	0.91349	0.00015	0.98270	0.00001	0.01730	0.00001	0.91349	0.00015
55	0.95494	0.00011	0.95494	0.00011	0.99099	0.00000	0.00901	0.00000	0.95494	0.00011
56	0.95470	0.00008	0.95470	0.00008	0.99094	0.00000	0.00906	0.00000	0.95470	0.00008
57	0.76506	0.00019	0.76506	0.00019	0.95301	0.00001	0.04699	0.00001	0.76506	0.00019
58	0.76361	0.00030	0.76361	0.00030	0.95272	0.00001	0.04728	0.00001	0.76361	0.00030
59	0.90627	0.00020	0.90627	0.00020	0.98125	0.00001	0.01875	0.00001	0.90627	0.00020
60	0.89928	0.00011	0.89928	0.00011	0.97986	0.00000	0.02014	0.00000	0.89928	0.00011

Table 37. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 0.7 and no Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.83627	0.00051	0.83217	0.00054	0.96925	0.00002	0.03075	0.00002	0.82753	0.00051
2	0.85119	0.00038	0.85445	0.00049	0.97296	0.00001	0.02704	0.00001	0.84840	0.00042
3	0.73316	0.00039	0.65621	0.00187	0.94092	0.00006	0.05908	0.00006	0.67397	0.00131
4	0.81067	0.00045	0.79442	0.00060	0.96357	0.00002	0.03643	0.00002	0.79367	0.00056
5	0.72685	0.00063	0.63522	0.00161	0.93740	0.00004	0.06260	0.00004	0.65456	0.00122
6	0.80851	0.00061	0.78814	0.00070	0.96275	0.00002	0.03725	0.00002	0.78777	0.00065
7	0.79873	0.00042	0.78089	0.00047	0.95986	0.00002	0.04014	0.00002	0.77724	0.00056
8	0.83927	0.00024	0.84112	0.00028	0.96935	0.00001	0.03065	0.00001	0.83271	0.00022
9	0.45886	0.00499	0.24581	0.00122	0.85624	0.00008	0.14376	0.00008	0.22871	0.00123
10	0.60231	0.00087	0.47059	0.00092	0.90877	0.00004	0.09123	0.00004	0.48497	0.00091
11	0.70683	0.00046	0.60882	0.00115	0.93214	0.00003	0.06786	0.00003	0.62648	0.00078
12	0.78903	0.00048	0.76234	0.00049	0.95981	0.00002	0.04019	0.00002	0.76603	0.00048
13	0.86547	0.00013	0.85875	0.00026	0.97533	0.00001	0.02467	0.00001	0.85948	0.00020
14	0.90523	0.00021	0.90362	0.00026	0.98284	0.00001	0.01716	0.00001	0.90253	0.00023
15	0.71373	0.00093	0.61785	0.00383	0.93253	0.00014	0.06747	0.00014	0.63328	0.00322
16	0.81482	0.00032	0.79205	0.00045	0.96410	0.00001	0.03590	0.00001	0.79687	0.00037
17	0.68755	0.00103	0.58051	0.00351	0.92506	0.00014	0.07494	0.00014	0.59647	0.00313
18	0.80314	0.00035	0.77912	0.00053	0.96193	0.00001	0.03807	0.00001	0.78453	0.00042
19	0.91797	0.00015	0.91223	0.00024	0.98487	0.00001	0.01513	0.00001	0.91327	0.00018
20	0.93450	0.00011	0.92509	0.00014	0.98752	0.00000	0.01248	0.00000	0.92852	0.00012
21	0.32003	0.00175	0.18574	0.00067	0.84169	0.00004	0.15831	0.00004	0.14367	0.00059
22	0.41858	0.00179	0.31743	0.00070	0.87586	0.00003	0.12414	0.00003	0.32217	0.00075
23	0.66527	0.00144	0.55117	0.00391	0.91923	0.00015	0.08077	0.00015	0.56724	0.00335
24	0.78758	0.00048	0.75434	0.00044	0.95677	0.00002	0.04323	0.00002	0.76237	0.00041
25	0.88793	0.00011	0.89136	0.00016	0.97957	0.00000	0.02043	0.00000	0.88624	0.00012
26	0.89899	0.00020	0.90182	0.00024	0.98178	0.00001	0.01822	0.00001	0.89842	0.00022
27	0.78664	0.00034	0.74441	0.00042	0.95542	0.00001	0.04458	0.00001	0.75363	0.00033
28	0.83726	0.00027	0.82249	0.00040	0.96954	0.00001	0.03046	0.00001	0.82357	0.00041
29	0.77142	0.00061	0.72075	0.00089	0.95142	0.00002	0.04858	0.00002	0.73221	0.00071
30	0.83725	0.00019	0.81939	0.00025	0.96906	0.00000	0.03094	0.00000	0.82171	0.00022
31	0.87183	0.00020	0.86827	0.00041	0.97595	0.00001	0.02405	0.00001	0.86581	0.00038
32	0.89450	0.00016	0.89641	0.00012	0.98063	0.00001	0.01937	0.00001	0.89315	0.00014
33	0.38421	0.00903	0.21983	0.00166	0.84935	0.00009	0.15065	0.00009	0.18333	0.00218
34	0.51059	0.00218	0.37267	0.00145	0.88814	0.00005	0.11186	0.00005	0.38800	0.00125
35	0.75200	0.00072	0.68961	0.00088	0.94549	0.00002	0.05451	0.00002	0.70454	0.00067
36	0.82340	0.00019	0.80328	0.00027	0.96612	0.00001	0.03388	0.00001	0.80748	0.00022
37	0.88377	0.00021	0.88996	0.00028	0.97923	0.00001	0.02077	0.00001	0.88321	0.00026
38	0.88931	0.00013	0.89325	0.00028	0.97995	0.00001	0.02005	0.00001	0.88852	0.00020
39	0.78715	0.00024	0.74374	0.00059	0.95682	0.00002	0.04318	0.00002	0.75548	0.00049
40	0.83127	0.00037	0.81514	0.00042	0.96839	0.00001	0.03161	0.00001	0.81728	0.00040
41	0.77082	0.00048	0.71881	0.00080	0.95195	0.00003	0.04805	0.00003	0.73206	0.00063
42	0.82644	0.00027	0.80397	0.00024	0.96680	0.00001	0.03320	0.00001	0.80705	0.00023
43	0.86228	0.00023	0.85776	0.00046	0.97422	0.00001	0.02578	0.00001	0.85548	0.00040
44	0.88402	0.00013	0.88624	0.00018	0.97855	0.00000	0.02145	0.00000	0.88195	0.00015
45	0.41653	0.00290	0.21951	0.00041	0.84983	0.00002	0.15017	0.00002	0.19356	0.00031
46	0.56020	0.00165	0.41799	0.00208	0.89846	0.00007	0.10154	0.00007	0.43507	0.00193
47	0.75149	0.00042	0.68761	0.00078	0.94573	0.00002	0.05427	0.00002	0.70414	0.00058
48	0.81446	0.00039	0.79481	0.00046	0.96463	0.00002	0.03537	0.00002	0.79721	0.00046
49	0.89245	0.00015	0.89369	0.00018	0.98087	0.00000	0.01913	0.00000	0.89070	0.00015
50	0.91172	0.00007	0.91052	0.00013	0.98395	0.00000	0.01605	0.00000	0.90948	0.00010
51	0.74862	0.00088	0.68354	0.00127	0.94414	0.00006	0.05586	0.00006	0.69247	0.00127
52	0.83763	0.00016	0.82468	0.00019	0.96925	0.00000	0.03075	0.00000	0.82651	0.00017
53	0.72447	0.00047	0.63360	0.00066	0.93417	0.00004	0.06583	0.00004	0.64668	0.00058
54	0.83072	0.00023	0.80651	0.00053	0.96684	0.00001	0.03316	0.00001	0.81039	0.00056
55	0.91034	0.00013	0.90527	0.00010	0.98337	0.00000	0.01663	0.00000	0.90647	0.00012
56	0.92160	0.00010	0.91648	0.00012	0.98569	0.00000	0.01431	0.00000	0.91781	0.00010
57	0.39403	0.00292	0.20643	0.00081	0.84573	0.00004	0.15427	0.00004	0.16948	0.00084
58	0.44090	0.00280	0.33180	0.00167	0.87793	0.00006	0.12207	0.00006	0.33815	0.00140
59	0.69706	0.00071	0.59634	0.00083	0.92680	0.00006	0.07320	0.00006	0.60917	0.00074
60	0.81499	0.00028	0.79427	0.00059	0.96448	0.00002	0.03552	0.00002	0.79765	0.00055

Table 38. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Gaussian Kernel with $\sigma = 264.58$.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.85779	0.00045	0.85719	0.00037	0.97345	0.00002	0.02655	0.00002	0.85192	0.00040
2	0.88820	0.00017	0.88799	0.00029	0.97942	0.00001	0.02058	0.00001	0.88429	0.00024
3	0.81712	0.00075	0.78865	0.00127	0.96366	0.00004	0.03634	0.00004	0.79409	0.00122
4	0.84516	0.00024	0.83244	0.00031	0.97142	0.00001	0.02858	0.00001	0.83341	0.00031
5	0.80794	0.00042	0.77166	0.00123	0.96106	0.00003	0.03894	0.00003	0.77908	0.00103
6	0.84817	0.00022	0.83036	0.00032	0.97171	0.00001	0.02829	0.00001	0.83303	0.00036
7	0.84271	0.00036	0.83096	0.00042	0.96969	0.00001	0.03031	0.00001	0.82765	0.00043
8	0.86531	0.00035	0.86511	0.00043	0.97455	0.00001	0.02545	0.00001	0.85826	0.00039
9	0.55770	0.00541	0.35155	0.00088	0.88149	0.00012	0.11851	0.00012	0.33983	0.00107
10	0.68466	0.00329	0.52300	0.00087	0.92255	0.00004	0.07745	0.00004	0.53704	0.00083
11	0.78827	0.00049	0.74514	0.00107	0.95759	0.00002	0.04241	0.00002	0.75196	0.00098
12	0.83146	0.00017	0.80709	0.00032	0.96810	0.00001	0.03190	0.00001	0.81332	0.00026
13	0.90581	0.00016	0.89820	0.00021	0.98275	0.00001	0.01725	0.00001	0.90032	0.00020
14	0.93414	0.00008	0.93187	0.00007	0.98814	0.00000	0.01186	0.00000	0.93175	0.00007
15	0.79800	0.00044	0.74903	0.00063	0.95860	0.00002	0.04140	0.00002	0.75731	0.00058
16	0.87608	0.00013	0.85924	0.00014	0.97643	0.00000	0.02357	0.00000	0.86427	0.00009
17	0.78368	0.00084	0.72200	0.00129	0.95455	0.00002	0.04545	0.00002	0.72948	0.00151
18	0.86308	0.00018	0.83754	0.00016	0.97345	0.00001	0.02655	0.00001	0.84411	0.00012
19	0.94943	0.00005	0.93867	0.00007	0.99012	0.00000	0.00988	0.00000	0.94299	0.00006
20	0.94526	0.00007	0.93221	0.00015	0.98892	0.00000	0.01108	0.00000	0.93724	0.00011
21	0.35119	0.00585	0.20140	0.00049	0.84496	0.00002	0.15504	0.00002	0.14994	0.00082
22	0.51810	0.00332	0.36718	0.00106	0.88959	0.00006	0.11041	0.00006	0.37463	0.00066
23	0.75943	0.00090	0.69389	0.00162	0.94916	0.00004	0.05084	0.00004	0.70184	0.00183
24	0.84771	0.00017	0.82409	0.00033	0.97055	0.00001	0.02945	0.00001	0.83052	0.00026
25	0.91008	0.00014	0.91377	0.00015	0.98390	0.00001	0.01610	0.00001	0.90985	0.00017
26	0.91859	0.00023	0.91954	0.00016	0.98535	0.00001	0.01465	0.00001	0.91747	0.00019
27	0.84709	0.00025	0.82270	0.00070	0.97007	0.00002	0.02993	0.00002	0.82747	0.00065
28	0.88358	0.00013	0.86833	0.00019	0.97812	0.00001	0.02188	0.00001	0.87205	0.00016
29	0.83720	0.00033	0.79896	0.00083	0.96665	0.00002	0.03335	0.00002	0.80693	0.00080
30	0.88200	0.00025	0.86544	0.00031	0.97769	0.00001	0.02231	0.00001	0.87012	0.00028
31	0.89975	0.00020	0.90030	0.00019	0.98159	0.00001	0.01841	0.00001	0.89793	0.00022
32	0.90523	0.00012	0.90725	0.00015	0.98270	0.00000	0.01730	0.00000	0.90477	0.00014
33	0.45706	0.00801	0.26646	0.00103	0.86193	0.00009	0.13807	0.00009	0.23319	0.00158
34	0.62020	0.00111	0.45641	0.00061	0.90723	0.00003	0.09277	0.00003	0.46912	0.00073
35	0.81349	0.00031	0.76957	0.00115	0.96164	0.00003	0.03836	0.00003	0.77843	0.00108
36	0.86372	0.00014	0.84827	0.00026	0.97441	0.00000	0.02559	0.00000	0.85218	0.00021
37	0.90423	0.00009	0.90763	0.00011	0.98280	0.00000	0.01720	0.00000	0.90366	0.00009
38	0.90790	0.00015	0.90868	0.00021	0.98328	0.00000	0.01672	0.00000	0.90559	0.00018
39	0.82900	0.00043	0.80288	0.00073	0.96665	0.00002	0.03335	0.00002	0.80720	0.00071
40	0.87484	0.00029	0.86402	0.00039	0.97711	0.00001	0.02289	0.00001	0.86634	0.00036
41	0.82364	0.00050	0.79313	0.00085	0.96540	0.00003	0.03460	0.00003	0.79925	0.00081
42	0.86929	0.00017	0.85044	0.00018	0.97557	0.00001	0.02443	0.00001	0.85554	0.00018
43	0.88270	0.00021	0.88453	0.00024	0.97836	0.00001	0.02164	0.00001	0.88097	0.00022
44	0.89829	0.00017	0.89888	0.00016	0.98130	0.00001	0.01870	0.00001	0.89616	0.00016
45	0.53430	0.00550	0.30580	0.00097	0.87239	0.00006	0.12761	0.00006	0.27973	0.00139
46	0.63881	0.00383	0.46934	0.00064	0.91094	0.00003	0.08906	0.00003	0.48482	0.00084
47	0.80148	0.00091	0.76586	0.00110	0.96058	0.00003	0.03942	0.00003	0.77006	0.00129
48	0.85585	0.00015	0.83484	0.00023	0.97287	0.00001	0.02713	0.00001	0.84073	0.00020
49	0.92579	0.00011	0.92140	0.00009	0.98631	0.00000	0.01369	0.00000	0.92229	0.00009
50	0.93163	0.00015	0.92940	0.00009	0.98776	0.00000	0.01224	0.00000	0.92946	0.00010
51	0.84090	0.00056	0.81075	0.00064	0.96824	0.00003	0.03176	0.00003	0.81635	0.00070
52	0.88778	0.00019	0.87603	0.00022	0.97894	0.00001	0.02106	0.00001	0.87918	0.00016
53	0.82789	0.00053	0.79271	0.00098	0.96516	0.00003	0.03484	0.00003	0.79921	0.00094
54	0.87334	0.00012	0.85334	0.00019	0.97595	0.00000	0.02405	0.00000	0.85876	0.00012
55	0.93674	0.00008	0.92902	0.00014	0.98781	0.00000	0.01219	0.00000	0.93167	0.00010
56	0.93950	0.00012	0.93241	0.00014	0.98848	0.00000	0.01152	0.00000	0.93480	0.00012
57	0.34291	0.00415	0.20793	0.00137	0.84887	0.00009	0.15113	0.00009	0.16123	0.00200
58	0.54145	0.00300	0.41254	0.00063	0.89822	0.00003	0.10178	0.00003	0.41827	0.00052
59	0.81288	0.00058	0.76743	0.00100	0.96058	0.00004	0.03942	0.00004	0.77635	0.00094
60	0.86310	0.00028	0.84484	0.00034	0.97422	0.00001	0.02578	0.00001	0.85038	0.00029

Table 39. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Gaussian Kernel with $\sigma = 264.58$.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88133	0.00011	0.87784	0.00012	0.97778	0.00001	0.02222	0.00001	0.87471	0.00013
2	0.90128	0.00018	0.89997	0.00021	0.98183	0.00001	0.01817	0.00001	0.89716	0.00021
3	0.84479	0.00034	0.82983	0.00071	0.97017	0.00001	0.02983	0.00001	0.83014	0.00057
4	0.86881	0.00024	0.85448	0.00039	0.97504	0.00001	0.02496	0.00001	0.85688	0.00035
5	0.84228	0.00024	0.81835	0.00062	0.96877	0.00001	0.03123	0.00001	0.82116	0.00051
6	0.86473	0.00028	0.84503	0.00049	0.97412	0.00001	0.02588	0.00001	0.84974	0.00046
7	0.88358	0.00012	0.87089	0.00022	0.97764	0.00001	0.02236	0.00001	0.86992	0.00024
8	0.89363	0.00025	0.88742	0.00047	0.98005	0.00001	0.01995	0.00001	0.88529	0.00042
9	0.67614	0.00452	0.46223	0.00363	0.90684	0.00014	0.09316	0.00014	0.46077	0.00266
10	0.74044	0.00236	0.62368	0.00042	0.94299	0.00002	0.05701	0.00002	0.63046	0.00060
11	0.82954	0.00049	0.79971	0.00049	0.96569	0.00002	0.03431	0.00002	0.80430	0.00057
12	0.85328	0.00016	0.83198	0.00037	0.97171	0.00001	0.02829	0.00001	0.83742	0.00032
13	0.93636	0.00022	0.92937	0.00015	0.98824	0.00001	0.01176	0.00001	0.93192	0.00018
14	0.94839	0.00008	0.94275	0.00008	0.99055	0.00000	0.00945	0.00000	0.94455	0.00008
15	0.85100	0.00031	0.80438	0.00073	0.96964	0.00001	0.03036	0.00001	0.81536	0.00064
16	0.90199	0.00016	0.88886	0.00029	0.98149	0.00001	0.01851	0.00001	0.89301	0.00024
17	0.83948	0.00045	0.78213	0.00094	0.96660	0.00002	0.03340	0.00002	0.79418	0.00086
18	0.89040	0.00017	0.87112	0.00033	0.97899	0.00001	0.02101	0.00001	0.87677	0.00028
19	0.97684	0.00007	0.96376	0.00012	0.99451	0.00000	0.00549	0.00000	0.96927	0.00010
20	0.97135	0.00006	0.95610	0.00015	0.99340	0.00000	0.00660	0.00000	0.96228	0.00011
21	0.45524	0.00371	0.24462	0.00086	0.85788	0.00006	0.14212	0.00006	0.21287	0.00105
22	0.61019	0.00228	0.45965	0.00060	0.91147	0.00003	0.08853	0.00003	0.45974	0.00066
23	0.82274	0.00060	0.76202	0.00126	0.96294	0.00002	0.03706	0.00002	0.77277	0.00116
24	0.88202	0.00023	0.85867	0.00027	0.97696	0.00001	0.02304	0.00001	0.86591	0.00025
25	0.92621	0.00012	0.92805	0.00009	0.98680	0.00000	0.01320	0.00000	0.92560	0.00011
26	0.93105	0.00010	0.93124	0.00008	0.98747	0.00000	0.01253	0.00000	0.92940	0.00009
27	0.87780	0.00023	0.85879	0.00051	0.97677	0.00001	0.02323	0.00001	0.86278	0.00045
28	0.90345	0.00022	0.89133	0.00020	0.98188	0.00001	0.01812	0.00001	0.89463	0.00023
29	0.86782	0.00027	0.84290	0.00050	0.97441	0.00002	0.02559	0.00002	0.84865	0.00052
30	0.90079	0.00023	0.88775	0.00023	0.98140	0.00001	0.01860	0.00001	0.89136	0.00024
31	0.93339	0.00016	0.93629	0.00014	0.98786	0.00001	0.01214	0.00001	0.93334	0.00016
32	0.93791	0.00007	0.93562	0.00009	0.98867	0.00000	0.01133	0.00000	0.93534	0.00007
33	0.59027	0.00488	0.31574	0.00610	0.87267	0.00023	0.12733	0.00023	0.29384	0.00549
34	0.69679	0.00261	0.56056	0.00095	0.93152	0.00003	0.06848	0.00003	0.56015	0.00095
35	0.85395	0.00031	0.82452	0.00069	0.97137	0.00002	0.02863	0.00002	0.83099	0.00071
36	0.88897	0.00012	0.87630	0.00016	0.97913	0.00000	0.02087	0.00000	0.88025	0.00013
37	0.91419	0.00012	0.91798	0.00010	0.98458	0.00000	0.01542	0.00000	0.91424	0.00012
38	0.92906	0.00012	0.92809	0.00016	0.98704	0.00000	0.01296	0.00000	0.92623	0.00015
39	0.87306	0.00014	0.85545	0.00042	0.97576	0.00001	0.02424	0.00001	0.85873	0.00034
40	0.89439	0.00011	0.88286	0.00015	0.98043	0.00000	0.01957	0.00000	0.88593	0.00013
41	0.86223	0.00015	0.84022	0.00045	0.97320	0.00001	0.02680	0.00001	0.84500	0.00033
42	0.88746	0.00009	0.87250	0.00018	0.97889	0.00000	0.02111	0.00000	0.87636	0.00014
43	0.91822	0.00017	0.92123	0.00017	0.98506	0.00001	0.01494	0.00001	0.91692	0.00019
44	0.92777	0.00019	0.92636	0.00023	0.98675	0.00001	0.01325	0.00001	0.92465	0.00023
45	0.63471	0.00409	0.42748	0.00435	0.89740	0.00018	0.10260	0.00018	0.41950	0.00392
46	0.70222	0.00193	0.59195	0.00023	0.93773	0.00001	0.06227	0.00001	0.59192	0.00035
47	0.85105	0.00016	0.82599	0.00046	0.97065	0.00001	0.02935	0.00001	0.83102	0.00041
48	0.87908	0.00017	0.86215	0.00031	0.97740	0.00001	0.02260	0.00001	0.86677	0.00029
49	0.94178	0.00005	0.93795	0.00003	0.98920	0.00000	0.01080	0.00000	0.93898	0.00003
50	0.94549	0.00005	0.94273	0.00008	0.99022	0.00000	0.00978	0.00000	0.94325	0.00006
51	0.87920	0.00012	0.85284	0.00013	0.97682	0.00000	0.02318	0.00000	0.85981	0.00015
52	0.90847	0.00019	0.89723	0.00012	0.98280	0.00000	0.01720	0.00000	0.90088	0.00013
53	0.86990	0.00013	0.83576	0.00016	0.97441	0.00000	0.02559	0.00000	0.84384	0.00017
54	0.90335	0.00017	0.88684	0.00034	0.98154	0.00001	0.01846	0.00001	0.89162	0.00026
55	0.96734	0.00007	0.95879	0.00008	0.99335	0.00000	0.00665	0.00000	0.96229	0.00006
56	0.96370	0.00005	0.95211	0.00010	0.99253	0.00000	0.00747	0.00000	0.95679	0.00006
57	0.53115	0.00773	0.27405	0.00193	0.86704	0.00013	0.13296	0.00013	0.24261	0.00218
58	0.63173	0.00109	0.49406	0.00044	0.91836	0.00002	0.08164	0.00002	0.49262	0.00040
59	0.85816	0.00018	0.82498	0.00029	0.97248	0.00001	0.02752	0.00001	0.83134	0.00028
60	0.89357	0.00015	0.87785	0.00017	0.97990	0.00001	0.02010	0.00001	0.88305	0.00015

Table 40. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Gaussian Kernel with $\sigma = 264.58$.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89294	0.00022	0.88232	0.00026	0.97947	0.00001	0.02053	0.00001	0.88443	0.00024
2	0.90373	0.00018	0.89348	0.00035	0.98178	0.00001	0.01822	0.00001	0.89461	0.00031
3	0.86967	0.00019	0.83703	0.00040	0.97427	0.00001	0.02573	0.00001	0.84531	0.00035
4	0.87643	0.00012	0.85230	0.00015	0.97566	0.00000	0.02434	0.00000	0.85865	0.00012
5	0.87323	0.00008	0.83371	0.00026	0.97417	0.00000	0.02583	0.00000	0.84303	0.00021
6	0.87451	0.00018	0.84902	0.00016	0.97537	0.00000	0.02463	0.00000	0.85568	0.00016
7	0.89094	0.00011	0.88089	0.00016	0.97947	0.00000	0.02053	0.00000	0.88173	0.00013
8	0.89829	0.00012	0.88332	0.00023	0.98048	0.00000	0.01952	0.00000	0.88595	0.00021
9	0.79234	0.00118	0.54970	0.00334	0.92814	0.00016	0.07186	0.00016	0.55852	0.00178
10	0.79273	0.00211	0.66274	0.00041	0.95161	0.00001	0.04839	0.00001	0.67130	0.00062
11	0.86058	0.00011	0.82098	0.00017	0.97214	0.00000	0.02786	0.00000	0.82970	0.00018
12	0.86992	0.00006	0.84164	0.00021	0.97465	0.00000	0.02535	0.00000	0.85043	0.00014
13	0.96560	0.00005	0.95534	0.00012	0.99325	0.00000	0.00675	0.00000	0.95964	0.00008
14	0.96080	0.00008	0.95083	0.00008	0.99248	0.00000	0.00752	0.00000	0.95480	0.00007
15	0.89927	0.00022	0.86525	0.00027	0.97990	0.00001	0.02010	0.00001	0.87405	0.00029
16	0.91877	0.00012	0.89374	0.00010	0.98405	0.00000	0.01595	0.00000	0.90214	0.00009
17	0.88860	0.00036	0.84739	0.00043	0.97749	0.00001	0.02251	0.00001	0.85681	0.00043
18	0.91438	0.00008	0.88462	0.00004	0.98289	0.00000	0.01711	0.00000	0.89444	0.00005
19	0.98309	0.00003	0.97034	0.00009	0.99552	0.00000	0.00448	0.00000	0.97552	0.00007
20	0.98074	0.00004	0.96680	0.00006	0.99513	0.00000	0.00487	0.00000	0.97251	0.00005
21	0.56841	0.00530	0.33233	0.00061	0.87754	0.00007	0.12246	0.00007	0.31167	0.00087
22	0.70624	0.00141	0.51125	0.00055	0.92381	0.00002	0.07619	0.00002	0.50965	0.00047
23	0.87462	0.00046	0.82875	0.00042	0.97460	0.00001	0.02540	0.00001	0.83842	0.00050
24	0.90046	0.00013	0.87067	0.00013	0.98034	0.00000	0.01966	0.00000	0.88110	0.00012
25	0.95112	0.00005	0.94594	0.00006	0.99089	0.00000	0.00911	0.00000	0.94753	0.00005
26	0.95137	0.00004	0.94260	0.00014	0.99084	0.00000	0.00916	0.00000	0.94580	0.00009
27	0.90873	0.00007	0.88657	0.00013	0.98207	0.00000	0.01793	0.00000	0.89360	0.00011
28	0.91607	0.00005	0.89980	0.00013	0.98434	0.00000	0.01566	0.00000	0.90437	0.00011
29	0.90096	0.00005	0.87045	0.00018	0.98019	0.00000	0.01981	0.00000	0.87936	0.00013
30	0.91404	0.00004	0.89540	0.00013	0.98386	0.00000	0.01614	0.00000	0.90110	0.00010
31	0.95700	0.00003	0.95271	0.00006	0.99205	0.00000	0.00795	0.00000	0.95379	0.00004
32	0.95622	0.00018	0.94836	0.00027	0.99181	0.00001	0.00819	0.00001	0.95035	0.00025
33	0.67854	0.00422	0.46507	0.00137	0.91128	0.00010	0.08872	0.00010	0.45341	0.00190
34	0.76399	0.00187	0.59944	0.00057	0.94106	0.00001	0.05894	0.00001	0.60251	0.00075
35	0.88570	0.00008	0.85547	0.00023	0.97769	0.00000	0.02231	0.00000	0.86305	0.00018
36	0.90767	0.00011	0.88532	0.00014	0.98231	0.00000	0.01769	0.00000	0.89275	0.00013
37	0.93179	0.00013	0.92922	0.00013	0.98737	0.00000	0.01263	0.00000	0.92883	0.00014
38	0.93273	0.00007	0.92471	0.00014	0.98766	0.00000	0.01234	0.00000	0.92630	0.00011
39	0.89756	0.00017	0.87223	0.00039	0.97971	0.00001	0.02029	0.00001	0.87963	0.00033
40	0.90285	0.00012	0.88725	0.00018	0.98178	0.00000	0.01822	0.00000	0.89101	0.00015
41	0.89002	0.00021	0.85800	0.00032	0.97798	0.00001	0.02202	0.00001	0.86691	0.00030
42	0.90267	0.00007	0.88432	0.00011	0.98154	0.00000	0.01846	0.00000	0.88954	0.00009
43	0.93746	0.00007	0.93516	0.00010	0.98853	0.00000	0.01147	0.00000	0.93422	0.00010
44	0.93849	0.00007	0.92965	0.00011	0.98867	0.00000	0.01133	0.00000	0.93139	0.00009
45	0.73160	0.00256	0.50596	0.00248	0.91740	0.00014	0.08260	0.00014	0.50845	0.00195
46	0.77553	0.00260	0.62735	0.00030	0.94593	0.00001	0.05407	0.00001	0.63045	0.00037
47	0.87738	0.00014	0.84419	0.00053	0.97557	0.00001	0.02443	0.00001	0.85228	0.00045
48	0.89443	0.00013	0.87432	0.00024	0.97995	0.00001	0.02005	0.00001	0.88056	0.00022
49	0.96495	0.00007	0.96091	0.00004	0.99345	0.00000	0.00655	0.00000	0.96239	0.00005
50	0.96246	0.00010	0.95375	0.00012	0.99287	0.00000	0.00713	0.00000	0.95699	0.00011
51	0.91477	0.00011	0.89129	0.00015	0.98318	0.00000	0.01682	0.00000	0.89866	0.00013
52	0.92503	0.00010	0.90538	0.00014	0.98554	0.00000	0.01446	0.00000	0.91200	0.00013
53	0.90499	0.00008	0.87890	0.00016	0.98130	0.00000	0.01870	0.00000	0.88685	0.00014
54	0.91966	0.00007	0.89769	0.00014	0.98439	0.00000	0.01561	0.00000	0.90518	0.00012
55	0.97832	0.00005	0.96922	0.00010	0.99518	0.00000	0.00482	0.00000	0.97297	0.00008
56	0.97750	0.00005	0.96672	0.00009	0.99504	0.00000	0.00496	0.00000	0.97116	0.00007
57	0.63979	0.00353	0.38035	0.00217	0.89195	0.00015	0.10805	0.00015	0.36910	0.00174
58	0.71695	0.00298	0.53844	0.00078	0.92930	0.00003	0.07070	0.00003	0.53821	0.00094
59	0.89159	0.00008	0.86106	0.00012	0.97875	0.00000	0.02125	0.00000	0.86941	0.00010
60	0.90781	0.00007	0.88402	0.00009	0.98222	0.00000	0.01778	0.00000	0.89214	0.00008

Table 41. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Gaussian Kernel with $\sigma = 264.58$.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.84627	0.00043	0.84627	0.00043	0.96925	0.00002	0.03075	0.00002	0.84627	0.00043
2	0.86482	0.00028	0.86482	0.00028	0.97296	0.00001	0.02704	0.00001	0.86482	0.00028
3	0.70458	0.00151	0.70458	0.00151	0.94092	0.00006	0.05908	0.00006	0.70458	0.00151
4	0.81783	0.00047	0.81783	0.00047	0.96357	0.00002	0.03643	0.00002	0.81783	0.00047
5	0.68699	0.00112	0.68699	0.00112	0.93740	0.00004	0.06260	0.00004	0.68699	0.00112
6	0.81373	0.00041	0.81373	0.00041	0.96275	0.00002	0.03725	0.00002	0.81373	0.00041
7	0.79928	0.00047	0.79928	0.00047	0.95986	0.00002	0.04014	0.00002	0.79928	0.00047
8	0.84675	0.00018	0.84675	0.00018	0.96935	0.00001	0.03065	0.00001	0.84675	0.00018
9	0.28120	0.00207	0.28120	0.00207	0.85624	0.00008	0.14376	0.00008	0.28120	0.00207
10	0.54386	0.00093	0.54386	0.00093	0.90877	0.00004	0.09123	0.00004	0.54386	0.00093
11	0.66072	0.00077	0.66072	0.00077	0.93214	0.00003	0.06786	0.00003	0.66072	0.00077
12	0.79904	0.00041	0.79904	0.00041	0.95981	0.00002	0.04019	0.00002	0.79904	0.00041
13	0.87663	0.00015	0.87663	0.00015	0.97533	0.00001	0.02467	0.00001	0.87663	0.00015
14	0.91422	0.00019	0.91422	0.00019	0.98284	0.00001	0.01716	0.00001	0.91422	0.00019
15	0.66265	0.00346	0.66265	0.00346	0.93253	0.00014	0.06747	0.00014	0.66265	0.00346
16	0.82048	0.00028	0.82048	0.00028	0.96410	0.00001	0.03590	0.00001	0.82048	0.00028
17	0.62530	0.00354	0.62530	0.00354	0.92506	0.00014	0.07494	0.00014	0.62530	0.00354
18	0.80964	0.00025	0.80964	0.00025	0.96193	0.00001	0.03807	0.00001	0.80964	0.00025
19	0.92434	0.00013	0.92434	0.00013	0.98487	0.00001	0.01513	0.00001	0.92434	0.00013
20	0.93759	0.00008	0.93759	0.00008	0.98752	0.00000	0.01248	0.00000	0.93759	0.00008
21	0.20843	0.00091	0.20843	0.00091	0.84169	0.00004	0.15831	0.00004	0.20843	0.00091
22	0.37928	0.00063	0.37928	0.00063	0.87586	0.00003	0.12414	0.00003	0.37928	0.00063
23	0.59614	0.00376	0.59614	0.00376	0.91923	0.00015	0.08077	0.00015	0.59614	0.00376
24	0.78386	0.00044	0.78386	0.00044	0.95677	0.00002	0.04323	0.00002	0.78386	0.00044
25	0.89783	0.00010	0.89783	0.00010	0.97957	0.00000	0.02043	0.00000	0.89783	0.00010
26	0.90892	0.00016	0.90892	0.00016	0.98178	0.00001	0.01822	0.00001	0.90892	0.00016
27	0.77711	0.00021	0.77711	0.00021	0.95542	0.00001	0.04458	0.00001	0.77711	0.00021
28	0.84771	0.00025	0.84771	0.00025	0.96954	0.00001	0.03046	0.00001	0.84771	0.00025
29	0.75711	0.00049	0.75711	0.00049	0.95142	0.00002	0.04858	0.00002	0.75711	0.00049
30	0.84530	0.00011	0.84530	0.00011	0.96906	0.00000	0.03094	0.00000	0.84530	0.00011
31	0.87976	0.00029	0.87976	0.00029	0.97595	0.00001	0.02405	0.00001	0.87976	0.00029
32	0.90313	0.00013	0.90313	0.00013	0.98063	0.00001	0.01937	0.00001	0.90313	0.00013
33	0.24675	0.00216	0.24675	0.00216	0.84935	0.00009	0.15065	0.00009	0.24675	0.00216
34	0.44072	0.00119	0.44072	0.00119	0.88814	0.00005	0.11186	0.00005	0.44072	0.00119
35	0.72747	0.00061	0.72747	0.00061	0.94549	0.00002	0.05451	0.00002	0.72747	0.00061
36	0.83060	0.00023	0.83060	0.00023	0.96612	0.00001	0.03388	0.00001	0.83060	0.00023
37	0.89614	0.00021	0.89614	0.00021	0.97923	0.00001	0.02077	0.00001	0.89614	0.00021
38	0.89976	0.00014	0.89976	0.00014	0.97995	0.00001	0.02005	0.00001	0.89976	0.00014
39	0.78410	0.00038	0.78410	0.00038	0.95682	0.00002	0.04318	0.00002	0.78410	0.00038
40	0.84193	0.00024	0.84193	0.00024	0.96839	0.00001	0.03161	0.00001	0.84193	0.00024
41	0.75976	0.00063	0.75976	0.00063	0.95195	0.00003	0.04805	0.00003	0.75976	0.00063
42	0.83398	0.00016	0.83398	0.00016	0.96680	0.00001	0.03320	0.00001	0.83398	0.00016
43	0.87108	0.00029	0.87108	0.00029	0.97422	0.00001	0.02578	0.00001	0.87108	0.00029
44	0.89277	0.00009	0.89277	0.00009	0.97855	0.00000	0.02145	0.00000	0.89277	0.00009
45	0.24916	0.00057	0.24916	0.00057	0.84983	0.00002	0.15017	0.00002	0.24916	0.00057
46	0.49229	0.00187	0.49229	0.00187	0.89846	0.00007	0.10154	0.00007	0.49229	0.00187
47	0.72867	0.00057	0.72867	0.00057	0.94573	0.00002	0.05427	0.00002	0.72867	0.00057
48	0.82313	0.00043	0.82313	0.00043	0.96463	0.00002	0.03537	0.00002	0.82313	0.00043
49	0.90434	0.00008	0.90434	0.00008	0.98087	0.00000	0.01913	0.00000	0.90434	0.00008
50	0.91976	0.00009	0.91976	0.00009	0.98395	0.00000	0.01605	0.00000	0.91976	0.00009
51	0.72072	0.00160	0.72072	0.00160	0.94414	0.00006	0.05586	0.00006	0.72072	0.00160
52	0.84627	0.00008	0.84627	0.00008	0.96925	0.00000	0.03075	0.00000	0.84627	0.00008
53	0.67084	0.00111	0.67084	0.00111	0.93417	0.00004	0.06583	0.00004	0.67084	0.00111
54	0.83422	0.00035	0.83422	0.00035	0.96684	0.00001	0.03316	0.00001	0.83422	0.00035
55	0.91687	0.00010	0.91687	0.00010	0.98337	0.00000	0.01663	0.00000	0.91687	0.00010
56	0.92843	0.00008	0.92843	0.00008	0.98569	0.00000	0.01431	0.00000	0.92843	0.00008
57	0.22867	0.00110	0.22867	0.00110	0.84573	0.00004	0.15427	0.00004	0.22867	0.00110
58	0.38964	0.00144	0.38964	0.00144	0.87793	0.00006	0.12207	0.00006	0.38964	0.00144
59	0.63398	0.00148	0.63398	0.00148	0.92680	0.00006	0.07320	0.00006	0.63398	0.00148
60	0.82241	0.00053	0.82241	0.00053	0.96448	0.00002	0.03552	0.00002	0.82241	0.00053

Table 42. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Gaussian Kernel with $\sigma = 264.58$.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.86723	0.00041	0.86723	0.00041	0.97345	0.00002	0.02655	0.00002	0.86723	0.00041
2	0.89711	0.00016	0.89711	0.00016	0.97942	0.00001	0.02058	0.00001	0.89711	0.00016
3	0.81831	0.00095	0.81831	0.00095	0.96366	0.00004	0.03634	0.00004	0.81831	0.00095
4	0.85711	0.00022	0.85711	0.00022	0.97142	0.00001	0.02858	0.00001	0.85711	0.00022
5	0.80530	0.00082	0.80530	0.00082	0.96106	0.00003	0.03894	0.00003	0.80530	0.00082
6	0.85855	0.00027	0.85855	0.00027	0.97171	0.00001	0.02829	0.00001	0.85855	0.00027
7	0.84843	0.00026	0.84843	0.00026	0.96969	0.00001	0.03031	0.00001	0.84843	0.00026
8	0.87277	0.00032	0.87277	0.00032	0.97455	0.00001	0.02545	0.00001	0.87277	0.00032
9	0.40747	0.00304	0.40747	0.00304	0.88149	0.00012	0.11851	0.00012	0.40747	0.00304
10	0.61277	0.00103	0.61277	0.00103	0.92255	0.00004	0.07745	0.00004	0.61277	0.00103
11	0.78795	0.00054	0.78795	0.00054	0.95759	0.00002	0.04241	0.00002	0.78795	0.00054
12	0.84048	0.00016	0.84048	0.00016	0.96810	0.00001	0.03190	0.00001	0.84048	0.00016
13	0.91373	0.00016	0.91373	0.00016	0.98275	0.00001	0.01725	0.00001	0.91373	0.00016
14	0.94072	0.00007	0.94072	0.00007	0.98814	0.00000	0.01186	0.00000	0.94072	0.00007
15	0.79301	0.00039	0.79301	0.00039	0.95860	0.00002	0.04140	0.00002	0.79301	0.00039
16	0.88217	0.00011	0.88217	0.00011	0.97643	0.00000	0.02357	0.00000	0.88217	0.00011
17	0.77277	0.00057	0.77277	0.00057	0.95455	0.00002	0.04545	0.00002	0.77277	0.00057
18	0.86723	0.00014	0.86723	0.00014	0.97345	0.00001	0.02655	0.00001	0.86723	0.00014
19	0.95060	0.00005	0.95060	0.00005	0.99012	0.00000	0.00988	0.00000	0.95060	0.00005
20	0.94458	0.00009	0.94458	0.00009	0.98892	0.00000	0.01108	0.00000	0.94458	0.00009
21	0.22482	0.00052	0.22482	0.00052	0.84496	0.00002	0.15504	0.00002	0.22482	0.00052
22	0.44795	0.00146	0.44795	0.00146	0.88959	0.00006	0.11041	0.00006	0.44795	0.00146
23	0.74578	0.00090	0.74578	0.00090	0.94916	0.00004	0.05084	0.00004	0.74578	0.00090
24	0.85277	0.00018	0.85277	0.00018	0.97055	0.00001	0.02945	0.00001	0.85277	0.00018
25	0.91952	0.00014	0.91952	0.00014	0.98390	0.00001	0.01610	0.00001	0.91952	0.00014
26	0.92675	0.00016	0.92675	0.00016	0.98535	0.00001	0.01465	0.00001	0.92675	0.00016
27	0.85036	0.00060	0.85036	0.00060	0.97007	0.00002	0.02993	0.00002	0.85036	0.00060
28	0.89060	0.00013	0.89060	0.00013	0.97812	0.00001	0.02188	0.00001	0.89060	0.00013
29	0.83325	0.00062	0.83325	0.00062	0.96665	0.00002	0.03335	0.00002	0.83325	0.00062
30	0.88843	0.00021	0.88843	0.00021	0.97769	0.00001	0.02231	0.00001	0.88843	0.00021
31	0.90795	0.00022	0.90795	0.00022	0.98159	0.00001	0.01841	0.00001	0.90795	0.00022
32	0.91349	0.00011	0.91349	0.00011	0.98270	0.00000	0.01730	0.00000	0.91349	0.00011
33	0.30964	0.00217	0.30964	0.00217	0.86193	0.00009	0.13807	0.00009	0.30964	0.00217
34	0.53614	0.00086	0.53614	0.00086	0.90723	0.00003	0.09277	0.00003	0.53614	0.00086
35	0.80819	0.00084	0.80819	0.00084	0.96164	0.00003	0.03836	0.00003	0.80819	0.00084
36	0.87205	0.00012	0.87205	0.00012	0.97441	0.00000	0.02559	0.00000	0.87205	0.00012
37	0.91398	0.00007	0.91398	0.00007	0.98280	0.00000	0.01720	0.00000	0.91398	0.00007
38	0.91639	0.00012	0.91639	0.00012	0.98328	0.00000	0.01672	0.00000	0.91639	0.00012
39	0.83325	0.00058	0.83325	0.00058	0.96665	0.00002	0.03335	0.00002	0.83325	0.00058
40	0.88554	0.00028	0.88554	0.00028	0.97711	0.00001	0.02289	0.00001	0.88554	0.00028
41	0.82699	0.00067	0.82699	0.00067	0.96540	0.00003	0.03460	0.00003	0.82699	0.00067
42	0.87783	0.00013	0.87783	0.00013	0.97557	0.00001	0.02443	0.00001	0.87783	0.00013
43	0.89181	0.00020	0.89181	0.00020	0.97836	0.00001	0.02164	0.00001	0.89181	0.00020
44	0.90651	0.00013	0.90651	0.00013	0.98130	0.00001	0.01870	0.00001	0.90651	0.00013
45	0.36193	0.00148	0.36193	0.00148	0.87239	0.00006	0.12761	0.00006	0.36193	0.00148
46	0.55470	0.00082	0.55470	0.00082	0.91094	0.00003	0.08906	0.00003	0.55470	0.00082
47	0.80289	0.00073	0.80289	0.00073	0.96058	0.00003	0.03942	0.00003	0.80289	0.00073
48	0.86434	0.00015	0.86434	0.00015	0.97287	0.00001	0.02713	0.00001	0.86434	0.00015
49	0.93157	0.00006	0.93157	0.00006	0.98631	0.00000	0.01369	0.00000	0.93157	0.00006
50	0.93880	0.00011	0.93880	0.00011	0.98776	0.00000	0.01224	0.00000	0.93880	0.00011
51	0.84120	0.00066	0.84120	0.00066	0.96824	0.00003	0.03176	0.00003	0.84120	0.00066
52	0.89470	0.00015	0.89470	0.00015	0.97894	0.00001	0.02106	0.00001	0.89470	0.00015
53	0.82578	0.00084	0.82578	0.00084	0.96516	0.00003	0.03484	0.00003	0.82578	0.00084
54	0.87976	0.00010	0.87976	0.00010	0.97595	0.00000	0.02405	0.00000	0.87976	0.00010
55	0.93904	0.00007	0.93904	0.00007	0.98781	0.00000	0.01219	0.00000	0.93904	0.00007
56	0.94241	0.00010	0.94241	0.00010	0.98848	0.00000	0.01152	0.00000	0.94241	0.00010
57	0.24434	0.00227	0.24434	0.00227	0.84887	0.00009	0.15113	0.00009	0.24434	0.00227
58	0.49108	0.00076	0.49108	0.00076	0.89822	0.00003	0.10178	0.00003	0.49108	0.00076
59	0.80289	0.00096	0.80289	0.00096	0.96058	0.00004	0.03942	0.00004	0.80289	0.00096
60	0.87108	0.00025	0.87108	0.00025	0.97422	0.00001	0.02578	0.00001	0.87108	0.00025

Table 43. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Gaussian Kernel with $\sigma = 264.58$.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88892	0.00014	0.88892	0.00014	0.97778	0.00001	0.02222	0.00001	0.88892	0.00014
2	0.90916	0.00019	0.90916	0.00019	0.98183	0.00001	0.01817	0.00001	0.90916	0.00019
3	0.85084	0.00036	0.85084	0.00036	0.97017	0.00001	0.02983	0.00001	0.85084	0.00036
4	0.87518	0.00023	0.87518	0.00023	0.97504	0.00001	0.02496	0.00001	0.87518	0.00023
5	0.84386	0.00026	0.84386	0.00026	0.96877	0.00001	0.03123	0.00001	0.84386	0.00026
6	0.87060	0.00031	0.87060	0.00031	0.97412	0.00001	0.02588	0.00001	0.87060	0.00031
7	0.88819	0.00017	0.88819	0.00017	0.97764	0.00001	0.02236	0.00001	0.88819	0.00017
8	0.90024	0.00026	0.90024	0.00026	0.98005	0.00001	0.01995	0.00001	0.90024	0.00026
9	0.53422	0.00353	0.53422	0.00353	0.90684	0.00014	0.09316	0.00014	0.53422	0.00353
10	0.71494	0.00044	0.71494	0.00044	0.94299	0.00002	0.05701	0.00002	0.71494	0.00044
11	0.82843	0.00046	0.82843	0.00046	0.96569	0.00002	0.03431	0.00002	0.82843	0.00046
12	0.85855	0.00019	0.85855	0.00019	0.97171	0.00001	0.02829	0.00001	0.85855	0.00019
13	0.94120	0.00017	0.94120	0.00017	0.98824	0.00001	0.01176	0.00001	0.94120	0.00017
14	0.95277	0.00006	0.95277	0.00006	0.99055	0.00000	0.00945	0.00000	0.95277	0.00006
15	0.84819	0.00028	0.84819	0.00028	0.96964	0.00001	0.03036	0.00001	0.84819	0.00028
16	0.90747	0.00016	0.90747	0.00016	0.98149	0.00001	0.01851	0.00001	0.90747	0.00016
17	0.83301	0.00038	0.83301	0.00038	0.96660	0.00002	0.03340	0.00002	0.83301	0.00038
18	0.89494	0.00017	0.89494	0.00017	0.97899	0.00001	0.02101	0.00001	0.89494	0.00017
19	0.97253	0.00008	0.97253	0.00008	0.99451	0.00000	0.00549	0.00000	0.97253	0.00008
20	0.96699	0.00010	0.96699	0.00010	0.99340	0.00000	0.00660	0.00000	0.96699	0.00010
21	0.28940	0.00160	0.28940	0.00160	0.85788	0.00006	0.14212	0.00006	0.28940	0.00160
22	0.55735	0.00065	0.55735	0.00065	0.91147	0.00003	0.08853	0.00003	0.55735	0.00065
23	0.81470	0.00057	0.81470	0.00057	0.96294	0.00002	0.03706	0.00002	0.81470	0.00057
24	0.88482	0.00023	0.88482	0.00023	0.97696	0.00001	0.02304	0.00001	0.88482	0.00023
25	0.93398	0.00010	0.93398	0.00010	0.98680	0.00000	0.01320	0.00000	0.93398	0.00010
26	0.93735	0.00007	0.93735	0.00007	0.98747	0.00000	0.01253	0.00000	0.93735	0.00007
27	0.88386	0.00032	0.88386	0.00032	0.97677	0.00001	0.02323	0.00001	0.88386	0.00032
28	0.90940	0.00015	0.90940	0.00015	0.98188	0.00001	0.01812	0.00001	0.90940	0.00015
29	0.87205	0.00039	0.87205	0.00039	0.97441	0.00002	0.02559	0.00002	0.87205	0.00039
30	0.90699	0.00015	0.90699	0.00015	0.98140	0.00001	0.01860	0.00001	0.90699	0.00015
31	0.93928	0.00014	0.93928	0.00014	0.98786	0.00001	0.01214	0.00001	0.93928	0.00014
32	0.94337	0.00007	0.94337	0.00007	0.98867	0.00000	0.01133	0.00000	0.94337	0.00007
33	0.36337	0.00585	0.36337	0.00585	0.87267	0.00023	0.12733	0.00023	0.36337	0.00585
34	0.65759	0.00066	0.65759	0.00066	0.93152	0.00003	0.06848	0.00003	0.65759	0.00066
35	0.85687	0.00060	0.85687	0.00060	0.97137	0.00002	0.02863	0.00002	0.85687	0.00060
36	0.89566	0.00009	0.89566	0.00009	0.97913	0.00000	0.02087	0.00000	0.89566	0.00009
37	0.92289	0.00011	0.92289	0.00011	0.98458	0.00000	0.01542	0.00000	0.92289	0.00011
38	0.93518	0.00011	0.93518	0.00011	0.98704	0.00000	0.01296	0.00000	0.93518	0.00011
39	0.87880	0.00030	0.87880	0.00030	0.97576	0.00001	0.02424	0.00001	0.87880	0.00030
40	0.90217	0.00011	0.90217	0.00011	0.98043	0.00000	0.01957	0.00000	0.90217	0.00011
41	0.86602	0.00023	0.86602	0.00023	0.97320	0.00001	0.02680	0.00001	0.86602	0.00023
42	0.89446	0.00007	0.89446	0.00007	0.97889	0.00000	0.02111	0.00000	0.89446	0.00007
43	0.92530	0.00018	0.92530	0.00018	0.98506	0.00001	0.01494	0.00001	0.92530	0.00018
44	0.93373	0.00017	0.93373	0.00017	0.98675	0.00001	0.01325	0.00001	0.93373	0.00017
45	0.48699	0.00456	0.48699	0.00456	0.89740	0.00018	0.10260	0.00018	0.48699	0.00456
46	0.68867	0.00022	0.68867	0.00022	0.93773	0.00001	0.06227	0.00001	0.68867	0.00022
47	0.85325	0.00034	0.85325	0.00034	0.97065	0.00001	0.02935	0.00001	0.85325	0.00034
48	0.88699	0.00016	0.88699	0.00016	0.97740	0.00001	0.02260	0.00001	0.88699	0.00016
49	0.94602	0.00002	0.94602	0.00002	0.98920	0.00000	0.01080	0.00000	0.94602	0.00002
50	0.95108	0.00004	0.95108	0.00004	0.99022	0.00000	0.00978	0.00000	0.95108	0.00004
51	0.88410	0.00011	0.88410	0.00011	0.97682	0.00000	0.02318	0.00000	0.88410	0.00011
52	0.91398	0.00010	0.91398	0.00010	0.98280	0.00000	0.01720	0.00000	0.91398	0.00010
53	0.87205	0.00010	0.87205	0.00010	0.97441	0.00000	0.02559	0.00000	0.87205	0.00010
54	0.90771	0.00013	0.90771	0.00013	0.98154	0.00001	0.01846	0.00001	0.90771	0.00013
55	0.96675	0.00006	0.96675	0.00006	0.99335	0.00000	0.00665	0.00000	0.96675	0.00006
56	0.96265	0.00006	0.96265	0.00006	0.99253	0.00000	0.00747	0.00000	0.96265	0.00006
57	0.33518	0.00316	0.33518	0.00316	0.86704	0.00013	0.13296	0.00013	0.33518	0.00316
58	0.59181	0.00057	0.59181	0.00057	0.91836	0.00002	0.08164	0.00002	0.59181	0.00057
59	0.86241	0.00019	0.86241	0.00019	0.97248	0.00001	0.02752	0.00001	0.86241	0.00019
60	0.89952	0.00013	0.89952	0.00013	0.97990	0.00001	0.02010	0.00001	0.89952	0.00013

Table 44. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Gaussian Kernel with $\sigma = 264.58$.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89735	0.00022	0.89735	0.00022	0.97947	0.00001	0.02053	0.00001	0.89735	0.00022
2	0.90892	0.00020	0.90892	0.00020	0.98178	0.00001	0.01822	0.00001	0.90892	0.00020
3	0.87133	0.00024	0.87133	0.00024	0.97427	0.00001	0.02573	0.00001	0.87133	0.00024
4	0.87831	0.00009	0.87831	0.00009	0.97566	0.00000	0.02434	0.00000	0.87831	0.00009
5	0.87084	0.00011	0.87084	0.00011	0.97417	0.00000	0.02583	0.00000	0.87084	0.00011
6	0.87687	0.00010	0.87687	0.00010	0.97537	0.00000	0.02463	0.00000	0.87687	0.00010
7	0.89735	0.00011	0.89735	0.00011	0.97947	0.00000	0.02053	0.00000	0.89735	0.00011
8	0.90241	0.00011	0.90241	0.00011	0.98048	0.00000	0.01952	0.00000	0.90241	0.00011
9	0.64072	0.00398	0.64072	0.00398	0.92814	0.00016	0.07186	0.00016	0.64072	0.00398
10	0.75807	0.00020	0.75807	0.00020	0.95161	0.00001	0.04839	0.00001	0.75807	0.00020
11	0.86072	0.00010	0.86072	0.00010	0.97214	0.00000	0.02786	0.00000	0.86072	0.00010
12	0.87325	0.00008	0.87325	0.00008	0.97465	0.00000	0.02535	0.00000	0.87325	0.00008
13	0.96627	0.00006	0.96627	0.00006	0.99325	0.00000	0.00675	0.00000	0.96627	0.00006
14	0.96241	0.00005	0.96241	0.00005	0.99248	0.00000	0.00752	0.00000	0.96241	0.00005
15	0.89952	0.00013	0.89952	0.00013	0.97990	0.00001	0.02010	0.00001	0.89952	0.00013
16	0.92024	0.00007	0.92024	0.00007	0.98405	0.00000	0.01595	0.00000	0.92024	0.00007
17	0.88747	0.00018	0.88747	0.00018	0.97749	0.00001	0.02251	0.00001	0.88747	0.00018
18	0.91446	0.00003	0.91446	0.00003	0.98289	0.00000	0.01711	0.00000	0.91446	0.00003
19	0.97759	0.00005	0.97759	0.00005	0.99552	0.00000	0.00448	0.00000	0.97759	0.00005
20	0.97566	0.00005	0.97566	0.00005	0.99513	0.00000	0.00487	0.00000	0.97566	0.00005
21	0.38771	0.00178	0.38771	0.00178	0.87754	0.00007	0.12246	0.00007	0.38771	0.00178
22	0.61904	0.00056	0.61904	0.00056	0.92381	0.00002	0.07619	0.00002	0.61904	0.00056
23	0.87301	0.00020	0.87301	0.00020	0.97460	0.00001	0.02540	0.00001	0.87301	0.00020
24	0.90169	0.00006	0.90169	0.00006	0.98034	0.00000	0.01966	0.00000	0.90169	0.00006
25	0.95446	0.00004	0.95446	0.00004	0.99089	0.00000	0.00911	0.00000	0.95446	0.00004
26	0.95422	0.00005	0.95422	0.00005	0.99084	0.00000	0.00916	0.00000	0.95422	0.00005
27	0.91036	0.00007	0.91036	0.00007	0.98207	0.00000	0.01793	0.00000	0.91036	0.00007
28	0.92169	0.00004	0.92169	0.00004	0.98434	0.00000	0.01566	0.00000	0.92169	0.00004
29	0.90096	0.00006	0.90096	0.00006	0.98019	0.00000	0.01981	0.00000	0.90096	0.00006
30	0.91928	0.00004	0.91928	0.00004	0.98386	0.00000	0.01614	0.00000	0.91928	0.00004
31	0.96024	0.00002	0.96024	0.00002	0.99205	0.00000	0.00795	0.00000	0.96024	0.00002
32	0.95904	0.00014	0.95904	0.00014	0.99181	0.00001	0.00819	0.00001	0.95904	0.00014
33	0.55639	0.00243	0.55639	0.00243	0.91128	0.00010	0.08872	0.00010	0.55639	0.00243
34	0.70530	0.00034	0.70530	0.00034	0.94106	0.00001	0.05894	0.00001	0.70530	0.00034
35	0.88843	0.00009	0.88843	0.00009	0.97769	0.00000	0.02231	0.00000	0.88843	0.00009
36	0.91157	0.00008	0.91157	0.00008	0.98231	0.00000	0.01769	0.00000	0.91157	0.00008
37	0.93687	0.00012	0.93687	0.00012	0.98737	0.00000	0.01263	0.00000	0.93687	0.00012
38	0.93831	0.00006	0.93831	0.00006	0.98766	0.00000	0.01234	0.00000	0.93831	0.00006
39	0.89855	0.00022	0.89855	0.00022	0.97971	0.00001	0.02029	0.00001	0.89855	0.00022
40	0.90892	0.00011	0.90892	0.00011	0.98178	0.00000	0.01822	0.00000	0.90892	0.00011
41	0.88988	0.00020	0.88988	0.00020	0.97798	0.00001	0.02202	0.00001	0.88988	0.00020
42	0.90771	0.00006	0.90771	0.00006	0.98154	0.00000	0.01846	0.00000	0.90771	0.00006
43	0.94265	0.00006	0.94265	0.00006	0.98853	0.00000	0.01147	0.00000	0.94265	0.00006
44	0.94337	0.00006	0.94337	0.00006	0.98867	0.00000	0.01133	0.00000	0.94337	0.00006
45	0.58699	0.00339	0.58699	0.00339	0.91740	0.00014	0.08260	0.00014	0.58699	0.00339
46	0.72964	0.00025	0.72964	0.00025	0.94593	0.00001	0.05407	0.00001	0.72964	0.00025
47	0.87783	0.00026	0.87783	0.00026	0.97557	0.00001	0.02443	0.00001	0.87783	0.00026
48	0.89976	0.00013	0.89976	0.00013	0.97995	0.00001	0.02005	0.00001	0.89976	0.00013
49	0.96723	0.00005	0.96723	0.00005	0.99345	0.00000	0.00655	0.00000	0.96723	0.00005
50	0.96434	0.00008	0.96434	0.00008	0.99287	0.00000	0.00713	0.00000	0.96434	0.00008
51	0.91590	0.00008	0.91590	0.00008	0.98318	0.00000	0.01682	0.00000	0.91590	0.00008
52	0.92771	0.00005	0.92771	0.00005	0.98554	0.00000	0.01446	0.00000	0.92771	0.00005
53	0.90651	0.00007	0.90651	0.00007	0.98130	0.00000	0.01870	0.00000	0.90651	0.00007
54	0.92193	0.00004	0.92193	0.00004	0.98439	0.00000	0.01561	0.00000	0.92193	0.00004
55	0.97590	0.00007	0.97590	0.00007	0.99518	0.00000	0.00482	0.00000	0.97590	0.00007
56	0.97518	0.00006	0.97518	0.00006	0.99504	0.00000	0.00496	0.00000	0.97518	0.00006
57	0.45976	0.00382	0.45976	0.00382	0.89195	0.00015	0.10805	0.00015	0.45976	0.00382
58	0.64651	0.00065	0.64651	0.00065	0.92930	0.00003	0.07070	0.00003	0.64651	0.00065
59	0.89373	0.00005	0.89373	0.00005	0.97875	0.00000	0.02125	0.00000	0.89373	0.00005
60	0.91108	0.00004	0.91108	0.00004	0.98222	0.00000	0.01778	0.00000	0.91108	0.00004

Table 45. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Gaussian Kernel with $\sigma = 264.58$.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.83712	0.00050	0.83984	0.00062	0.97002	0.00002	0.02998	0.00002	0.83116	0.00058
2	0.85154	0.00040	0.85246	0.00049	0.97282	0.00001	0.02718	0.00001	0.84731	0.00044
3	0.77573	0.00068	0.73869	0.00048	0.95745	0.00002	0.04255	0.00002	0.74437	0.00066
4	0.81592	0.00024	0.80175	0.00029	0.96472	0.00001	0.03528	0.00001	0.80071	0.00029
5	0.78089	0.00080	0.74618	0.00071	0.95730	0.00002	0.04270	0.00002	0.75187	0.00074
6	0.80811	0.00054	0.78895	0.00066	0.96275	0.00001	0.03725	0.00001	0.78788	0.00060
7	0.81602	0.00015	0.81451	0.00027	0.96492	0.00001	0.03508	0.00001	0.80572	0.00029
8	0.83725	0.00015	0.83982	0.00026	0.96911	0.00001	0.03089	0.00001	0.83147	0.00020
9	0.50810	0.01084	0.28719	0.00199	0.86535	0.00017	0.13465	0.00017	0.27326	0.00267
10	0.58261	0.00245	0.46091	0.00091	0.90684	0.00003	0.09316	0.00003	0.47618	0.00089
11	0.76761	0.00050	0.72620	0.00108	0.95484	0.00002	0.04516	0.00002	0.73321	0.00098
12	0.78778	0.00031	0.75723	0.00041	0.95875	0.00001	0.04125	0.00001	0.76207	0.00043
13	0.90101	0.00013	0.89929	0.00010	0.98217	0.00000	0.01783	0.00000	0.89888	0.00011
14	0.90212	0.00015	0.89926	0.00015	0.98207	0.00000	0.01793	0.00000	0.89878	0.00013
15	0.76392	0.00048	0.70056	0.00098	0.94863	0.00004	0.05137	0.00004	0.70877	0.00092
16	0.82069	0.00035	0.79782	0.00056	0.96496	0.00001	0.03504	0.00001	0.80296	0.00044
17	0.77351	0.00015	0.74333	0.00016	0.95677	0.00000	0.04323	0.00000	0.75068	0.00016
18	0.80562	0.00045	0.78270	0.00064	0.96231	0.00001	0.03769	0.00001	0.78765	0.00052
19	0.94050	0.00004	0.92959	0.00010	0.98853	0.00000	0.01147	0.00000	0.93359	0.00008
20	0.93549	0.00004	0.92542	0.00009	0.98771	0.00000	0.01229	0.00000	0.92926	0.00007
21	0.32175	0.00796	0.19828	0.00084	0.84545	0.00005	0.15455	0.00005	0.15357	0.00091
22	0.41529	0.00131	0.31322	0.00065	0.87508	0.00002	0.12492	0.00002	0.31798	0.00063
23	0.75592	0.00050	0.72284	0.00063	0.95200	0.00002	0.04800	0.00002	0.73202	0.00050
24	0.78427	0.00052	0.75010	0.00065	0.95552	0.00003	0.04448	0.00003	0.75786	0.00062
25	0.90005	0.00026	0.90292	0.00025	0.98173	0.00001	0.01827	0.00001	0.89912	0.00025
26	0.89848	0.00013	0.90069	0.00017	0.98154	0.00000	0.01846	0.00000	0.89740	0.00015
27	0.82580	0.00068	0.79571	0.00059	0.96598	0.00002	0.03402	0.00002	0.80090	0.00065
28	0.84427	0.00014	0.82977	0.00022	0.97080	0.00001	0.02920	0.00001	0.83094	0.00022
29	0.82044	0.00014	0.79743	0.00023	0.96627	0.00001	0.03373	0.00001	0.80239	0.00026
30	0.83507	0.00019	0.81571	0.00025	0.96858	0.00000	0.03142	0.00000	0.81797	0.00020
31	0.89815	0.00024	0.90193	0.00020	0.98125	0.00001	0.01875	0.00001	0.89742	0.00023
32	0.89535	0.00016	0.89703	0.00010	0.98087	0.00000	0.01913	0.00000	0.89420	0.00013
33	0.43839	0.00495	0.21334	0.00041	0.84742	0.00003	0.15258	0.00003	0.17828	0.00059
34	0.52314	0.00307	0.37746	0.00167	0.88925	0.00008	0.11075	0.00008	0.39254	0.00161
35	0.80895	0.00049	0.78008	0.00085	0.96352	0.00002	0.03648	0.00002	0.78645	0.00080
36	0.82209	0.00026	0.80221	0.00037	0.96622	0.00001	0.03378	0.00001	0.80610	0.00029
37	0.89213	0.00039	0.89551	0.00036	0.98058	0.00001	0.01942	0.00001	0.89160	0.00039
38	0.88898	0.00013	0.89045	0.00027	0.97976	0.00001	0.02024	0.00001	0.88641	0.00020
39	0.82054	0.00072	0.78633	0.00084	0.96482	0.00003	0.03518	0.00003	0.79245	0.00087
40	0.83237	0.00041	0.81886	0.00041	0.96867	0.00001	0.03133	0.00001	0.82034	0.00042
41	0.82600	0.00021	0.79471	0.00048	0.96636	0.00002	0.03364	0.00002	0.80199	0.00039
42	0.82512	0.00027	0.80414	0.00026	0.96704	0.00001	0.03296	0.00001	0.80688	0.00023
43	0.88034	0.00017	0.88645	0.00022	0.97817	0.00001	0.02183	0.00001	0.88031	0.00021
44	0.88396	0.00022	0.88547	0.00029	0.97860	0.00001	0.02140	0.00001	0.88160	0.00025
45	0.45735	0.00207	0.22558	0.00090	0.84988	0.00007	0.15012	0.00007	0.19301	0.00086
46	0.55829	0.00319	0.42311	0.00183	0.89986	0.00007	0.10014	0.00007	0.43463	0.00185
47	0.80251	0.00073	0.77713	0.00098	0.96280	0.00002	0.03720	0.00002	0.78235	0.00091
48	0.82102	0.00020	0.80045	0.00028	0.96578	0.00001	0.03422	0.00001	0.80413	0.00027
49	0.91495	0.00025	0.91529	0.00023	0.98477	0.00001	0.01523	0.00001	0.91380	0.00025
50	0.91070	0.00009	0.90922	0.00017	0.98371	0.00000	0.01629	0.00000	0.90798	0.00013
51	0.79162	0.00037	0.75127	0.00063	0.95899	0.00002	0.04101	0.00002	0.75791	0.00049
52	0.84382	0.00017	0.83038	0.00035	0.97027	0.00001	0.02973	0.00001	0.83196	0.00032
53	0.80488	0.00058	0.77929	0.00054	0.96313	0.00002	0.03687	0.00002	0.78404	0.00059
54	0.83434	0.00020	0.81294	0.00018	0.96810	0.00001	0.03190	0.00001	0.81607	0.00019
55	0.92975	0.00008	0.92546	0.00008	0.98713	0.00000	0.01287	0.00000	0.92663	0.00007
56	0.92007	0.00010	0.91513	0.00015	0.98545	0.00000	0.01455	0.00000	0.91627	0.00011
57	0.34271	0.00807	0.19200	0.00032	0.84260	0.00002	0.15740	0.00002	0.14345	0.00031
58	0.45917	0.00349	0.34466	0.00239	0.88120	0.00010	0.11880	0.00010	0.34975	0.00233
59	0.78797	0.00046	0.75961	0.00048	0.95933	0.00001	0.04067	0.00001	0.76573	0.00043
60	0.81289	0.00027	0.79464	0.00039	0.96453	0.00001	0.03547	0.00001	0.79790	0.00033

Table 46. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 1 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.86624	0.00026	0.86744	0.00045	0.97523	0.00001	0.02477	0.00001	0.86134	0.00044
2	0.88326	0.00037	0.88310	0.00052	0.97860	0.00001	0.02140	0.00001	0.87965	0.00045
3	0.83093	0.00033	0.79548	0.00024	0.96747	0.00001	0.03253	0.00001	0.80063	0.00029
4	0.84299	0.00017	0.83098	0.00025	0.97113	0.00001	0.02887	0.00001	0.83175	0.00022
5	0.83571	0.00047	0.80405	0.00056	0.96853	0.00002	0.03147	0.00002	0.81277	0.00055
6	0.84686	0.00021	0.82664	0.00028	0.97128	0.00001	0.02872	0.00001	0.82993	0.00032
7	0.84840	0.00027	0.85127	0.00054	0.97214	0.00002	0.02786	0.00002	0.84179	0.00045
8	0.86464	0.00033	0.86438	0.00042	0.97441	0.00001	0.02559	0.00001	0.85756	0.00038
9	0.56758	0.00498	0.34281	0.00177	0.87971	0.00012	0.12029	0.00012	0.32704	0.00136
10	0.64997	0.00419	0.51885	0.00061	0.92236	0.00002	0.07764	0.00002	0.52874	0.00073
11	0.82097	0.00054	0.77938	0.00091	0.96525	0.00003	0.03475	0.00003	0.78901	0.00086
12	0.83005	0.00020	0.80557	0.00028	0.96776	0.00001	0.03224	0.00001	0.81190	0.00025
13	0.93350	0.00011	0.93305	0.00006	0.98819	0.00000	0.01181	0.00000	0.93246	0.00008
14	0.93303	0.00005	0.93084	0.00007	0.98795	0.00000	0.01205	0.00000	0.93065	0.00006
15	0.83463	0.00048	0.79341	0.00070	0.96728	0.00001	0.03272	0.00001	0.80072	0.00081
16	0.87448	0.00019	0.85598	0.00025	0.97624	0.00001	0.02376	0.00001	0.86118	0.00017
17	0.85069	0.00033	0.82175	0.00029	0.97080	0.00001	0.02920	0.00001	0.82962	0.00030
18	0.86128	0.00017	0.83695	0.00020	0.97325	0.00001	0.02675	0.00001	0.84317	0.00014
19	0.95173	0.00009	0.93681	0.00013	0.98998	0.00000	0.01002	0.00000	0.94269	0.00012
20	0.94976	0.00010	0.93659	0.00012	0.98978	0.00000	0.01022	0.00000	0.94179	0.00010
21	0.34851	0.00785	0.22527	0.00214	0.85157	0.00013	0.14843	0.00013	0.17109	0.00180
22	0.51592	0.00316	0.36509	0.00117	0.88887	0.00006	0.11113	0.00006	0.37292	0.00070
23	0.83087	0.00031	0.79571	0.00050	0.96665	0.00001	0.03335	0.00001	0.80438	0.00039
24	0.84660	0.00013	0.82248	0.00040	0.97036	0.00001	0.02964	0.00001	0.82863	0.00030
25	0.92096	0.00018	0.92401	0.00015	0.98578	0.00001	0.01422	0.00001	0.92105	0.00015
26	0.92126	0.00022	0.92262	0.00018	0.98588	0.00001	0.01412	0.00001	0.92037	0.00020
27	0.87158	0.00044	0.84793	0.00059	0.97590	0.00002	0.02410	0.00002	0.85418	0.00059
28	0.88451	0.00013	0.86929	0.00022	0.97827	0.00001	0.02173	0.00001	0.87282	0.00017
29	0.88141	0.00022	0.86073	0.00019	0.97735	0.00001	0.02265	0.00001	0.86608	0.00021
30	0.87887	0.00016	0.86271	0.00026	0.97725	0.00001	0.02275	0.00001	0.86739	0.00020
31	0.90655	0.00024	0.90976	0.00033	0.98294	0.00001	0.01706	0.00001	0.90650	0.00029
32	0.90861	0.00012	0.90991	0.00013	0.98328	0.00000	0.01672	0.00000	0.90792	0.00013
33	0.48922	0.00815	0.26882	0.00327	0.86178	0.00017	0.13822	0.00017	0.22268	0.00271
34	0.61879	0.00383	0.46478	0.00043	0.91002	0.00002	0.08998	0.00002	0.48031	0.00044
35	0.85765	0.00042	0.83387	0.00051	0.97325	0.00001	0.02675	0.00001	0.84038	0.00047
36	0.86303	0.00027	0.84669	0.00053	0.97431	0.00001	0.02569	0.00001	0.85095	0.00040
37	0.91047	0.00006	0.91372	0.00004	0.98371	0.00000	0.01629	0.00000	0.90962	0.00006
38	0.91129	0.00010	0.91312	0.00014	0.98395	0.00000	0.01605	0.00000	0.90958	0.00013
39	0.85869	0.00027	0.83012	0.00041	0.97301	0.00001	0.02699	0.00001	0.83807	0.00039
40	0.87855	0.00024	0.86764	0.00028	0.97793	0.00001	0.02207	0.00001	0.87035	0.00025
41	0.86751	0.00023	0.84102	0.00021	0.97455	0.00001	0.02545	0.00001	0.84863	0.00026
42	0.87051	0.00023	0.85474	0.00030	0.97600	0.00001	0.02400	0.00001	0.85902	0.00025
43	0.89357	0.00023	0.89756	0.00025	0.98072	0.00001	0.01928	0.00001	0.89353	0.00025
44	0.89905	0.00015	0.89958	0.00013	0.98140	0.00000	0.01860	0.00000	0.89695	0.00014
45	0.53574	0.00803	0.32164	0.00351	0.87629	0.00024	0.12371	0.00024	0.29544	0.00295
46	0.64488	0.00369	0.47897	0.00083	0.91402	0.00002	0.08598	0.00002	0.49035	0.00078
47	0.85480	0.00015	0.82709	0.00025	0.97210	0.00001	0.02790	0.00001	0.83480	0.00022
48	0.85647	0.00014	0.83716	0.00028	0.97316	0.00001	0.02684	0.00001	0.84281	0.00022
49	0.93098	0.00012	0.92839	0.00008	0.98757	0.00000	0.01243	0.00000	0.92880	0.00010
50	0.93314	0.00019	0.93038	0.00012	0.98790	0.00001	0.01210	0.00001	0.93052	0.00013
51	0.85391	0.00046	0.82133	0.00043	0.97210	0.00001	0.02790	0.00001	0.82811	0.00055
52	0.88766	0.00019	0.87607	0.00022	0.97913	0.00001	0.02087	0.00001	0.87894	0.00018
53	0.86421	0.00032	0.84249	0.00039	0.97470	0.00001	0.02530	0.00001	0.84835	0.00035
54	0.87591	0.00013	0.85505	0.00018	0.97629	0.00000	0.02371	0.00000	0.86099	0.00011
55	0.93902	0.00013	0.93127	0.00012	0.98839	0.00000	0.01161	0.00000	0.93414	0.00011
56	0.93826	0.00012	0.93172	0.00014	0.98834	0.00000	0.01166	0.00000	0.93399	0.00012
57	0.37607	0.01208	0.23542	0.00114	0.85576	0.00009	0.14424	0.00009	0.18244	0.00132
58	0.54991	0.00292	0.41512	0.00129	0.89875	0.00004	0.10125	0.00004	0.42555	0.00117
59	0.84371	0.00047	0.82191	0.00061	0.97094	0.00001	0.02906	0.00001	0.82704	0.00058
60	0.86528	0.00021	0.84524	0.00034	0.97441	0.00001	0.02559	0.00001	0.85115	0.00028

Table 47. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 1 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89374	0.00023	0.88764	0.00029	0.98005	0.00001	0.01995	0.00001	0.88700	0.00027
2	0.89795	0.00023	0.89656	0.00025	0.98120	0.00001	0.01880	0.00001	0.89339	0.00027
3	0.86800	0.00019	0.84043	0.00037	0.97455	0.00001	0.02545	0.00001	0.84681	0.00037
4	0.86803	0.00022	0.85496	0.00026	0.97508	0.00001	0.02492	0.00001	0.85676	0.00027
5	0.86975	0.00018	0.84251	0.00032	0.97441	0.00001	0.02559	0.00001	0.85011	0.00031
6	0.86495	0.00011	0.84471	0.00026	0.97407	0.00001	0.02593	0.00001	0.84954	0.00021
7	0.88471	0.00010	0.87981	0.00022	0.97884	0.00000	0.02116	0.00000	0.87810	0.00018
8	0.89391	0.00025	0.88730	0.00048	0.98010	0.00001	0.01990	0.00001	0.88522	0.00043
9	0.71424	0.00246	0.41742	0.00277	0.89937	0.00018	0.10063	0.00018	0.41626	0.00223
10	0.73297	0.00197	0.61951	0.00033	0.94236	0.00002	0.05764	0.00002	0.62436	0.00055
11	0.86476	0.00037	0.83347	0.00040	0.97340	0.00001	0.02660	0.00001	0.84300	0.00040
12	0.85263	0.00016	0.83179	0.00043	0.97166	0.00001	0.02834	0.00001	0.83708	0.00034
13	0.95357	0.00009	0.94644	0.00010	0.99137	0.00000	0.00863	0.00000	0.94904	0.00010
14	0.94786	0.00006	0.94225	0.00008	0.99051	0.00000	0.00949	0.00000	0.94424	0.00006
15	0.88048	0.00028	0.84723	0.00035	0.97663	0.00001	0.02337	0.00001	0.85597	0.00035
16	0.90204	0.00020	0.88748	0.00043	0.98154	0.00001	0.01846	0.00001	0.89202	0.00033
17	0.88877	0.00011	0.86555	0.00009	0.97851	0.00000	0.02149	0.00000	0.87208	0.00011
18	0.89181	0.00013	0.87276	0.00026	0.97923	0.00001	0.02077	0.00001	0.87832	0.00021
19	0.97383	0.00009	0.96061	0.00014	0.99388	0.00000	0.00612	0.00000	0.96585	0.00012
20	0.97182	0.00005	0.95656	0.00016	0.99349	0.00000	0.00651	0.00000	0.96274	0.00012
21	0.47450	0.00384	0.26052	0.00142	0.86227	0.00011	0.13773	0.00011	0.22936	0.00177
22	0.61147	0.00268	0.45357	0.00056	0.91012	0.00002	0.08988	0.00002	0.45474	0.00063
23	0.87487	0.00006	0.84895	0.00011	0.97590	0.00000	0.02410	0.00000	0.85667	0.00010
24	0.88183	0.00029	0.85624	0.00031	0.97692	0.00001	0.02308	0.00001	0.86408	0.00027
25	0.93203	0.00006	0.93322	0.00005	0.98761	0.00000	0.01239	0.00000	0.93099	0.00006
26	0.93399	0.00009	0.93513	0.00011	0.98805	0.00000	0.01195	0.00000	0.93287	0.00010
27	0.89551	0.00010	0.86812	0.00021	0.97952	0.00000	0.02048	0.00000	0.87662	0.00015
28	0.90602	0.00021	0.89549	0.00020	0.98241	0.00001	0.01759	0.00001	0.89814	0.00022
29	0.90153	0.00016	0.87935	0.00011	0.98087	0.00000	0.01913	0.00000	0.88645	0.00014
30	0.90266	0.00022	0.88912	0.00023	0.98169	0.00001	0.01831	0.00001	0.89301	0.00024
31	0.93826	0.00021	0.93984	0.00028	0.98877	0.00001	0.01123	0.00001	0.93794	0.00025
32	0.93863	0.00007	0.93642	0.00011	0.98887	0.00000	0.01113	0.00000	0.93616	0.00009
33	0.56729	0.00057	0.33804	0.00648	0.88024	0.00029	0.11976	0.00029	0.31007	0.00620
34	0.69868	0.00241	0.56068	0.00042	0.93137	0.00002	0.06863	0.00002	0.56126	0.00047
35	0.88820	0.00015	0.86059	0.00018	0.97836	0.00000	0.02164	0.00000	0.86897	0.00018
36	0.88625	0.00008	0.87407	0.00015	0.97865	0.00000	0.02135	0.00000	0.87692	0.00010
37	0.92844	0.00019	0.92882	0.00018	0.98694	0.00001	0.01306	0.00001	0.92722	0.00020
38	0.92595	0.00010	0.92619	0.00014	0.98655	0.00000	0.01345	0.00000	0.92390	0.00012
39	0.89155	0.00014	0.86569	0.00017	0.97894	0.00000	0.02106	0.00000	0.87384	0.00016
40	0.89750	0.00013	0.88571	0.00022	0.98096	0.00000	0.01904	0.00000	0.88847	0.00018
41	0.89050	0.00019	0.86784	0.00008	0.97889	0.00000	0.02111	0.00000	0.87515	0.00012
42	0.88667	0.00004	0.87164	0.00014	0.97884	0.00000	0.02116	0.00000	0.87561	0.00010
43	0.92784	0.00011	0.92996	0.00017	0.98689	0.00000	0.01311	0.00000	0.92719	0.00014
44	0.92850	0.00023	0.92748	0.00028	0.98680	0.00001	0.01320	0.00001	0.92558	0.00027
45	0.61313	0.00641	0.40442	0.00356	0.89373	0.00021	0.10627	0.00021	0.39199	0.00369
46	0.71876	0.00247	0.59119	0.00053	0.93749	0.00001	0.06251	0.00001	0.59291	0.00069
47	0.88744	0.00013	0.86210	0.00026	0.97817	0.00001	0.02183	0.00001	0.87042	0.00022
48	0.87773	0.00019	0.85836	0.00036	0.97692	0.00001	0.02308	0.00001	0.86328	0.00032
49	0.94761	0.00006	0.94580	0.00004	0.99055	0.00000	0.00945	0.00000	0.94603	0.00005
50	0.94755	0.00007	0.94438	0.00010	0.99055	0.00000	0.00945	0.00000	0.94505	0.00008
51	0.88770	0.00011	0.85809	0.00030	0.97822	0.00000	0.02178	0.00000	0.86619	0.00025
52	0.90721	0.00020	0.89330	0.00031	0.98251	0.00001	0.01749	0.00001	0.89741	0.00026
53	0.90069	0.00022	0.87935	0.00020	0.98092	0.00001	0.01908	0.00001	0.88590	0.00022
54	0.90183	0.00017	0.88636	0.00035	0.98140	0.00001	0.01860	0.00001	0.89110	0.00026
55	0.96937	0.00007	0.95980	0.00010	0.99354	0.00000	0.00646	0.00000	0.96373	0.00008
56	0.96507	0.00006	0.95359	0.00010	0.99272	0.00000	0.00728	0.00000	0.95826	0.00007
57	0.55011	0.00624	0.28483	0.00218	0.86993	0.00013	0.13007	0.00013	0.25094	0.00305
58	0.65492	0.00266	0.51405	0.00039	0.92173	0.00001	0.07827	0.00001	0.51497	0.00067
59	0.88773	0.00012	0.86324	0.00008	0.97822	0.00000	0.02178	0.00000	0.86934	0.00008
60	0.89279	0.00013	0.87704	0.00017	0.97971	0.00000	0.02029	0.00000	0.88206	0.00015

Table 48. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 1 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89618	0.00016	0.87645	0.00031	0.97966	0.00001	0.02034	0.00001	0.88157	0.00024
2	0.90648	0.00019	0.89533	0.00042	0.98222	0.00001	0.01778	0.00001	0.89703	0.00036
3	0.88010	0.00031	0.83959	0.00063	0.97513	0.00001	0.02487	0.00001	0.85017	0.00059
4	0.87598	0.00008	0.85114	0.00024	0.97552	0.00000	0.02448	0.00000	0.85740	0.00017
5	0.88806	0.00030	0.84492	0.00053	0.97619	0.00001	0.02381	0.00001	0.85562	0.00051
6	0.87512	0.00014	0.84941	0.00018	0.97552	0.00000	0.02448	0.00000	0.85609	0.00016
7	0.89182	0.00013	0.87428	0.00024	0.97942	0.00001	0.02058	0.00001	0.87927	0.00019
8	0.89833	0.00010	0.88335	0.00023	0.98048	0.00000	0.01952	0.00000	0.88596	0.00020
9	0.79359	0.00218	0.56085	0.00269	0.93046	0.00013	0.06954	0.00013	0.56745	0.00202
10	0.78871	0.00163	0.65501	0.00036	0.95041	0.00001	0.04959	0.00001	0.66310	0.00045
11	0.88451	0.00021	0.83954	0.00034	0.97561	0.00001	0.02439	0.00001	0.85202	0.00033
12	0.86891	0.00004	0.84169	0.00009	0.97460	0.00000	0.02540	0.00000	0.84985	0.00007
13	0.96973	0.00006	0.95793	0.00010	0.99383	0.00000	0.00617	0.00000	0.96272	0.00008
14	0.96049	0.00006	0.95050	0.00007	0.99239	0.00000	0.00761	0.00000	0.95439	0.00006
15	0.91476	0.00004	0.88250	0.00019	0.98236	0.00000	0.01764	0.00000	0.89222	0.00015
16	0.91834	0.00013	0.89227	0.00018	0.98395	0.00000	0.01605	0.00000	0.90107	0.00015
17	0.91589	0.00013	0.88434	0.00012	0.98255	0.00000	0.01745	0.00000	0.89376	0.00016
18	0.91541	0.00011	0.88457	0.00008	0.98294	0.00000	0.01706	0.00000	0.89475	0.00009
19	0.98192	0.00005	0.96869	0.00009	0.99518	0.00000	0.00482	0.00000	0.97400	0.00008
20	0.97997	0.00004	0.96596	0.00007	0.99504	0.00000	0.00496	0.00000	0.97175	0.00006
21	0.61638	0.00300	0.35232	0.00205	0.88352	0.00017	0.11648	0.00017	0.33450	0.00283
22	0.71279	0.00201	0.51368	0.00053	0.92443	0.00002	0.07557	0.00002	0.51049	0.00042
23	0.90517	0.00009	0.87001	0.00014	0.98058	0.00000	0.01942	0.00000	0.87957	0.00016
24	0.90018	0.00014	0.86906	0.00009	0.98034	0.00000	0.01966	0.00000	0.87968	0.00009
25	0.95140	0.00009	0.94546	0.00010	0.99089	0.00000	0.00911	0.00000	0.94748	0.00010
26	0.95216	0.00007	0.94406	0.00012	0.99108	0.00000	0.00892	0.00000	0.94689	0.00009
27	0.92155	0.00010	0.89928	0.00015	0.98453	0.00000	0.01547	0.00000	0.90658	0.00014
28	0.91622	0.00004	0.90031	0.00013	0.98439	0.00000	0.01561	0.00000	0.90460	0.00010
29	0.91910	0.00010	0.89343	0.00013	0.98400	0.00000	0.01600	0.00000	0.90209	0.00013
30	0.91416	0.00003	0.89550	0.00011	0.98381	0.00000	0.01619	0.00000	0.90131	0.00008
31	0.95777	0.00008	0.95309	0.00009	0.99224	0.00000	0.00776	0.00000	0.95445	0.00009
32	0.95580	0.00018	0.94849	0.00025	0.99176	0.00001	0.00824	0.00001	0.95029	0.00024
33	0.69071	0.00796	0.49389	0.00148	0.91933	0.00008	0.08067	0.00008	0.47964	0.00162
34	0.76153	0.00207	0.59505	0.00066	0.94043	0.00002	0.05957	0.00002	0.59596	0.00082
35	0.91247	0.00009	0.88470	0.00017	0.98251	0.00000	0.01749	0.00000	0.89367	0.00015
36	0.90386	0.00009	0.88309	0.00013	0.98173	0.00000	0.01827	0.00000	0.88978	0.00012
37	0.93528	0.00018	0.92918	0.00021	0.98771	0.00001	0.01229	0.00001	0.93064	0.00022
38	0.93402	0.00010	0.92649	0.00019	0.98790	0.00000	0.01210	0.00000	0.92774	0.00016
39	0.91466	0.00006	0.89246	0.00012	0.98313	0.00000	0.01687	0.00000	0.89935	0.00010
40	0.90418	0.00010	0.88861	0.00016	0.98202	0.00000	0.01798	0.00000	0.89266	0.00013
41	0.90965	0.00008	0.88317	0.00016	0.98207	0.00000	0.01793	0.00000	0.89166	0.00017
42	0.90266	0.00010	0.88460	0.00016	0.98159	0.00000	0.01841	0.00000	0.89000	0.00013
43	0.93939	0.00013	0.93283	0.00012	0.98892	0.00000	0.01108	0.00000	0.93428	0.00011
44	0.93828	0.00008	0.92912	0.00014	0.98863	0.00000	0.01137	0.00000	0.93092	0.00012
45	0.74126	0.00478	0.52164	0.00181	0.92227	0.00009	0.07773	0.00009	0.52410	0.00144
46	0.77413	0.00226	0.62720	0.00028	0.94593	0.00001	0.05407	0.00001	0.63096	0.00039
47	0.90329	0.00021	0.87622	0.00019	0.98096	0.00000	0.01904	0.00000	0.88514	0.00022
48	0.89576	0.00015	0.87594	0.00026	0.98019	0.00001	0.01981	0.00001	0.88239	0.00023
49	0.96724	0.00004	0.95818	0.00003	0.99359	0.00000	0.00641	0.00000	0.96191	0.00003
50	0.96325	0.00010	0.95485	0.00013	0.99301	0.00000	0.00699	0.00000	0.95788	0.00012
51	0.91690	0.00008	0.88929	0.00012	0.98313	0.00000	0.01687	0.00000	0.89769	0.00012
52	0.92343	0.00011	0.90330	0.00025	0.98535	0.00000	0.01465	0.00000	0.91029	0.00019
53	0.92216	0.00005	0.89741	0.00007	0.98448	0.00000	0.01552	0.00000	0.90526	0.00006
54	0.91778	0.00010	0.89504	0.00018	0.98405	0.00000	0.01595	0.00000	0.90279	0.00016
55	0.97955	0.00005	0.96805	0.00009	0.99513	0.00000	0.00487	0.00000	0.97283	0.00007
56	0.97782	0.00006	0.96690	0.00010	0.99508	0.00000	0.00492	0.00000	0.97141	0.00008
57	0.63899	0.00638	0.40737	0.00250	0.89971	0.00018	0.10029	0.00018	0.38714	0.00167
58	0.71617	0.00240	0.54059	0.00056	0.92978	0.00002	0.07022	0.00002	0.53981	0.00069
59	0.91331	0.00005	0.88764	0.00013	0.98294	0.00000	0.01706	0.00000	0.89597	0.00011
60	0.90943	0.00005	0.88546	0.00007	0.98251	0.00000	0.01749	0.00000	0.89380	0.00005

Table 49. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 1 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.85012	0.00051	0.85012	0.00051	0.97002	0.00002	0.02998	0.00002	0.85012	0.00051
2	0.86410	0.00029	0.86410	0.00029	0.97282	0.00001	0.02718	0.00001	0.86410	0.00029
3	0.78723	0.00052	0.78723	0.00052	0.95745	0.00002	0.04255	0.00002	0.78723	0.00052
4	0.82361	0.00028	0.82361	0.00028	0.96472	0.00001	0.03528	0.00001	0.82361	0.00028
5	0.78651	0.00057	0.78651	0.00057	0.95730	0.00002	0.04270	0.00002	0.78651	0.00057
6	0.81373	0.00035	0.81373	0.00035	0.96275	0.00001	0.03725	0.00001	0.81373	0.00035
7	0.82458	0.00030	0.82458	0.00030	0.96492	0.00001	0.03508	0.00001	0.82458	0.00030
8	0.84554	0.00016	0.84554	0.00016	0.96911	0.00001	0.03089	0.00001	0.84554	0.00016
9	0.32675	0.00423	0.32675	0.00423	0.86535	0.00017	0.13465	0.00017	0.32675	0.00423
10	0.53422	0.00080	0.53422	0.00080	0.90684	0.00003	0.09316	0.00003	0.53422	0.00080
11	0.77422	0.00055	0.77422	0.00055	0.95484	0.00002	0.04516	0.00002	0.77422	0.00055
12	0.79373	0.00033	0.79373	0.00033	0.95875	0.00001	0.04125	0.00001	0.79373	0.00033
13	0.91084	0.00012	0.91084	0.00012	0.98217	0.00000	0.01783	0.00000	0.91084	0.00012
14	0.91036	0.00011	0.91036	0.00011	0.98207	0.00000	0.01793	0.00000	0.91036	0.00011
15	0.74313	0.00102	0.74313	0.00102	0.94863	0.00004	0.05137	0.00004	0.74313	0.00102
16	0.82482	0.00037	0.82482	0.00037	0.96496	0.00001	0.03504	0.00001	0.82482	0.00037
17	0.78386	0.00008	0.78386	0.00008	0.95677	0.00000	0.04323	0.00000	0.78386	0.00008
18	0.81157	0.00028	0.81157	0.00028	0.96231	0.00001	0.03769	0.00001	0.81157	0.00028
19	0.94265	0.00006	0.94265	0.00006	0.98853	0.00000	0.01147	0.00000	0.94265	0.00006
20	0.93855	0.00005	0.93855	0.00005	0.98771	0.00000	0.01229	0.00000	0.93855	0.00005
21	0.22723	0.00134	0.22723	0.00134	0.84545	0.00005	0.15455	0.00005	0.22723	0.00134
22	0.37542	0.00052	0.37542	0.00052	0.87508	0.00002	0.12492	0.00002	0.37542	0.00052
23	0.76000	0.00045	0.76000	0.00045	0.95200	0.00002	0.04800	0.00002	0.76000	0.00045
24	0.77759	0.00072	0.77759	0.00072	0.95552	0.00003	0.04448	0.00003	0.77759	0.00072
25	0.90867	0.00018	0.90867	0.00018	0.98173	0.00001	0.01827	0.00001	0.90867	0.00018
26	0.90771	0.00012	0.90771	0.00012	0.98154	0.00000	0.01846	0.00000	0.90771	0.00012
27	0.82988	0.00056	0.82988	0.00056	0.96598	0.00002	0.03402	0.00002	0.82988	0.00056
28	0.85398	0.00013	0.85398	0.00013	0.97080	0.00001	0.02920	0.00001	0.85398	0.00013
29	0.83133	0.00024	0.83133	0.00024	0.96627	0.00001	0.03373	0.00001	0.83133	0.00024
30	0.84289	0.00009	0.84289	0.00009	0.96858	0.00000	0.03142	0.00000	0.84289	0.00009
31	0.90627	0.00023	0.90627	0.00023	0.98125	0.00001	0.01875	0.00001	0.90627	0.00023
32	0.90434	0.00012	0.90434	0.00012	0.98087	0.00000	0.01913	0.00000	0.90434	0.00012
33	0.23711	0.00073	0.23711	0.00073	0.84742	0.00003	0.15258	0.00003	0.23711	0.00073
34	0.44627	0.00209	0.44627	0.00209	0.88925	0.00008	0.11075	0.00008	0.44627	0.00209
35	0.81759	0.00040	0.81759	0.00040	0.96352	0.00002	0.03648	0.00002	0.81759	0.00040
36	0.83108	0.00023	0.83108	0.00023	0.96622	0.00001	0.03378	0.00001	0.83108	0.00023
37	0.90289	0.00032	0.90289	0.00032	0.98058	0.00001	0.01942	0.00001	0.90289	0.00032
38	0.89880	0.00014	0.89880	0.00014	0.97976	0.00001	0.02024	0.00001	0.89880	0.00014
39	0.82410	0.00064	0.82410	0.00064	0.96482	0.00003	0.03518	0.00003	0.82410	0.00064
40	0.84337	0.00028	0.84337	0.00028	0.96867	0.00001	0.03133	0.00001	0.84337	0.00028
41	0.83181	0.00042	0.83181	0.00042	0.96636	0.00002	0.03364	0.00002	0.83181	0.00042
42	0.83518	0.00018	0.83518	0.00018	0.96704	0.00001	0.03296	0.00001	0.83518	0.00018
43	0.89084	0.00017	0.89084	0.00017	0.97817	0.00001	0.02183	0.00001	0.89084	0.00017
44	0.89301	0.00015	0.89301	0.00015	0.97860	0.00001	0.02140	0.00001	0.89301	0.00015
45	0.24940	0.00166	0.24940	0.00166	0.84988	0.00007	0.15012	0.00007	0.24940	0.00166
46	0.49928	0.00175	0.49928	0.00175	0.89986	0.00007	0.10014	0.00007	0.49928	0.00175
47	0.81398	0.00048	0.81398	0.00048	0.96280	0.00002	0.03720	0.00002	0.81398	0.00048
48	0.82892	0.00020	0.82892	0.00020	0.96578	0.00001	0.03422	0.00001	0.82892	0.00020
49	0.92386	0.00022	0.92386	0.00022	0.98477	0.00001	0.01523	0.00001	0.92386	0.00022
50	0.91855	0.00011	0.91855	0.00011	0.98371	0.00000	0.01629	0.00000	0.91855	0.00011
51	0.79494	0.00041	0.79494	0.00041	0.95899	0.00002	0.04101	0.00002	0.79494	0.00041
52	0.85133	0.00016	0.85133	0.00016	0.97027	0.00001	0.02973	0.00001	0.85133	0.00016
53	0.81566	0.00038	0.81566	0.00038	0.96313	0.00002	0.03687	0.00002	0.81566	0.00038
54	0.84048	0.00014	0.84048	0.00014	0.96810	0.00001	0.03190	0.00001	0.84048	0.00014
55	0.93566	0.00006	0.93566	0.00006	0.98713	0.00000	0.01287	0.00000	0.93566	0.00006
56	0.92723	0.00009	0.92723	0.00009	0.98545	0.00000	0.01455	0.00000	0.92723	0.00009
57	0.21301	0.00040	0.21301	0.00040	0.84260	0.00002	0.15740	0.00002	0.21301	0.00040
58	0.40602	0.00239	0.40602	0.00239	0.88120	0.00010	0.11880	0.00010	0.40602	0.00239
59	0.79663	0.00035	0.79663	0.00035	0.95933	0.00001	0.04067	0.00001	0.79663	0.00035
60	0.82265	0.00030	0.82265	0.00030	0.96453	0.00001	0.03547	0.00001	0.82265	0.00030

Table 50. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 1 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.87614	0.00031	0.87614	0.00031	0.97523	0.00001	0.02477	0.00001	0.87614	0.00031
2	0.89301	0.00026	0.89301	0.00026	0.97860	0.00001	0.02140	0.00001	0.89301	0.00026
3	0.83735	0.00026	0.83735	0.00026	0.96747	0.00001	0.03253	0.00001	0.83735	0.00026
4	0.85566	0.00016	0.85566	0.00016	0.97113	0.00001	0.02887	0.00001	0.85566	0.00016
5	0.84265	0.00047	0.84265	0.00047	0.96853	0.00002	0.03147	0.00002	0.84265	0.00047
6	0.85639	0.00022	0.85639	0.00022	0.97128	0.00001	0.02872	0.00001	0.85639	0.00022
7	0.86072	0.00043	0.86072	0.00043	0.97214	0.00002	0.02786	0.00002	0.86072	0.00043
8	0.87205	0.00031	0.87205	0.00031	0.97441	0.00001	0.02559	0.00001	0.87205	0.00031
9	0.39855	0.00299	0.39855	0.00299	0.87971	0.00012	0.12029	0.00012	0.39855	0.00299
10	0.61181	0.00046	0.61181	0.00046	0.92236	0.00002	0.07764	0.00002	0.61181	0.00046
11	0.82627	0.00066	0.82627	0.00066	0.96525	0.00003	0.03475	0.00003	0.82627	0.00066
12	0.83880	0.00016	0.83880	0.00016	0.96776	0.00001	0.03224	0.00001	0.83880	0.00016
13	0.94096	0.00009	0.94096	0.00009	0.98819	0.00000	0.01181	0.00000	0.94096	0.00009
14	0.93976	0.00005	0.93976	0.00005	0.98795	0.00000	0.01205	0.00000	0.93976	0.00005
15	0.83639	0.00027	0.83639	0.00027	0.96728	0.00001	0.03272	0.00001	0.83639	0.00027
16	0.88120	0.00015	0.88120	0.00015	0.97624	0.00001	0.02376	0.00001	0.88120	0.00015
17	0.85398	0.00022	0.85398	0.00022	0.97080	0.00001	0.02920	0.00001	0.85398	0.00022
18	0.86627	0.00015	0.86627	0.00015	0.97325	0.00001	0.02675	0.00001	0.86627	0.00015
19	0.94988	0.00010	0.94988	0.00010	0.98998	0.00000	0.01002	0.00000	0.94988	0.00010
20	0.94892	0.00008	0.94892	0.00008	0.98978	0.00000	0.01022	0.00000	0.94892	0.00008
21	0.25783	0.00314	0.25783	0.00314	0.85157	0.00013	0.14843	0.00013	0.25783	0.00314
22	0.44434	0.00159	0.44434	0.00159	0.88887	0.00006	0.11113	0.00006	0.44434	0.00159
23	0.83325	0.00020	0.83325	0.00020	0.96665	0.00001	0.03335	0.00001	0.83325	0.00020
24	0.85181	0.00019	0.85181	0.00019	0.97036	0.00001	0.02964	0.00001	0.85181	0.00019
25	0.92892	0.00014	0.92892	0.00014	0.98578	0.00001	0.01422	0.00001	0.92892	0.00014
26	0.92940	0.00016	0.92940	0.00016	0.98588	0.00001	0.01412	0.00001	0.92940	0.00016
27	0.87952	0.00046	0.87952	0.00046	0.97590	0.00002	0.02410	0.00002	0.87952	0.00046
28	0.89133	0.00013	0.89133	0.00013	0.97827	0.00001	0.02173	0.00001	0.89133	0.00013
29	0.88675	0.00024	0.88675	0.00024	0.97735	0.00001	0.02265	0.00001	0.88675	0.00024
30	0.88627	0.00014	0.88627	0.00014	0.97725	0.00001	0.02275	0.00001	0.88627	0.00014
31	0.91470	0.00023	0.91470	0.00023	0.98294	0.00001	0.01706	0.00001	0.91470	0.00023
32	0.91639	0.00010	0.91639	0.00010	0.98328	0.00000	0.01672	0.00000	0.91639	0.00010
33	0.30892	0.00426	0.30892	0.00426	0.86178	0.00017	0.13822	0.00017	0.30892	0.00426
34	0.55012	0.00054	0.55012	0.00054	0.91002	0.00002	0.08998	0.00002	0.55012	0.00054
35	0.86627	0.00025	0.86627	0.00025	0.97325	0.00001	0.02675	0.00001	0.86627	0.00025
36	0.87157	0.00026	0.87157	0.00026	0.97431	0.00001	0.02569	0.00001	0.87157	0.00026
37	0.91855	0.00006	0.91855	0.00006	0.98371	0.00000	0.01629	0.00000	0.91855	0.00006
38	0.91976	0.00009	0.91976	0.00009	0.98395	0.00000	0.01605	0.00000	0.91976	0.00009
39	0.86506	0.00026	0.86506	0.00026	0.97301	0.00001	0.02699	0.00001	0.86506	0.00026
40	0.88964	0.00021	0.88964	0.00021	0.97793	0.00001	0.02207	0.00001	0.88964	0.00021
41	0.87277	0.00024	0.87277	0.00024	0.97455	0.00001	0.02545	0.00001	0.87277	0.00024
42	0.88000	0.00018	0.88000	0.00018	0.97600	0.00001	0.02400	0.00001	0.88000	0.00018
43	0.90361	0.00022	0.90361	0.00022	0.98072	0.00001	0.01928	0.00001	0.90361	0.00022
44	0.90699	0.00012	0.90699	0.00012	0.98140	0.00000	0.01860	0.00000	0.90699	0.00012
45	0.38145	0.00599	0.38145	0.00599	0.87629	0.00024	0.12371	0.00024	0.38145	0.00599
46	0.57012	0.00062	0.57012	0.00062	0.91402	0.00002	0.08598	0.00002	0.57012	0.00062
47	0.86048	0.00017	0.86048	0.00017	0.97210	0.00001	0.02790	0.00001	0.86048	0.00017
48	0.86578	0.00013	0.86578	0.00013	0.97316	0.00001	0.02684	0.00001	0.86578	0.00013
49	0.93783	0.00008	0.93783	0.00008	0.98757	0.00000	0.01243	0.00000	0.93783	0.00008
50	0.93952	0.00013	0.93952	0.00013	0.98790	0.00001	0.01210	0.00001	0.93952	0.00013
51	0.86048	0.00034	0.86048	0.00034	0.97210	0.00001	0.02790	0.00001	0.86048	0.00034
52	0.89566	0.00014	0.89566	0.00014	0.97913	0.00001	0.02087	0.00001	0.89566	0.00014
53	0.87349	0.00028	0.87349	0.00028	0.97470	0.00001	0.02530	0.00001	0.87349	0.00028
54	0.88145	0.00009	0.88145	0.00009	0.97629	0.00000	0.02371	0.00000	0.88145	0.00009
55	0.94193	0.00009	0.94193	0.00009	0.98839	0.00000	0.01161	0.00000	0.94193	0.00009
56	0.94169	0.00010	0.94169	0.00010	0.98834	0.00000	0.01166	0.00000	0.94169	0.00010
57	0.27880	0.00220	0.27880	0.00220	0.85576	0.00009	0.14424	0.00009	0.27880	0.00220
58	0.49373	0.00101	0.49373	0.00101	0.89875	0.00004	0.10125	0.00004	0.49373	0.00101
59	0.85470	0.00033	0.85470	0.00033	0.97094	0.00001	0.02906	0.00001	0.85470	0.00033
60	0.87205	0.00024	0.87205	0.00024	0.97441	0.00001	0.02559	0.00001	0.87205	0.00024

Table 51. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 1 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.90024	0.00022	0.90024	0.00022	0.98005	0.00001	0.01995	0.00001	0.90024	0.00022
2	0.90602	0.00024	0.90602	0.00024	0.98120	0.00001	0.01880	0.00001	0.90602	0.00024
3	0.87277	0.00016	0.87277	0.00016	0.97455	0.00001	0.02545	0.00001	0.87277	0.00016
4	0.87542	0.00020	0.87542	0.00020	0.97508	0.00001	0.02492	0.00001	0.87542	0.00020
5	0.87205	0.00019	0.87205	0.00019	0.97441	0.00001	0.02559	0.00001	0.87205	0.00019
6	0.87036	0.00015	0.87036	0.00015	0.97407	0.00001	0.02593	0.00001	0.87036	0.00015
7	0.89422	0.00011	0.89422	0.00011	0.97884	0.00000	0.02116	0.00000	0.89422	0.00011
8	0.90048	0.00026	0.90048	0.00026	0.98010	0.00001	0.01990	0.00001	0.90048	0.00026
9	0.49687	0.00452	0.49687	0.00452	0.89937	0.00018	0.10063	0.00018	0.49687	0.00452
10	0.71181	0.00040	0.71181	0.00040	0.94236	0.00002	0.05764	0.00002	0.71181	0.00040
11	0.86699	0.00030	0.86699	0.00030	0.97340	0.00001	0.02660	0.00001	0.86699	0.00030
12	0.85831	0.00021	0.85831	0.00021	0.97166	0.00001	0.02834	0.00001	0.85831	0.00021
13	0.95687	0.00008	0.95687	0.00008	0.99137	0.00000	0.00863	0.00000	0.95687	0.00008
14	0.95253	0.00006	0.95253	0.00006	0.99051	0.00000	0.00949	0.00000	0.95253	0.00006
15	0.88313	0.00015	0.88313	0.00015	0.97663	0.00001	0.02337	0.00001	0.88313	0.00015
16	0.90771	0.00019	0.90771	0.00019	0.98154	0.00001	0.01846	0.00001	0.90771	0.00019
17	0.89253	0.00009	0.89253	0.00009	0.97851	0.00000	0.02149	0.00000	0.89253	0.00009
18	0.89614	0.00013	0.89614	0.00013	0.97923	0.00001	0.02077	0.00001	0.89614	0.00013
19	0.96940	0.00009	0.96940	0.00009	0.99388	0.00000	0.00612	0.00000	0.96940	0.00009
20	0.96747	0.00010	0.96747	0.00010	0.99349	0.00000	0.00651	0.00000	0.96747	0.00010
21	0.31133	0.00283	0.31133	0.00283	0.86227	0.00011	0.13773	0.00011	0.31133	0.00283
22	0.55060	0.00050	0.55060	0.00050	0.91012	0.00002	0.08988	0.00002	0.55060	0.00050
23	0.87952	0.00006	0.87952	0.00006	0.97590	0.00000	0.02410	0.00000	0.87952	0.00006
24	0.88458	0.00021	0.88458	0.00021	0.97692	0.00001	0.02308	0.00001	0.88458	0.00021
25	0.93807	0.00005	0.93807	0.00005	0.98761	0.00000	0.01239	0.00000	0.93807	0.00005
26	0.94024	0.00007	0.94024	0.00007	0.98805	0.00000	0.01195	0.00000	0.94024	0.00007
27	0.89759	0.00010	0.89759	0.00010	0.97952	0.00000	0.02048	0.00000	0.89759	0.00010
28	0.91205	0.00015	0.91205	0.00015	0.98241	0.00001	0.01759	0.00001	0.91205	0.00015
29	0.90434	0.00011	0.90434	0.00011	0.98087	0.00000	0.01913	0.00000	0.90434	0.00011
30	0.90843	0.00014	0.90843	0.00014	0.98169	0.00001	0.01831	0.00001	0.90843	0.00014
31	0.94386	0.00020	0.94386	0.00020	0.98877	0.00001	0.01123	0.00001	0.94386	0.00020
32	0.94434	0.00007	0.94434	0.00007	0.98887	0.00000	0.01113	0.00000	0.94434	0.00007
33	0.40120	0.00718	0.40120	0.00718	0.88024	0.00029	0.11976	0.00029	0.40120	0.00718
34	0.65687	0.00041	0.65687	0.00041	0.93137	0.00002	0.06863	0.00002	0.65687	0.00041
35	0.89181	0.00009	0.89181	0.00009	0.97836	0.00000	0.02164	0.00000	0.89181	0.00009
36	0.89325	0.00005	0.89325	0.00005	0.97865	0.00000	0.02135	0.00000	0.89325	0.00005
37	0.93470	0.00019	0.93470	0.00019	0.98694	0.00001	0.01306	0.00001	0.93470	0.00019
38	0.93277	0.00009	0.93277	0.00009	0.98655	0.00000	0.01345	0.00000	0.93277	0.00009
39	0.89470	0.00010	0.89470	0.00010	0.97894	0.00000	0.02106	0.00000	0.89470	0.00010
40	0.90482	0.00012	0.90482	0.00012	0.98096	0.00000	0.01904	0.00000	0.90482	0.00012
41	0.89446	0.00011	0.89446	0.00011	0.97889	0.00000	0.02111	0.00000	0.89446	0.00011
42	0.89422	0.00004	0.89422	0.00004	0.97884	0.00000	0.02116	0.00000	0.89422	0.00004
43	0.93446	0.00011	0.93446	0.00011	0.98689	0.00000	0.01311	0.00000	0.93446	0.00011
44	0.93398	0.00021	0.93398	0.00021	0.98680	0.00001	0.01320	0.00001	0.93398	0.00021
45	0.46867	0.00514	0.46867	0.00514	0.89373	0.00021	0.10627	0.00021	0.46867	0.00514
46	0.68747	0.00025	0.68747	0.00025	0.93749	0.00001	0.06251	0.00001	0.68747	0.00025
47	0.89084	0.00014	0.89084	0.00014	0.97817	0.00001	0.02183	0.00001	0.89084	0.00014
48	0.88458	0.00016	0.88458	0.00016	0.97692	0.00001	0.02308	0.00001	0.88458	0.00016
49	0.95277	0.00004	0.95277	0.00004	0.99055	0.00000	0.00945	0.00000	0.95277	0.00004
50	0.95277	0.00006	0.95277	0.00006	0.99055	0.00000	0.00945	0.00000	0.95277	0.00006
51	0.89108	0.00011	0.89108	0.00011	0.97822	0.00000	0.02178	0.00000	0.89108	0.00011
52	0.91253	0.00014	0.91253	0.00014	0.98251	0.00001	0.01749	0.00001	0.91253	0.00014
53	0.90458	0.00013	0.90458	0.00013	0.98092	0.00001	0.01908	0.00001	0.90458	0.00013
54	0.90699	0.00013	0.90699	0.00013	0.98140	0.00001	0.01860	0.00001	0.90699	0.00013
55	0.96771	0.00007	0.96771	0.00007	0.99354	0.00000	0.00646	0.00000	0.96771	0.00007
56	0.96361	0.00006	0.96361	0.00006	0.99272	0.00000	0.00728	0.00000	0.96361	0.00006
57	0.34964	0.00316	0.34964	0.00316	0.86993	0.00013	0.13007	0.00013	0.34964	0.00316
58	0.60867	0.00024	0.60867	0.00024	0.92173	0.00001	0.07827	0.00001	0.60867	0.00024
59	0.89108	0.00006	0.89108	0.00006	0.97822	0.00000	0.02178	0.00000	0.89108	0.00006
60	0.89855	0.00010	0.89855	0.00010	0.97971	0.00000	0.02029	0.00000	0.89855	0.00010

Table 52. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 1 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89831	0.00019	0.89831	0.00019	0.97966	0.00001	0.02034	0.00001	0.89831	0.00019
2	0.91108	0.00023	0.91108	0.00023	0.98222	0.00001	0.01778	0.00001	0.91108	0.00023
3	0.87566	0.00034	0.87566	0.00034	0.97513	0.00001	0.02487	0.00001	0.87566	0.00034
4	0.87759	0.00010	0.87759	0.00010	0.97552	0.00000	0.02448	0.00000	0.87759	0.00010
5	0.88096	0.00028	0.88096	0.00028	0.97619	0.00001	0.02381	0.00001	0.88096	0.00028
6	0.87759	0.00009	0.87759	0.00009	0.97552	0.00000	0.02448	0.00000	0.87759	0.00009
7	0.89711	0.00016	0.89711	0.00016	0.97942	0.00001	0.02058	0.00001	0.89711	0.00016
8	0.90241	0.00010	0.90241	0.00010	0.98048	0.00000	0.01952	0.00000	0.90241	0.00010
9	0.65229	0.00322	0.65229	0.00322	0.93046	0.00013	0.06954	0.00013	0.65229	0.00322
10	0.75205	0.00026	0.75205	0.00026	0.95041	0.00001	0.04959	0.00001	0.75205	0.00026
11	0.87807	0.00018	0.87807	0.00018	0.97561	0.00001	0.02439	0.00001	0.87807	0.00018
12	0.87301	0.00004	0.87301	0.00004	0.97460	0.00000	0.02540	0.00000	0.87301	0.00004
13	0.96916	0.00006	0.96916	0.00006	0.99383	0.00000	0.00617	0.00000	0.96916	0.00006
14	0.96193	0.00004	0.96193	0.00004	0.99239	0.00000	0.00761	0.00000	0.96193	0.00004
15	0.91181	0.00004	0.91181	0.00004	0.98236	0.00000	0.01764	0.00000	0.91181	0.00004
16	0.91976	0.00009	0.91976	0.00009	0.98395	0.00000	0.01605	0.00000	0.91976	0.00009
17	0.91277	0.00007	0.91277	0.00007	0.98255	0.00000	0.01745	0.00000	0.91277	0.00007
18	0.91470	0.00005	0.91470	0.00005	0.98294	0.00000	0.01706	0.00000	0.91470	0.00005
19	0.97590	0.00007	0.97590	0.00007	0.99518	0.00000	0.00482	0.00000	0.97590	0.00007
20	0.97518	0.00006	0.97518	0.00006	0.99504	0.00000	0.00496	0.00000	0.97518	0.00006
21	0.41759	0.00415	0.41759	0.00415	0.88352	0.00017	0.11648	0.00017	0.41759	0.00415
22	0.62217	0.00052	0.62217	0.00052	0.92443	0.00002	0.07557	0.00002	0.62217	0.00052
23	0.90289	0.00006	0.90289	0.00006	0.98058	0.00000	0.01942	0.00000	0.90289	0.00006
24	0.90169	0.00006	0.90169	0.00006	0.98034	0.00000	0.01966	0.00000	0.90169	0.00006
25	0.95446	0.00007	0.95446	0.00007	0.99089	0.00000	0.00911	0.00000	0.95446	0.00007
26	0.95542	0.00007	0.95542	0.00007	0.99108	0.00000	0.00892	0.00000	0.95542	0.00007
27	0.92265	0.00009	0.92265	0.00009	0.98453	0.00000	0.01547	0.00000	0.92265	0.00009
28	0.92193	0.00004	0.92193	0.00004	0.98439	0.00000	0.01561	0.00000	0.92193	0.00004
29	0.92000	0.00006	0.92000	0.00006	0.98400	0.00000	0.01600	0.00000	0.92000	0.00006
30	0.91904	0.00003	0.91904	0.00003	0.98381	0.00000	0.01619	0.00000	0.91904	0.00003
31	0.96120	0.00006	0.96120	0.00006	0.99224	0.00000	0.00776	0.00000	0.96120	0.00006
32	0.95880	0.00013	0.95880	0.00013	0.99176	0.00001	0.00824	0.00001	0.95880	0.00013
33	0.59663	0.00193	0.59663	0.00193	0.91933	0.00008	0.08067	0.00008	0.59663	0.00193
34	0.70217	0.00043	0.70217	0.00043	0.94043	0.00002	0.05957	0.00002	0.70217	0.00043
35	0.91253	0.00007	0.91253	0.00007	0.98251	0.00000	0.01749	0.00000	0.91253	0.00007
36	0.90867	0.00005	0.90867	0.00005	0.98173	0.00000	0.01827	0.00000	0.90867	0.00005
37	0.93855	0.00016	0.93855	0.00016	0.98771	0.00001	0.01229	0.00001	0.93855	0.00016
38	0.93952	0.00009	0.93952	0.00009	0.98790	0.00000	0.01210	0.00000	0.93952	0.00009
39	0.91566	0.00005	0.91566	0.00005	0.98313	0.00000	0.01687	0.00000	0.91566	0.00005
40	0.91012	0.00009	0.91012	0.00009	0.98202	0.00000	0.01798	0.00000	0.91012	0.00009
41	0.91036	0.00010	0.91036	0.00010	0.98207	0.00000	0.01793	0.00000	0.91036	0.00010
42	0.90795	0.00010	0.90795	0.00010	0.98159	0.00000	0.01841	0.00000	0.90795	0.00010
43	0.94458	0.00011	0.94458	0.00011	0.98892	0.00000	0.01108	0.00000	0.94458	0.00011
44	0.94313	0.00008	0.94313	0.00008	0.98863	0.00000	0.01137	0.00000	0.94313	0.00008
45	0.61133	0.00233	0.61133	0.00233	0.92227	0.00009	0.07773	0.00009	0.61133	0.00233
46	0.72964	0.00013	0.72964	0.00013	0.94593	0.00001	0.05407	0.00001	0.72964	0.00013
47	0.90482	0.00011	0.90482	0.00011	0.98096	0.00000	0.01904	0.00000	0.90482	0.00011
48	0.90096	0.00014	0.90096	0.00014	0.98019	0.00001	0.01981	0.00001	0.90096	0.00014
49	0.96795	0.00002	0.96795	0.00002	0.99359	0.00000	0.00641	0.00000	0.96795	0.00002
50	0.96506	0.00008	0.96506	0.00008	0.99301	0.00000	0.00699	0.00000	0.96506	0.00008
51	0.91566	0.00006	0.91566	0.00006	0.98313	0.00000	0.01687	0.00000	0.91566	0.00006
52	0.92675	0.00008	0.92675	0.00008	0.98535	0.00000	0.01465	0.00000	0.92675	0.00008
53	0.92241	0.00004	0.92241	0.00004	0.98448	0.00000	0.01552	0.00000	0.92241	0.00004
54	0.92024	0.00005	0.92024	0.00005	0.98405	0.00000	0.01595	0.00000	0.92024	0.00005
55	0.97566	0.00006	0.97566	0.00006	0.99513	0.00000	0.00487	0.00000	0.97566	0.00006
56	0.97542	0.00006	0.97542	0.00006	0.99508	0.00000	0.00492	0.00000	0.97542	0.00006
57	0.49855	0.00444	0.49855	0.00444	0.89971	0.00018	0.10029	0.00018	0.49855	0.00444
58	0.64892	0.00043	0.64892	0.00043	0.92978	0.00002	0.07022	0.00002	0.64892	0.00043
59	0.91470	0.00004	0.91470	0.00004	0.98294	0.00000	0.01706	0.00000	0.91470	0.00004
60	0.91253	0.00003	0.91253	0.00003	0.98251	0.00000	0.01749	0.00000	0.91253	0.00003

Table 53. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 1 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.84788	0.00032	0.85973	0.00024	0.97354	0.00001	0.02646	0.00001	0.85087	0.00027
2	0.85695	0.00027	0.86118	0.00040	0.97383	0.00001	0.02617	0.00001	0.85465	0.00035
3	0.83712	0.00025	0.83947	0.00027	0.96998	0.00001	0.03002	0.00001	0.83452	0.00026
4	0.81113	0.00024	0.79832	0.00018	0.96390	0.00001	0.03610	0.00001	0.79697	0.00022
5	0.83475	0.00048	0.83650	0.00055	0.97017	0.00002	0.02983	0.00002	0.83272	0.00052
6	0.80897	0.00046	0.79179	0.00053	0.96323	0.00002	0.03677	0.00002	0.79154	0.00053
7	0.83454	0.00025	0.83809	0.00017	0.96988	0.00000	0.03012	0.00000	0.83348	0.00015
8	0.84127	0.00021	0.84610	0.00033	0.97031	0.00001	0.02969	0.00001	0.83784	0.00023
9	0.56968	0.00214	0.44955	0.00225	0.89788	0.00014	0.10212	0.00014	0.46135	0.00274
10	0.61023	0.00135	0.50115	0.00087	0.91292	0.00003	0.08708	0.00003	0.51913	0.00082
11	0.83726	0.00015	0.83978	0.00017	0.97070	0.00001	0.02930	0.00001	0.83589	0.00017
12	0.79116	0.00036	0.77147	0.00055	0.95986	0.00002	0.04014	0.00002	0.77350	0.00050
13	0.89238	0.00015	0.89125	0.00014	0.98106	0.00000	0.01894	0.00000	0.89036	0.00014
14	0.90149	0.00018	0.90106	0.00028	0.98227	0.00001	0.01773	0.00001	0.89960	0.00023
15	0.82120	0.00022	0.81409	0.00034	0.96598	0.00001	0.03402	0.00001	0.81412	0.00024
16	0.82164	0.00050	0.80444	0.00090	0.96554	0.00002	0.03446	0.00002	0.80729	0.00077
17	0.79891	0.00048	0.80462	0.00050	0.96434	0.00001	0.03566	0.00001	0.79876	0.00047
18	0.81640	0.00027	0.79925	0.00038	0.96477	0.00001	0.03523	0.00001	0.80272	0.00035
19	0.89476	0.00027	0.89060	0.00036	0.98092	0.00001	0.01908	0.00001	0.89061	0.00029
20	0.93736	0.00006	0.92683	0.00012	0.98800	0.00000	0.01200	0.00000	0.93094	0.00009
21	0.33920	0.00185	0.26358	0.00054	0.85827	0.00002	0.14173	0.00002	0.25200	0.00075
22	0.43699	0.00149	0.34877	0.00049	0.88120	0.00002	0.11880	0.00002	0.35752	0.00061
23	0.77306	0.00054	0.77472	0.00072	0.95875	0.00002	0.04125	0.00002	0.77066	0.00058
24	0.79178	0.00041	0.77859	0.00042	0.95981	0.00002	0.04019	0.00002	0.78023	0.00040
25	0.88819	0.00025	0.89268	0.00025	0.98039	0.00001	0.01961	0.00001	0.88851	0.00023
26	0.90192	0.00015	0.90678	0.00011	0.98236	0.00000	0.01764	0.00000	0.90228	0.00013
27	0.85667	0.00014	0.85475	0.00029	0.97388	0.00001	0.02612	0.00001	0.85338	0.00019
28	0.85271	0.00024	0.84501	0.00026	0.97234	0.00001	0.02766	0.00001	0.84371	0.00027
29	0.84992	0.00071	0.85190	0.00059	0.97330	0.00002	0.02670	0.00002	0.84945	0.00064
30	0.83364	0.00007	0.82040	0.00004	0.96863	0.00000	0.03137	0.00000	0.82213	0.00002
31	0.86871	0.00020	0.86928	0.00032	0.97610	0.00001	0.02390	0.00001	0.86723	0.00025
32	0.89964	0.00009	0.90119	0.00008	0.98164	0.00000	0.01836	0.00000	0.89866	0.00008
33	0.45610	0.00171	0.34517	0.00157	0.87629	0.00006	0.12371	0.00006	0.34234	0.00215
34	0.53907	0.00137	0.40663	0.00154	0.89330	0.00007	0.10670	0.00007	0.42603	0.00148
35	0.84326	0.00047	0.84453	0.00040	0.97181	0.00001	0.02819	0.00001	0.84212	0.00043
36	0.82352	0.00056	0.80785	0.00069	0.96670	0.00001	0.03330	0.00001	0.81011	0.00061
37	0.87501	0.00037	0.87883	0.00036	0.97788	0.00001	0.02212	0.00001	0.87473	0.00036
38	0.89085	0.00016	0.89408	0.00028	0.98019	0.00001	0.01981	0.00001	0.88975	0.00022
39	0.85361	0.00012	0.85138	0.00019	0.97301	0.00000	0.02699	0.00000	0.85012	0.00015
40	0.83558	0.00035	0.82606	0.00031	0.96959	0.00001	0.03041	0.00001	0.82670	0.00032
41	0.85156	0.00011	0.85182	0.00001	0.97345	0.00000	0.02655	0.00000	0.84932	0.00004
42	0.82680	0.00018	0.80872	0.00017	0.96708	0.00001	0.03292	0.00001	0.81183	0.00018
43	0.86008	0.00013	0.86163	0.00008	0.97431	0.00000	0.02569	0.00000	0.85848	0.00011
44	0.88650	0.00022	0.88840	0.00028	0.97913	0.00001	0.02087	0.00001	0.88489	0.00024
45	0.49624	0.00117	0.36057	0.00103	0.87716	0.00005	0.12284	0.00005	0.36582	0.00111
46	0.56095	0.00190	0.45426	0.00186	0.90265	0.00007	0.09735	0.00007	0.47179	0.00185
47	0.83999	0.00017	0.84202	0.00024	0.97147	0.00000	0.02853	0.00000	0.83884	0.00019
48	0.81606	0.00022	0.80233	0.00023	0.96540	0.00001	0.03460	0.00001	0.80442	0.00023
49	0.90521	0.00024	0.90235	0.00022	0.98308	0.00001	0.01692	0.00001	0.90256	0.00022
50	0.91023	0.00014	0.90924	0.00027	0.98376	0.00001	0.01624	0.00001	0.90775	0.00021
51	0.83887	0.00009	0.83192	0.00005	0.96973	0.00000	0.03027	0.00000	0.83231	0.00007
52	0.84962	0.00021	0.84086	0.00045	0.97157	0.00001	0.02843	0.00001	0.84102	0.00036
53	0.83543	0.00014	0.84002	0.00014	0.97108	0.00000	0.02892	0.00000	0.83487	0.00014
54	0.83642	0.00016	0.82483	0.00021	0.96863	0.00001	0.03137	0.00001	0.82537	0.00020
55	0.90598	0.00010	0.90016	0.00013	0.98265	0.00000	0.01735	0.00000	0.90207	0.00010
56	0.92678	0.00016	0.91930	0.00018	0.98631	0.00001	0.01369	0.00001	0.92185	0.00017
57	0.34646	0.00406	0.23673	0.00058	0.85248	0.00003	0.14752	0.00003	0.21086	0.00074
58	0.46130	0.00170	0.36018	0.00155	0.88260	0.00005	0.11740	0.00005	0.36991	0.00134
59	0.82242	0.00033	0.82590	0.00054	0.96916	0.00001	0.03084	0.00001	0.82219	0.00042
60	0.81403	0.00019	0.80162	0.00037	0.96424	0.00001	0.03576	0.00001	0.80201	0.00028

Table 54. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 0.3 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.84788	0.00032	0.85973	0.00024	0.97354	0.00001	0.02646	0.00001	0.85087	0.00027
2	0.88561	0.00016	0.88835	0.00023	0.97908	0.00001	0.02092	0.00001	0.88364	0.00020
3	0.86281	0.00025	0.86627	0.00026	0.97489	0.00001	0.02511	0.00001	0.86174	0.00026
4	0.84733	0.00014	0.83984	0.00015	0.97166	0.00001	0.02834	0.00001	0.83834	0.00018
5	0.84097	0.00041	0.84270	0.00043	0.97123	0.00001	0.02877	0.00001	0.83866	0.00041
6	0.85421	0.00032	0.84381	0.00042	0.97287	0.00001	0.02713	0.00001	0.84459	0.00042
7	0.83454	0.00025	0.83809	0.00017	0.96988	0.00000	0.03012	0.00000	0.83348	0.00015
8	0.86287	0.00030	0.86408	0.00034	0.97446	0.00001	0.02554	0.00001	0.85736	0.00032
9	0.69271	0.00075	0.57165	0.00098	0.92516	0.00004	0.07484	0.00004	0.58942	0.00108
10	0.69650	0.00114	0.57386	0.00026	0.92998	0.00002	0.07002	0.00002	0.59338	0.00030
11	0.84024	0.00014	0.84385	0.00014	0.97118	0.00001	0.02882	0.00001	0.83954	0.00014
12	0.83649	0.00016	0.82189	0.00015	0.96906	0.00001	0.03094	0.00001	0.82416	0.00015
13	0.89426	0.00006	0.89503	0.00005	0.98173	0.00000	0.01827	0.00000	0.89362	0.00005
14	0.93126	0.00009	0.93015	0.00009	0.98781	0.00000	0.01219	0.00000	0.92958	0.00009
15	0.87081	0.00041	0.86664	0.00038	0.97600	0.00001	0.02400	0.00001	0.86663	0.00038
16	0.87491	0.00015	0.86536	0.00028	0.97658	0.00001	0.02342	0.00001	0.86705	0.00021
17	0.79794	0.00055	0.80542	0.00061	0.96424	0.00002	0.03576	0.00002	0.79892	0.00057
18	0.86552	0.00017	0.85155	0.00013	0.97470	0.00000	0.02530	0.00000	0.85512	0.00012
19	0.89476	0.00027	0.89060	0.00036	0.98092	0.00001	0.01908	0.00001	0.89061	0.00029
20	0.95033	0.00005	0.93683	0.00011	0.98983	0.00000	0.01017	0.00000	0.94209	0.00008
21	0.44739	0.00154	0.33288	0.00172	0.87552	0.00006	0.12448	0.00006	0.32000	0.00219
22	0.51886	0.00146	0.40442	0.00046	0.89547	0.00003	0.10453	0.00003	0.41528	0.00040
23	0.77163	0.00052	0.77413	0.00069	0.95865	0.00002	0.04135	0.00002	0.76981	0.00057
24	0.84754	0.00027	0.83191	0.00040	0.97084	0.00001	0.02916	0.00001	0.83513	0.00031
25	0.88819	0.00025	0.89268	0.00025	0.98039	0.00001	0.01961	0.00001	0.88851	0.00023
26	0.91848	0.00016	0.92043	0.00011	0.98535	0.00000	0.01465	0.00000	0.91779	0.00013
27	0.89134	0.00023	0.88902	0.00029	0.98014	0.00001	0.01986	0.00001	0.88832	0.00025
28	0.88330	0.00026	0.87504	0.00024	0.97831	0.00001	0.02169	0.00001	0.87635	0.00022
29	0.84996	0.00067	0.85198	0.00061	0.97330	0.00002	0.02670	0.00002	0.84934	0.00062
30	0.88262	0.00014	0.87376	0.00021	0.97827	0.00001	0.02173	0.00001	0.87568	0.00018
31	0.86871	0.00020	0.86928	0.00032	0.97610	0.00001	0.02390	0.00001	0.86723	0.00025
32	0.91022	0.00009	0.91117	0.00008	0.98357	0.00000	0.01643	0.00000	0.90948	0.00009
33	0.57924	0.00081	0.45154	0.00079	0.90241	0.00003	0.09759	0.00003	0.45022	0.00121
34	0.60993	0.00201	0.48562	0.00064	0.91248	0.00003	0.08752	0.00003	0.50080	0.00057
35	0.84337	0.00046	0.84486	0.00038	0.97186	0.00001	0.02814	0.00001	0.84230	0.00042
36	0.86514	0.00016	0.85276	0.00023	0.97489	0.00000	0.02511	0.00000	0.85545	0.00020
37	0.87501	0.00037	0.87883	0.00036	0.97788	0.00001	0.02212	0.00001	0.87473	0.00036
38	0.91250	0.00015	0.91309	0.00024	0.98414	0.00000	0.01586	0.00000	0.91012	0.00019
39	0.88754	0.00014	0.88655	0.00010	0.97937	0.00000	0.02063	0.00000	0.88480	0.00012
40	0.87917	0.00019	0.87120	0.00025	0.97788	0.00001	0.02212	0.00001	0.87211	0.00022
41	0.86080	0.00020	0.86116	0.00010	0.97499	0.00000	0.02501	0.00000	0.85882	0.00015
42	0.86971	0.00014	0.85880	0.00023	0.97595	0.00000	0.02405	0.00000	0.86093	0.00020
43	0.86008	0.00013	0.86163	0.00008	0.97431	0.00000	0.02569	0.00000	0.85848	0.00011
44	0.89939	0.00020	0.89970	0.00027	0.98149	0.00001	0.01851	0.00001	0.89725	0.00023
45	0.64939	0.00080	0.52494	0.00034	0.91793	0.00002	0.08207	0.00002	0.53592	0.00042
46	0.65732	0.00340	0.52957	0.00123	0.92087	0.00003	0.07913	0.00003	0.54758	0.00139
47	0.83829	0.00019	0.83991	0.00023	0.97094	0.00001	0.02906	0.00001	0.83670	0.00020
48	0.85733	0.00014	0.84492	0.00013	0.97325	0.00000	0.02675	0.00000	0.84784	0.00011
49	0.91790	0.00008	0.91520	0.00012	0.98545	0.00000	0.01455	0.00000	0.91548	0.00009
50	0.93309	0.00012	0.93156	0.00009	0.98800	0.00000	0.01200	0.00000	0.93143	0.00010
51	0.87506	0.00011	0.86990	0.00021	0.97725	0.00000	0.02275	0.00000	0.87111	0.00015
52	0.88414	0.00025	0.87756	0.00014	0.97875	0.00001	0.02125	0.00001	0.87808	0.00018
53	0.84392	0.00015	0.84718	0.00014	0.97248	0.00000	0.02752	0.00000	0.84309	0.00013
54	0.88307	0.00015	0.87256	0.00019	0.97802	0.00001	0.02198	0.00001	0.87422	0.00016
55	0.90598	0.00010	0.90016	0.00013	0.98265	0.00000	0.01735	0.00000	0.90207	0.00010
56	0.93619	0.00015	0.92909	0.00017	0.98800	0.00001	0.01200	0.00001	0.93167	0.00016
57	0.47604	0.00442	0.31061	0.00156	0.87306	0.00009	0.12694	0.00009	0.28428	0.00178
58	0.56359	0.00226	0.45330	0.00093	0.90492	0.00004	0.09508	0.00004	0.46118	0.00086
59	0.83185	0.00015	0.83751	0.00016	0.97070	0.00000	0.02930	0.00000	0.83278	0.00015
60	0.86737	0.00012	0.85547	0.00018	0.97518	0.00000	0.02482	0.00000	0.85817	0.00016

Table 55. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 0.3 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.84788	0.00032	0.85973	0.00024	0.97354	0.00001	0.02646	0.00001	0.85087	0.00027
2	0.89583	0.00018	0.89419	0.00028	0.98067	0.00001	0.01933	0.00001	0.89101	0.00023
3	0.87262	0.00012	0.87517	0.00010	0.97634	0.00001	0.02366	0.00001	0.87064	0.00012
4	0.86527	0.00018	0.85415	0.00033	0.97465	0.00001	0.02535	0.00001	0.85508	0.00030
5	0.84097	0.00041	0.84270	0.00043	0.97123	0.00001	0.02877	0.00001	0.83866	0.00041
6	0.86142	0.00014	0.84575	0.00031	0.97345	0.00001	0.02655	0.00001	0.84826	0.00028
7	0.83454	0.00025	0.83809	0.00017	0.96988	0.00000	0.03012	0.00000	0.83348	0.00015
8	0.89622	0.00029	0.89180	0.00057	0.98048	0.00001	0.01952	0.00001	0.88865	0.00052
9	0.75456	0.00031	0.67123	0.00031	0.94810	0.00001	0.05190	0.00001	0.68179	0.00036
10	0.76776	0.00022	0.65660	0.00015	0.94728	0.00001	0.05272	0.00001	0.66861	0.00021
11	0.84024	0.00014	0.84385	0.00014	0.97118	0.00001	0.02882	0.00001	0.83954	0.00014
12	0.85386	0.00013	0.83793	0.00028	0.97210	0.00001	0.02790	0.00001	0.84046	0.00026
13	0.89426	0.00006	0.89503	0.00005	0.98173	0.00000	0.01827	0.00000	0.89362	0.00005
14	0.94825	0.00011	0.94321	0.00012	0.99055	0.00000	0.00945	0.00000	0.94484	0.00011
15	0.89492	0.00027	0.89161	0.00026	0.98082	0.00001	0.01918	0.00001	0.89190	0.00027
16	0.90356	0.00017	0.89741	0.00032	0.98207	0.00001	0.01793	0.00001	0.89853	0.00026
17	0.79794	0.00055	0.80542	0.00061	0.96424	0.00002	0.03576	0.00002	0.79892	0.00057
18	0.89531	0.00021	0.88609	0.00032	0.98034	0.00001	0.01966	0.00001	0.88839	0.00028
19	0.89476	0.00027	0.89060	0.00036	0.98092	0.00001	0.01908	0.00001	0.89061	0.00029
20	0.97138	0.00006	0.95718	0.00011	0.99335	0.00000	0.00665	0.00000	0.96302	0.00008
21	0.54845	0.00066	0.40335	0.00079	0.89407	0.00005	0.10593	0.00005	0.40031	0.00101
22	0.62909	0.00166	0.49339	0.00042	0.91600	0.00002	0.08400	0.00002	0.50093	0.00043
23	0.77163	0.00052	0.77413	0.00069	0.95865	0.00002	0.04135	0.00002	0.76981	0.00057
24	0.88429	0.00022	0.87210	0.00020	0.97807	0.00001	0.02193	0.00001	0.87563	0.00020
25	0.88819	0.00025	0.89268	0.00025	0.98039	0.00001	0.01961	0.00001	0.88851	0.00023
26	0.93332	0.00010	0.93372	0.00014	0.98800	0.00000	0.01200	0.00000	0.93179	0.00012
27	0.90514	0.00011	0.90275	0.00017	0.98260	0.00001	0.01740	0.00001	0.90199	0.00017
28	0.90971	0.00017	0.90141	0.00029	0.98313	0.00001	0.01687	0.00001	0.90311	0.00027
29	0.84996	0.00067	0.85198	0.00061	0.97330	0.00002	0.02670	0.00002	0.84934	0.00062
30	0.89827	0.00017	0.88888	0.00030	0.98116	0.00001	0.01884	0.00001	0.89105	0.00027
31	0.86871	0.00020	0.86928	0.00032	0.97610	0.00001	0.02390	0.00001	0.86723	0.00025
32	0.94232	0.00014	0.93965	0.00018	0.98940	0.00000	0.01060	0.00000	0.93974	0.00015
33	0.67075	0.00047	0.55538	0.00119	0.92684	0.00005	0.07316	0.00005	0.55604	0.00116
34	0.72761	0.00022	0.58969	0.00035	0.93504	0.00001	0.06496	0.00001	0.59890	0.00031
35	0.84337	0.00046	0.84486	0.00038	0.97186	0.00001	0.02814	0.00001	0.84230	0.00042
36	0.88585	0.00007	0.87728	0.00023	0.97875	0.00000	0.02125	0.00000	0.87911	0.00017
37	0.87501	0.00037	0.87883	0.00036	0.97788	0.00001	0.02212	0.00001	0.87473	0.00036
38	0.92355	0.00014	0.92290	0.00023	0.98602	0.00001	0.01398	0.00001	0.92100	0.00019
39	0.90100	0.00012	0.90035	0.00009	0.98183	0.00000	0.01817	0.00000	0.89860	0.00012
40	0.89274	0.00028	0.88378	0.00032	0.98010	0.00001	0.01990	0.00001	0.88516	0.00029
41	0.86080	0.00020	0.86116	0.00010	0.97499	0.00000	0.02501	0.00000	0.85882	0.00015
42	0.88969	0.00009	0.87844	0.00011	0.97928	0.00000	0.02072	0.00000	0.88025	0.00011
43	0.86008	0.00013	0.86163	0.00008	0.97431	0.00000	0.02569	0.00000	0.85848	0.00011
44	0.92792	0.00017	0.92875	0.00019	0.98675	0.00001	0.01325	0.00001	0.92591	0.00019
45	0.73888	0.00027	0.63874	0.00029	0.94159	0.00001	0.05841	0.00001	0.64816	0.00023
46	0.72580	0.00170	0.62367	0.00063	0.94154	0.00001	0.05846	0.00001	0.63010	0.00077
47	0.83829	0.00019	0.83991	0.00023	0.97094	0.00001	0.02906	0.00001	0.83670	0.00020
48	0.87385	0.00013	0.86071	0.00017	0.97663	0.00000	0.02337	0.00000	0.86399	0.00015
49	0.91790	0.00008	0.91520	0.00012	0.98545	0.00000	0.01455	0.00000	0.91548	0.00009
50	0.94628	0.00012	0.94481	0.00014	0.99046	0.00000	0.00954	0.00000	0.94466	0.00013
51	0.90426	0.00011	0.89904	0.00012	0.98236	0.00000	0.01764	0.00000	0.90037	0.00012
52	0.90987	0.00014	0.90446	0.00012	0.98342	0.00000	0.01658	0.00000	0.90555	0.00013
53	0.84392	0.00015	0.84718	0.00014	0.97248	0.00000	0.02752	0.00000	0.84309	0.00013
54	0.90084	0.00013	0.89142	0.00017	0.98154	0.00000	0.01846	0.00000	0.89384	0.00014
55	0.90598	0.00010	0.90016	0.00013	0.98265	0.00000	0.01735	0.00000	0.90207	0.00010
56	0.96425	0.00003	0.95409	0.00008	0.99267	0.00000	0.00733	0.00000	0.95829	0.00005
57	0.59287	0.00426	0.36901	0.00213	0.88940	0.00011	0.11060	0.00011	0.35289	0.00225
58	0.63579	0.00229	0.51778	0.00052	0.92164	0.00001	0.07836	0.00001	0.52141	0.00083
59	0.83185	0.00015	0.83751	0.00016	0.97070	0.00000	0.02930	0.00000	0.83278	0.00015
60	0.89074	0.00021	0.87973	0.00017	0.97966	0.00001	0.02034	0.00001	0.88275	0.00017

Table 56. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 0.3 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.84788	0.00032	0.85973	0.00024	0.97354	0.00001	0.02646	0.00001	0.85087	0.00027
2	0.88226	0.00019	0.87681	0.00025	0.97793	0.00001	0.02207	0.00001	0.87637	0.00023
3	0.87262	0.00012	0.87517	0.00010	0.97634	0.00001	0.02366	0.00001	0.87064	0.00012
4	0.87039	0.00012	0.85145	0.00021	0.97504	0.00001	0.02496	0.00001	0.85570	0.00020
5	0.84097	0.00041	0.84270	0.00043	0.97123	0.00001	0.02877	0.00001	0.83866	0.00041
6	0.86813	0.00011	0.84781	0.00013	0.97460	0.00001	0.02540	0.00001	0.85265	0.00014
7	0.83454	0.00025	0.83809	0.00017	0.96988	0.00000	0.03012	0.00000	0.83348	0.00015
8	0.88720	0.00018	0.87513	0.00032	0.97841	0.00001	0.02159	0.00001	0.87591	0.00027
9	0.80322	0.00008	0.70803	0.00040	0.95663	0.00001	0.04337	0.00001	0.71987	0.00039
10	0.81720	0.00011	0.70810	0.00060	0.95706	0.00001	0.04294	0.00001	0.72412	0.00074
11	0.84024	0.00014	0.84385	0.00014	0.97118	0.00001	0.02882	0.00001	0.83954	0.00014
12	0.86712	0.00008	0.84504	0.00022	0.97446	0.00000	0.02554	0.00000	0.85087	0.00019
13	0.89426	0.00006	0.89503	0.00005	0.98173	0.00000	0.01827	0.00000	0.89362	0.00005
14	0.95937	0.00010	0.95018	0.00014	0.99234	0.00000	0.00766	0.00000	0.95390	0.00011
15	0.89712	0.00017	0.89312	0.00018	0.98120	0.00001	0.01880	0.00001	0.89386	0.00018
16	0.92370	0.00003	0.90788	0.00009	0.98545	0.00000	0.01455	0.00000	0.91374	0.00006
17	0.79794	0.00055	0.80542	0.00061	0.96424	0.00002	0.03576	0.00002	0.79892	0.00057
18	0.91370	0.00011	0.89546	0.00013	0.98357	0.00000	0.01643	0.00000	0.90218	0.00011
19	0.89476	0.00027	0.89060	0.00036	0.98092	0.00001	0.01908	0.00001	0.89061	0.00029
20	0.97361	0.00010	0.96262	0.00013	0.99407	0.00000	0.00593	0.00000	0.96682	0.00012
21	0.67259	0.00135	0.49883	0.00049	0.91672	0.00003	0.08328	0.00003	0.50027	0.00075
22	0.70780	0.00030	0.54212	0.00036	0.92834	0.00001	0.07166	0.00001	0.54942	0.00040
23	0.77163	0.00052	0.77413	0.00069	0.95865	0.00002	0.04135	0.00002	0.76981	0.00057
24	0.90212	0.00004	0.88193	0.00008	0.98149	0.00000	0.01851	0.00000	0.88908	0.00006
25	0.88819	0.00025	0.89268	0.00025	0.98039	0.00001	0.01961	0.00001	0.88851	0.00023
26	0.94064	0.00005	0.93520	0.00007	0.98887	0.00000	0.01113	0.00000	0.93658	0.00005
27	0.90514	0.00011	0.90275	0.00017	0.98260	0.00001	0.01740	0.00001	0.90199	0.00017
28	0.91374	0.00007	0.89870	0.00015	0.98386	0.00000	0.01614	0.00000	0.90290	0.00013
29	0.84996	0.00067	0.85198	0.00061	0.97330	0.00002	0.02670	0.00002	0.84934	0.00062
30	0.90905	0.00005	0.89140	0.00014	0.98289	0.00000	0.01711	0.00000	0.89645	0.00012
31	0.86871	0.00020	0.86928	0.00032	0.97610	0.00001	0.02390	0.00001	0.86723	0.00025
32	0.93905	0.00011	0.93258	0.00019	0.98834	0.00000	0.01166	0.00000	0.93358	0.00016
33	0.76731	0.00030	0.63942	0.00035	0.94530	0.00001	0.05470	0.00001	0.64709	0.00064
34	0.77136	0.00151	0.63572	0.00073	0.94573	0.00002	0.05427	0.00002	0.64854	0.00091
35	0.84337	0.00046	0.84486	0.00038	0.97186	0.00001	0.02814	0.00001	0.84230	0.00042
36	0.90179	0.00010	0.88527	0.00013	0.98169	0.00000	0.01831	0.00000	0.89033	0.00014
37	0.87501	0.00037	0.87883	0.00036	0.97788	0.00001	0.02212	0.00001	0.87473	0.00036
38	0.92179	0.00008	0.91719	0.00020	0.98554	0.00000	0.01446	0.00000	0.91756	0.00015
39	0.90100	0.00012	0.90035	0.00009	0.98183	0.00000	0.01817	0.00000	0.89860	0.00012
40	0.90232	0.00008	0.88955	0.00017	0.98164	0.00000	0.01836	0.00000	0.89210	0.00017
41	0.86080	0.00020	0.86116	0.00010	0.97499	0.00000	0.02501	0.00000	0.85882	0.00015
42	0.90004	0.00007	0.88587	0.00021	0.98125	0.00000	0.01875	0.00000	0.88901	0.00020
43	0.86008	0.00013	0.86163	0.00008	0.97431	0.00000	0.02569	0.00000	0.85848	0.00011
44	0.92005	0.00014	0.91400	0.00022	0.98477	0.00001	0.01523	0.00001	0.91373	0.00020
45	0.79900	0.00027	0.68445	0.00069	0.95248	0.00002	0.04752	0.00002	0.69465	0.00074
46	0.79302	0.00027	0.66093	0.00018	0.94998	0.00001	0.05002	0.00001	0.67410	0.00021
47	0.83829	0.00019	0.83991	0.00023	0.97094	0.00001	0.02906	0.00001	0.83670	0.00020
48	0.88912	0.00008	0.87247	0.00022	0.97918	0.00000	0.02082	0.00000	0.87702	0.00018
49	0.91790	0.00008	0.91520	0.00012	0.98545	0.00000	0.01455	0.00000	0.91548	0.00009
50	0.96223	0.00007	0.95366	0.00011	0.99272	0.00000	0.00728	0.00000	0.95695	0.00009
51	0.91693	0.00026	0.91202	0.00022	0.98448	0.00001	0.01552	0.00001	0.91304	0.00024
52	0.92544	0.00005	0.91060	0.00010	0.98583	0.00000	0.01417	0.00000	0.91570	0.00008
53	0.84392	0.00015	0.84718	0.00014	0.97248	0.00000	0.02752	0.00000	0.84309	0.00013
54	0.92019	0.00009	0.90309	0.00012	0.98487	0.00000	0.01513	0.00000	0.90934	0.00012
55	0.90598	0.00010	0.90016	0.00013	0.98265	0.00000	0.01735	0.00000	0.90207	0.00010
56	0.97019	0.00006	0.96164	0.00008	0.99402	0.00000	0.00598	0.00000	0.96495	0.00006
57	0.68033	0.00302	0.48985	0.00108	0.91822	0.00007	0.08178	0.00007	0.47390	0.00062
58	0.72746	0.00183	0.57138	0.00051	0.93388	0.00001	0.06612	0.00001	0.57991	0.00077
59	0.83185	0.00015	0.83751	0.00016	0.97070	0.00000	0.02930	0.00000	0.83278	0.00015
60	0.90941	0.00005	0.89353	0.00013	0.98308	0.00000	0.01692	0.00000	0.89936	0.00009

Table 57. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 0.3 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.86771	0.00022	0.86771	0.00022	0.97354	0.00001	0.02646	0.00001	0.86771	0.00022
2	0.86916	0.00023	0.86916	0.00023	0.97383	0.00001	0.02617	0.00001	0.86916	0.00023
3	0.84988	0.00017	0.84988	0.00017	0.96998	0.00001	0.03002	0.00001	0.84988	0.00017
4	0.81952	0.00027	0.81952	0.00027	0.96390	0.00001	0.03610	0.00001	0.81952	0.00027
5	0.85084	0.00038	0.85084	0.00038	0.97017	0.00002	0.02983	0.00002	0.85084	0.00038
6	0.81614	0.00038	0.81614	0.00038	0.96323	0.00002	0.03677	0.00002	0.81614	0.00038
7	0.84940	0.00009	0.84940	0.00009	0.96988	0.00000	0.03012	0.00000	0.84940	0.00009
8	0.85157	0.00015	0.85157	0.00015	0.97031	0.00001	0.02969	0.00001	0.85157	0.00015
9	0.48940	0.00348	0.48940	0.00348	0.89788	0.00014	0.10212	0.00014	0.48940	0.00348
10	0.56458	0.00067	0.56458	0.00067	0.91292	0.00003	0.08708	0.00003	0.56458	0.00067
11	0.85349	0.00019	0.85349	0.00019	0.97070	0.00001	0.02930	0.00001	0.85349	0.00019
12	0.79928	0.00046	0.79928	0.00046	0.95986	0.00002	0.04014	0.00002	0.79928	0.00046
13	0.90530	0.00011	0.90530	0.00011	0.98106	0.00000	0.01894	0.00000	0.90530	0.00011
14	0.91133	0.00021	0.91133	0.00021	0.98227	0.00001	0.01773	0.00001	0.91133	0.00021
15	0.82988	0.00014	0.82988	0.00014	0.96598	0.00001	0.03402	0.00001	0.82988	0.00014
16	0.82771	0.00056	0.82771	0.00056	0.96554	0.00002	0.03446	0.00002	0.82771	0.00056
17	0.82169	0.00036	0.82169	0.00036	0.96434	0.00001	0.03566	0.00001	0.82169	0.00036
18	0.82386	0.00024	0.82386	0.00024	0.96477	0.00001	0.03523	0.00001	0.82386	0.00024
19	0.90458	0.00022	0.90458	0.00022	0.98092	0.00001	0.01908	0.00001	0.90458	0.00022
20	0.94000	0.00007	0.94000	0.00007	0.98800	0.00000	0.01200	0.00000	0.94000	0.00007
21	0.29133	0.00050	0.29133	0.00050	0.85827	0.00002	0.14173	0.00002	0.29133	0.00050
22	0.40602	0.00051	0.40602	0.00051	0.88120	0.00002	0.11880	0.00002	0.40602	0.00051
23	0.79373	0.00038	0.79373	0.00038	0.95875	0.00002	0.04125	0.00002	0.79373	0.00038
24	0.79904	0.00038	0.79904	0.00038	0.95981	0.00002	0.04019	0.00002	0.79904	0.00038
25	0.90193	0.00016	0.90193	0.00016	0.98039	0.00001	0.01961	0.00001	0.90193	0.00016
26	0.91181	0.00010	0.91181	0.00010	0.98236	0.00000	0.01764	0.00000	0.91181	0.00010
27	0.86940	0.00019	0.86940	0.00019	0.97388	0.00001	0.02612	0.00001	0.86940	0.00019
28	0.86169	0.00021	0.86169	0.00021	0.97234	0.00001	0.02766	0.00001	0.86169	0.00021
29	0.86651	0.00050	0.86651	0.00050	0.97330	0.00002	0.02670	0.00002	0.86651	0.00050
30	0.84313	0.00005	0.84313	0.00005	0.96863	0.00000	0.03137	0.00000	0.84313	0.00005
31	0.88048	0.00016	0.88048	0.00016	0.97610	0.00001	0.02390	0.00001	0.88048	0.00016
32	0.90819	0.00007	0.90819	0.00007	0.98164	0.00000	0.01836	0.00000	0.90819	0.00007
33	0.38145	0.00158	0.38145	0.00158	0.87629	0.00006	0.12371	0.00006	0.38145	0.00158
34	0.46651	0.00180	0.46651	0.00180	0.89330	0.00007	0.10670	0.00007	0.46651	0.00180
35	0.85904	0.00031	0.85904	0.00031	0.97181	0.00001	0.02819	0.00001	0.85904	0.00031
36	0.83349	0.00037	0.83349	0.00037	0.96670	0.00001	0.03330	0.00001	0.83349	0.00037
37	0.88940	0.00030	0.88940	0.00030	0.97788	0.00001	0.02212	0.00001	0.88940	0.00030
38	0.90096	0.00016	0.90096	0.00016	0.98019	0.00001	0.01981	0.00001	0.90096	0.00016
39	0.86506	0.00009	0.86506	0.00009	0.97301	0.00000	0.02699	0.00000	0.86506	0.00009
40	0.84795	0.00027	0.84795	0.00027	0.96959	0.00001	0.03041	0.00001	0.84795	0.00027
41	0.86723	0.00006	0.86723	0.00006	0.97345	0.00000	0.02655	0.00000	0.86723	0.00006
42	0.83542	0.00017	0.83542	0.00017	0.96708	0.00001	0.03292	0.00001	0.83542	0.00017
43	0.87157	0.00010	0.87157	0.00010	0.97431	0.00000	0.02569	0.00000	0.87157	0.00010
44	0.89566	0.00016	0.89566	0.00016	0.97913	0.00001	0.02087	0.00001	0.89566	0.00016
45	0.38578	0.00117	0.38578	0.00117	0.87716	0.00005	0.12284	0.00005	0.38578	0.00117
46	0.51325	0.00163	0.51325	0.00163	0.90265	0.00007	0.09735	0.00007	0.51325	0.00163
47	0.85735	0.00012	0.85735	0.00012	0.97147	0.00000	0.02853	0.00000	0.85735	0.00012
48	0.82699	0.00023	0.82699	0.00023	0.96540	0.00001	0.03460	0.00001	0.82699	0.00023
49	0.91542	0.00016	0.91542	0.00016	0.98308	0.00001	0.01692	0.00001	0.91542	0.00016
50	0.91880	0.00018	0.91880	0.00018	0.98376	0.00001	0.01624	0.00001	0.91880	0.00018
51	0.84867	0.00009	0.84867	0.00009	0.96973	0.00000	0.03027	0.00000	0.84867	0.00009
52	0.85783	0.00019	0.85783	0.00019	0.97157	0.00001	0.02843	0.00001	0.85783	0.00019
53	0.85542	0.00009	0.85542	0.00009	0.97108	0.00000	0.02892	0.00000	0.85542	0.00009
54	0.84313	0.00015	0.84313	0.00015	0.96863	0.00001	0.03137	0.00001	0.84313	0.00015
55	0.91325	0.00007	0.91325	0.00007	0.98265	0.00000	0.01735	0.00000	0.91325	0.00007
56	0.93157	0.00014	0.93157	0.00014	0.98631	0.00001	0.01369	0.00001	0.93157	0.00014
57	0.26241	0.00065	0.26241	0.00065	0.85248	0.00003	0.14752	0.00003	0.26241	0.00065
58	0.41301	0.00128	0.41301	0.00128	0.88260	0.00005	0.11740	0.00005	0.41301	0.00128
59	0.84578	0.00026	0.84578	0.00026	0.96916	0.00001	0.03084	0.00001	0.84578	0.00026
60	0.82120	0.00021	0.82120	0.00021	0.96424	0.00001	0.03576	0.00001	0.82120	0.00021

Table 58. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 0.3 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.86771	0.00022	0.86771	0.00022	0.97354	0.00001	0.02646	0.00001	0.86771	0.00022
2	0.89542	0.00016	0.89542	0.00016	0.97908	0.00001	0.02092	0.00001	0.89542	0.00016
3	0.87446	0.00021	0.87446	0.00021	0.97489	0.00001	0.02511	0.00001	0.87446	0.00021
4	0.85831	0.00018	0.85831	0.00018	0.97166	0.00001	0.02834	0.00001	0.85831	0.00018
5	0.85614	0.00029	0.85614	0.00029	0.97123	0.00001	0.02877	0.00001	0.85614	0.00029
6	0.86434	0.00031	0.86434	0.00031	0.97287	0.00001	0.02713	0.00001	0.86434	0.00031
7	0.84940	0.00009	0.84940	0.00009	0.96988	0.00000	0.03012	0.00000	0.84940	0.00009
8	0.87229	0.00025	0.87229	0.00025	0.97446	0.00001	0.02554	0.00001	0.87229	0.00025
9	0.62578	0.00108	0.62578	0.00108	0.92516	0.00004	0.07484	0.00004	0.62578	0.00108
10	0.64988	0.00050	0.64988	0.00050	0.92998	0.00002	0.07002	0.00002	0.64988	0.00050
11	0.85590	0.00013	0.85590	0.00013	0.97118	0.00001	0.02882	0.00001	0.85590	0.00013
12	0.84530	0.00019	0.84530	0.00019	0.96906	0.00001	0.03094	0.00001	0.84530	0.00019
13	0.90867	0.00005	0.90867	0.00005	0.98173	0.00000	0.01827	0.00000	0.90867	0.00005
14	0.93904	0.00007	0.93904	0.00007	0.98781	0.00000	0.01219	0.00000	0.93904	0.00007
15	0.88000	0.00036	0.88000	0.00036	0.97600	0.00001	0.02400	0.00001	0.88000	0.00036
16	0.88289	0.00015	0.88289	0.00015	0.97658	0.00001	0.02342	0.00001	0.88289	0.00015
17	0.82120	0.00044	0.82120	0.00044	0.96424	0.00002	0.03576	0.00002	0.82120	0.00044
18	0.87349	0.00011	0.87349	0.00011	0.97470	0.00000	0.02530	0.00000	0.87349	0.00011
19	0.90458	0.00022	0.90458	0.00022	0.98092	0.00001	0.01908	0.00001	0.90458	0.00022
20	0.94916	0.00007	0.94916	0.00007	0.98983	0.00000	0.01017	0.00000	0.94916	0.00007
21	0.37759	0.00153	0.37759	0.00153	0.87552	0.00006	0.12448	0.00006	0.37759	0.00153
22	0.47735	0.00064	0.47735	0.00064	0.89547	0.00003	0.10453	0.00003	0.47735	0.00064
23	0.79325	0.00038	0.79325	0.00038	0.95865	0.00002	0.04135	0.00002	0.79325	0.00038
24	0.85422	0.00027	0.85422	0.00027	0.97084	0.00001	0.02916	0.00001	0.85422	0.00027
25	0.90193	0.00016	0.90193	0.00016	0.98039	0.00001	0.01961	0.00001	0.90193	0.00016
26	0.92675	0.00011	0.92675	0.00011	0.98535	0.00000	0.01465	0.00000	0.92675	0.00011
27	0.90072	0.00021	0.90072	0.00021	0.98014	0.00001	0.01986	0.00001	0.90072	0.00021
28	0.89157	0.00019	0.89157	0.00019	0.97831	0.00001	0.02169	0.00001	0.89157	0.00019
29	0.86651	0.00050	0.86651	0.00050	0.97330	0.00002	0.02670	0.00002	0.86651	0.00050
30	0.89133	0.00014	0.89133	0.00014	0.97827	0.00001	0.02173	0.00001	0.89133	0.00014
31	0.88048	0.00016	0.88048	0.00016	0.97610	0.00001	0.02390	0.00001	0.88048	0.00016
32	0.91783	0.00007	0.91783	0.00007	0.98357	0.00000	0.01643	0.00000	0.91783	0.00007
33	0.51205	0.00073	0.51205	0.00073	0.90241	0.00003	0.09759	0.00003	0.51205	0.00073
34	0.56241	0.00067	0.56241	0.00067	0.91248	0.00003	0.08752	0.00003	0.56241	0.00067
35	0.85928	0.00031	0.85928	0.00031	0.97186	0.00001	0.02814	0.00001	0.85928	0.00031
36	0.87446	0.00011	0.87446	0.00011	0.97489	0.00000	0.02511	0.00000	0.87446	0.00011
37	0.88940	0.00030	0.88940	0.00030	0.97788	0.00001	0.02212	0.00001	0.88940	0.00030
38	0.92072	0.00011	0.92072	0.00011	0.98414	0.00000	0.01586	0.00000	0.92072	0.00011
39	0.89687	0.00011	0.89687	0.00011	0.97937	0.00000	0.02063	0.00000	0.89687	0.00011
40	0.88940	0.00015	0.88940	0.00015	0.97788	0.00001	0.02212	0.00001	0.88940	0.00015
41	0.87494	0.00012	0.87494	0.00012	0.97499	0.00000	0.02501	0.00000	0.87494	0.00012
42	0.87976	0.00012	0.87976	0.00012	0.97595	0.00000	0.02405	0.00000	0.87976	0.00012
43	0.87157	0.00010	0.87157	0.00010	0.97431	0.00000	0.02569	0.00000	0.87157	0.00010
44	0.90747	0.00015	0.90747	0.00015	0.98149	0.00001	0.01851	0.00001	0.90747	0.00015
45	0.58964	0.00042	0.58964	0.00042	0.91793	0.00002	0.08207	0.00002	0.58964	0.00042
46	0.60434	0.00086	0.60434	0.00086	0.92087	0.00003	0.07913	0.00003	0.60434	0.00086
47	0.85470	0.00014	0.85470	0.00014	0.97094	0.00001	0.02906	0.00001	0.85470	0.00014
48	0.86627	0.00008	0.86627	0.00008	0.97325	0.00000	0.02675	0.00000	0.86627	0.00008
49	0.92723	0.00007	0.92723	0.00007	0.98545	0.00000	0.01455	0.00000	0.92723	0.00007
50	0.94000	0.00009	0.94000	0.00009	0.98800	0.00000	0.01200	0.00000	0.94000	0.00009
51	0.88627	0.00010	0.88627	0.00010	0.97725	0.00000	0.02275	0.00000	0.88627	0.00010
52	0.89373	0.00016	0.89373	0.00016	0.97875	0.00001	0.02125	0.00001	0.89373	0.00016
53	0.86241	0.00011	0.86241	0.00011	0.97248	0.00000	0.02752	0.00000	0.86241	0.00011
54	0.89012	0.00014	0.89012	0.00014	0.97802	0.00001	0.02198	0.00001	0.89012	0.00014
55	0.91325	0.00007	0.91325	0.00007	0.98265	0.00000	0.01735	0.00000	0.91325	0.00007
56	0.94000	0.00013	0.94000	0.00013	0.98800	0.00001	0.01200	0.00001	0.94000	0.00013
57	0.36530	0.00230	0.36530	0.00230	0.87306	0.00009	0.12694	0.00009	0.36530	0.00230
58	0.52458	0.00105	0.52458	0.00105	0.90492	0.00004	0.09508	0.00004	0.52458	0.00105
59	0.85349	0.00010	0.85349	0.00010	0.97070	0.00000	0.02930	0.00000	0.85349	0.00010
60	0.87590	0.00012	0.87590	0.00012	0.97518	0.00000	0.02482	0.00000	0.87590	0.00012

Table 59. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 0.3 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.86771	0.00022	0.86771	0.00022	0.97354	0.00001	0.02646	0.00001	0.86771	0.00022
2	0.90337	0.00017	0.90337	0.00017	0.98067	0.00001	0.01933	0.00001	0.90337	0.00017
3	0.88169	0.00013	0.88169	0.00013	0.97634	0.00001	0.02366	0.00001	0.88169	0.00013
4	0.87325	0.00018	0.87325	0.00018	0.97465	0.00001	0.02535	0.00001	0.87325	0.00018
5	0.85614	0.00029	0.85614	0.00029	0.97123	0.00001	0.02877	0.00001	0.85614	0.00029
6	0.86723	0.00018	0.86723	0.00018	0.97345	0.00001	0.02655	0.00001	0.86723	0.00018
7	0.84940	0.00009	0.84940	0.00009	0.96988	0.00000	0.03012	0.00000	0.84940	0.00009
8	0.90241	0.00027	0.90241	0.00027	0.98048	0.00001	0.01952	0.00001	0.90241	0.00027
9	0.74048	0.00019	0.74048	0.00019	0.94810	0.00001	0.05190	0.00001	0.74048	0.00019
10	0.73639	0.00031	0.73639	0.00031	0.94728	0.00001	0.05272	0.00001	0.73639	0.00031
11	0.85590	0.00013	0.85590	0.00013	0.97118	0.00001	0.02882	0.00001	0.85590	0.00013
12	0.86048	0.00017	0.86048	0.00017	0.97210	0.00001	0.02790	0.00001	0.86048	0.00017
13	0.90867	0.00005	0.90867	0.00005	0.98173	0.00000	0.01827	0.00000	0.90867	0.00005
14	0.95277	0.00008	0.95277	0.00008	0.99055	0.00000	0.00945	0.00000	0.95277	0.00008
15	0.90410	0.00020	0.90410	0.00020	0.98082	0.00001	0.01918	0.00001	0.90410	0.00020
16	0.91036	0.00017	0.91036	0.00017	0.98207	0.00001	0.01793	0.00001	0.91036	0.00017
17	0.82120	0.00044	0.82120	0.00044	0.96424	0.00002	0.03576	0.00002	0.82120	0.00044
18	0.90169	0.00020	0.90169	0.00020	0.98034	0.00001	0.01966	0.00001	0.90169	0.00020
19	0.90458	0.00022	0.90458	0.00022	0.98092	0.00001	0.01908	0.00001	0.90458	0.00022
20	0.96675	0.00007	0.96675	0.00007	0.99335	0.00000	0.00665	0.00000	0.96675	0.00007
21	0.47036	0.00113	0.47036	0.00113	0.89407	0.00005	0.10593	0.00005	0.47036	0.00113
22	0.58000	0.00042	0.58000	0.00042	0.91600	0.00002	0.08400	0.00002	0.58000	0.00042
23	0.79325	0.00038	0.79325	0.00038	0.95865	0.00002	0.04135	0.00002	0.79325	0.00038
24	0.89036	0.00017	0.89036	0.00017	0.97807	0.00001	0.02193	0.00001	0.89036	0.00017
25	0.90193	0.00016	0.90193	0.00016	0.98039	0.00001	0.01961	0.00001	0.90193	0.00016
26	0.94000	0.00008	0.94000	0.00008	0.98800	0.00000	0.01200	0.00000	0.94000	0.00008
27	0.91301	0.00013	0.91301	0.00013	0.98260	0.00001	0.01740	0.00001	0.91301	0.00013
28	0.91566	0.00014	0.91566	0.00014	0.98313	0.00001	0.01687	0.00001	0.91566	0.00014
29	0.86651	0.00050	0.86651	0.00050	0.97330	0.00002	0.02670	0.00002	0.86651	0.00050
30	0.90578	0.00015	0.90578	0.00015	0.98116	0.00001	0.01884	0.00001	0.90578	0.00015
31	0.88048	0.00016	0.88048	0.00016	0.97610	0.00001	0.02390	0.00001	0.88048	0.00016
32	0.94699	0.00012	0.94699	0.00012	0.98940	0.00000	0.01060	0.00000	0.94699	0.00012
33	0.63422	0.00123	0.63422	0.00123	0.92684	0.00005	0.07316	0.00005	0.63422	0.00123
34	0.67518	0.00037	0.67518	0.00037	0.93504	0.00001	0.06496	0.00001	0.67518	0.00037
35	0.85928	0.00031	0.85928	0.00031	0.97186	0.00001	0.02814	0.00001	0.85928	0.00031
36	0.89373	0.00007	0.89373	0.00007	0.97875	0.00000	0.02125	0.00000	0.89373	0.00007
37	0.88940	0.00030	0.88940	0.00030	0.97788	0.00001	0.02212	0.00001	0.88940	0.00030
38	0.93012	0.00013	0.93012	0.00013	0.98602	0.00001	0.01398	0.00001	0.93012	0.00013
39	0.90916	0.00012	0.90916	0.00012	0.98183	0.00000	0.01817	0.00000	0.90916	0.00012
40	0.90048	0.00022	0.90048	0.00022	0.98010	0.00001	0.01990	0.00001	0.90048	0.00022
41	0.87494	0.00012	0.87494	0.00012	0.97499	0.00000	0.02501	0.00000	0.87494	0.00012
42	0.89639	0.00009	0.89639	0.00009	0.97928	0.00000	0.02072	0.00000	0.89639	0.00009
43	0.87157	0.00010	0.87157	0.00010	0.97431	0.00000	0.02569	0.00000	0.87157	0.00010
44	0.93373	0.00015	0.93373	0.00015	0.98675	0.00001	0.01325	0.00001	0.93373	0.00015
45	0.70795	0.00033	0.70795	0.00033	0.94159	0.00001	0.05841	0.00001	0.70795	0.00033
46	0.70771	0.00029	0.70771	0.00029	0.94154	0.00001	0.05846	0.00001	0.70771	0.00029
47	0.85470	0.00014	0.85470	0.00014	0.97094	0.00001	0.02906	0.00001	0.85470	0.00014
48	0.88313	0.00009	0.88313	0.00009	0.97663	0.00000	0.02337	0.00000	0.88313	0.00009
49	0.92723	0.00007	0.92723	0.00007	0.98545	0.00000	0.01455	0.00000	0.92723	0.00007
50	0.95229	0.00010	0.95229	0.00010	0.99046	0.00000	0.00954	0.00000	0.95229	0.00010
51	0.91181	0.00010	0.91181	0.00010	0.98236	0.00000	0.01764	0.00000	0.91181	0.00010
52	0.91711	0.00009	0.91711	0.00009	0.98342	0.00000	0.01658	0.00000	0.91711	0.00009
53	0.86241	0.00011	0.86241	0.00011	0.97248	0.00000	0.02752	0.00000	0.86241	0.00011
54	0.90771	0.00011	0.90771	0.00011	0.98154	0.00000	0.01846	0.00000	0.90771	0.00011
55	0.91325	0.00007	0.91325	0.00007	0.98265	0.00000	0.01735	0.00000	0.91325	0.00007
56	0.96337	0.00004	0.96337	0.00004	0.99267	0.00000	0.00733	0.00000	0.96337	0.00004
57	0.44699	0.00285	0.44699	0.00285	0.88940	0.00011	0.11060	0.00011	0.44699	0.00285
58	0.60819	0.00033	0.60819	0.00033	0.92164	0.00001	0.07836	0.00001	0.60819	0.00033
59	0.85349	0.00010	0.85349	0.00010	0.97070	0.00000	0.02930	0.00000	0.85349	0.00010
60	0.89831	0.00016	0.89831	0.00016	0.97966	0.00001	0.02034	0.00001	0.89831	0.00016

Table 60. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 0.3 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.86771	0.00022	0.86771	0.00022	0.97354	0.00001	0.02646	0.00001	0.86771	0.00022
2	0.88964	0.00016	0.88964	0.00016	0.97793	0.00001	0.02207	0.00001	0.88964	0.00016
3	0.88169	0.00013	0.88169	0.00013	0.97634	0.00001	0.02366	0.00001	0.88169	0.00013
4	0.87518	0.00013	0.87518	0.00013	0.97504	0.00001	0.02496	0.00001	0.87518	0.00013
5	0.85614	0.00029	0.85614	0.00029	0.97123	0.00001	0.02877	0.00001	0.85614	0.00029
6	0.87301	0.00013	0.87301	0.00013	0.97460	0.00001	0.02540	0.00001	0.87301	0.00013
7	0.84940	0.00009	0.84940	0.00009	0.96988	0.00000	0.03012	0.00000	0.84940	0.00009
8	0.89205	0.00015	0.89205	0.00015	0.97841	0.00001	0.02159	0.00001	0.89205	0.00015
9	0.78313	0.00024	0.78313	0.00024	0.95663	0.00001	0.04337	0.00001	0.78313	0.00024
10	0.78530	0.00029	0.78530	0.00029	0.95706	0.00001	0.04294	0.00001	0.78530	0.00029
11	0.85590	0.00013	0.85590	0.00013	0.97118	0.00001	0.02882	0.00001	0.85590	0.00013
12	0.87229	0.00011	0.87229	0.00011	0.97446	0.00000	0.02554	0.00000	0.87229	0.00011
13	0.90867	0.00005	0.90867	0.00005	0.98173	0.00000	0.01827	0.00000	0.90867	0.00005
14	0.96169	0.00008	0.96169	0.00008	0.99234	0.00000	0.00766	0.00000	0.96169	0.00008
15	0.90602	0.00013	0.90602	0.00013	0.98120	0.00001	0.01880	0.00001	0.90602	0.00013
16	0.92723	0.00003	0.92723	0.00003	0.98545	0.00000	0.01455	0.00000	0.92723	0.00003
17	0.82120	0.00044	0.82120	0.00044	0.96424	0.00002	0.03576	0.00002	0.82120	0.00044
18	0.91783	0.00006	0.91783	0.00006	0.98357	0.00000	0.01643	0.00000	0.91783	0.00006
19	0.90458	0.00022	0.90458	0.00022	0.98092	0.00001	0.01908	0.00001	0.90458	0.00022
20	0.97036	0.00010	0.97036	0.00010	0.99407	0.00000	0.00593	0.00000	0.97036	0.00010
21	0.58361	0.00071	0.58361	0.00071	0.91672	0.00003	0.08328	0.00003	0.58361	0.00071
22	0.64169	0.00033	0.64169	0.00033	0.92834	0.00001	0.07166	0.00001	0.64169	0.00033
23	0.79325	0.00038	0.79325	0.00038	0.95865	0.00002	0.04135	0.00002	0.79325	0.00038
24	0.90747	0.00004	0.90747	0.00004	0.98149	0.00000	0.01851	0.00000	0.90747	0.00004
25	0.90193	0.00016	0.90193	0.00016	0.98039	0.00001	0.01961	0.00001	0.90193	0.00016
26	0.94434	0.00004	0.94434	0.00004	0.98887	0.00000	0.01113	0.00000	0.94434	0.00004
27	0.91301	0.00013	0.91301	0.00013	0.98260	0.00001	0.01740	0.00001	0.91301	0.00013
28	0.91928	0.00008	0.91928	0.00008	0.98386	0.00000	0.01614	0.00000	0.91928	0.00008
29	0.86651	0.00050	0.86651	0.00050	0.97330	0.00002	0.02670	0.00002	0.86651	0.00050
30	0.91446	0.00005	0.91446	0.00005	0.98289	0.00000	0.01711	0.00000	0.91446	0.00005
31	0.88048	0.00016	0.88048	0.00016	0.97610	0.00001	0.02390	0.00001	0.88048	0.00016
32	0.94169	0.00009	0.94169	0.00009	0.98834	0.00000	0.01166	0.00000	0.94169	0.00009
33	0.72651	0.00019	0.72651	0.00019	0.94530	0.00001	0.05470	0.00001	0.72651	0.00019
34	0.72867	0.00038	0.72867	0.00038	0.94573	0.00002	0.05427	0.00002	0.72867	0.00038
35	0.85928	0.00031	0.85928	0.00031	0.97186	0.00001	0.02814	0.00001	0.85928	0.00031
36	0.90843	0.00009	0.90843	0.00009	0.98169	0.00000	0.01831	0.00000	0.90843	0.00009
37	0.88940	0.00030	0.88940	0.00030	0.97788	0.00001	0.02212	0.00001	0.88940	0.00030
38	0.92771	0.00012	0.92771	0.00012	0.98554	0.00000	0.01446	0.00000	0.92771	0.00012
39	0.90916	0.00012	0.90916	0.00012	0.98183	0.00000	0.01817	0.00000	0.90916	0.00012
40	0.90819	0.00009	0.90819	0.00009	0.98164	0.00000	0.01836	0.00000	0.90819	0.00009
41	0.87494	0.00012	0.87494	0.00012	0.97499	0.00000	0.02501	0.00000	0.87494	0.00012
42	0.90627	0.00010	0.90627	0.00010	0.98125	0.00000	0.01875	0.00000	0.90627	0.00010
43	0.87157	0.00010	0.87157	0.00010	0.97431	0.00000	0.02569	0.00000	0.87157	0.00010
44	0.92386	0.00013	0.92386	0.00013	0.98477	0.00001	0.01523	0.00001	0.92386	0.00013
45	0.76241	0.00039	0.76241	0.00039	0.95248	0.00002	0.04752	0.00002	0.76241	0.00039
46	0.74988	0.00014	0.74988	0.00014	0.94998	0.00001	0.05002	0.00001	0.74988	0.00014
47	0.85470	0.00014	0.85470	0.00014	0.97094	0.00001	0.02906	0.00001	0.85470	0.00014
48	0.89590	0.00009	0.89590	0.00009	0.97918	0.00000	0.02082	0.00000	0.89590	0.00009
49	0.92723	0.00007	0.92723	0.00007	0.98545	0.00000	0.01455	0.00000	0.92723	0.00007
50	0.96361	0.00007	0.96361	0.00007	0.99272	0.00000	0.00728	0.00000	0.96361	0.00007
51	0.92241	0.00018	0.92241	0.00018	0.98448	0.00001	0.01552	0.00001	0.92241	0.00018
52	0.92916	0.00004	0.92916	0.00004	0.98583	0.00000	0.01417	0.00000	0.92916	0.00004
53	0.86241	0.00011	0.86241	0.00011	0.97248	0.00000	0.02752	0.00000	0.86241	0.00011
54	0.92434	0.00006	0.92434	0.00006	0.98487	0.00000	0.01513	0.00000	0.92434	0.00006
55	0.91325	0.00007	0.91325	0.00007	0.98265	0.00000	0.01735	0.00000	0.91325	0.00007
56	0.97012	0.00005	0.97012	0.00005	0.99402	0.00000	0.00598	0.00000	0.97012	0.00005
57	0.59108	0.00185	0.59108	0.00185	0.91822	0.00007	0.08178	0.00007	0.59108	0.00185
58	0.66940	0.00031	0.66940	0.00031	0.93388	0.00001	0.06612	0.00001	0.66940	0.00031
59	0.85349	0.00010	0.85349	0.00010	0.97070	0.00000	0.02930	0.00000	0.85349	0.00010
60	0.91542	0.00004	0.91542	0.00004	0.98308	0.00000	0.01692	0.00000	0.91542	0.00004

Table 61. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 0.3 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.85548	0.00031	0.86337	0.00038	0.97364	0.00001	0.02636	0.00001	0.85521	0.00035
2	0.85540	0.00037	0.85758	0.00051	0.97345	0.00001	0.02655	0.00001	0.85203	0.00042
3	0.81417	0.00033	0.80236	0.00033	0.96549	0.00001	0.03451	0.00001	0.80311	0.00032
4	0.81061	0.00033	0.79431	0.00042	0.96342	0.00001	0.03658	0.00001	0.79399	0.00040
5	0.83697	0.00021	0.82943	0.00025	0.96949	0.00001	0.03051	0.00001	0.82811	0.00026
6	0.80114	0.00044	0.78423	0.00051	0.96236	0.00002	0.03764	0.00002	0.78396	0.00052
7	0.84056	0.00026	0.84542	0.00023	0.97070	0.00001	0.02930	0.00001	0.83802	0.00025
8	0.83828	0.00012	0.84170	0.00022	0.96954	0.00000	0.03046	0.00000	0.83332	0.00015
9	0.54633	0.00478	0.35370	0.00217	0.87865	0.00017	0.12135	0.00017	0.35651	0.00250
10	0.58987	0.00180	0.48251	0.00121	0.91224	0.00004	0.08776	0.00004	0.49440	0.00106
11	0.81422	0.00019	0.80139	0.00024	0.96520	0.00001	0.03480	0.00001	0.80330	0.00022
12	0.78800	0.00034	0.76496	0.00040	0.95971	0.00001	0.04029	0.00001	0.76888	0.00037
13	0.90371	0.00023	0.90196	0.00021	0.98294	0.00001	0.01706	0.00001	0.90185	0.00023
14	0.90189	0.00010	0.90121	0.00011	0.98222	0.00000	0.01778	0.00000	0.89971	0.00009
15	0.80593	0.00040	0.78061	0.00050	0.96145	0.00001	0.03855	0.00001	0.78542	0.00044
16	0.82368	0.00034	0.80500	0.00051	0.96564	0.00001	0.03436	0.00001	0.80855	0.00045
17	0.81169	0.00016	0.80385	0.00041	0.96487	0.00001	0.03513	0.00001	0.80431	0.00028
18	0.80609	0.00053	0.78326	0.00085	0.96207	0.00002	0.03793	0.00002	0.78772	0.00072
19	0.94010	0.00018	0.92805	0.00024	0.98834	0.00001	0.01166	0.00001	0.93273	0.00022
20	0.93604	0.00007	0.92586	0.00012	0.98771	0.00000	0.01229	0.00000	0.92970	0.00009
21	0.32281	0.00351	0.21872	0.00047	0.84959	0.00003	0.15041	0.00003	0.19201	0.00085
22	0.42957	0.00128	0.34052	0.00065	0.88010	0.00002	0.11990	0.00002	0.34672	0.00072
23	0.79087	0.00030	0.78372	0.00048	0.96101	0.00001	0.03899	0.00001	0.78375	0.00035
24	0.77457	0.00062	0.74868	0.00057	0.95552	0.00002	0.04448	0.00002	0.75404	0.00061
25	0.90449	0.00010	0.90965	0.00008	0.98299	0.00000	0.01701	0.00000	0.90530	0.00008
26	0.89951	0.00012	0.90114	0.00018	0.98164	0.00000	0.01836	0.00000	0.89806	0.00014
27	0.84647	0.00036	0.83604	0.00027	0.97094	0.00002	0.02906	0.00002	0.83716	0.00032
28	0.84465	0.00018	0.83321	0.00026	0.97099	0.00001	0.02901	0.00001	0.83351	0.00025
29	0.84834	0.00018	0.84633	0.00025	0.97239	0.00001	0.02761	0.00001	0.84499	0.00023
30	0.83566	0.00014	0.82136	0.00026	0.96887	0.00001	0.03113	0.00001	0.82295	0.00023
31	0.89973	0.00016	0.89927	0.00028	0.98159	0.00001	0.01841	0.00001	0.89782	0.00021
32	0.89720	0.00013	0.89848	0.00013	0.98120	0.00000	0.01880	0.00000	0.89566	0.00013
33	0.43235	0.00723	0.27118	0.00080	0.86058	0.00004	0.13942	0.00004	0.25128	0.00155
34	0.53902	0.00352	0.40825	0.00134	0.89446	0.00004	0.10554	0.00004	0.42439	0.00137
35	0.84183	0.00058	0.83830	0.00061	0.97137	0.00002	0.02863	0.00002	0.83771	0.00060
36	0.82658	0.00035	0.81111	0.00043	0.96737	0.00001	0.03263	0.00001	0.81411	0.00036
37	0.89099	0.00011	0.89354	0.00025	0.98010	0.00000	0.01990	0.00000	0.88965	0.00016
38	0.89107	0.00013	0.89393	0.00030	0.98029	0.00001	0.01971	0.00001	0.88945	0.00020
39	0.84130	0.00052	0.82937	0.00070	0.96998	0.00002	0.03002	0.00002	0.83088	0.00062
40	0.83247	0.00029	0.81890	0.00025	0.96834	0.00001	0.03166	0.00001	0.82001	0.00027
41	0.84852	0.00016	0.84497	0.00028	0.97253	0.00001	0.02747	0.00001	0.84414	0.00023
42	0.82626	0.00036	0.80723	0.00035	0.96680	0.00001	0.03320	0.00001	0.80942	0.00029
43	0.88205	0.00017	0.88513	0.00026	0.97855	0.00001	0.02145	0.00001	0.88135	0.00018
44	0.88368	0.00035	0.88560	0.00034	0.97841	0.00001	0.02159	0.00001	0.88168	0.00032
45	0.47771	0.00376	0.27665	0.00082	0.86063	0.00004	0.13937	0.00004	0.26621	0.00091
46	0.55553	0.00188	0.42335	0.00102	0.89928	0.00004	0.10072	0.00004	0.43866	0.00114
47	0.84679	0.00044	0.84063	0.00044	0.97210	0.00001	0.02790	0.00001	0.84119	0.00042
48	0.82130	0.00018	0.80118	0.00035	0.96593	0.00001	0.03407	0.00001	0.80496	0.00029
49	0.91483	0.00025	0.91424	0.00023	0.98487	0.00001	0.01513	0.00001	0.91329	0.00024
50	0.91279	0.00006	0.91178	0.00014	0.98429	0.00000	0.01571	0.00000	0.91070	0.00010
51	0.81436	0.00027	0.79278	0.00040	0.96458	0.00001	0.03542	0.00001	0.79794	0.00032
52	0.85044	0.00010	0.83869	0.00041	0.97142	0.00001	0.02858	0.00001	0.83996	0.00029
53	0.83279	0.00046	0.83042	0.00051	0.96964	0.00001	0.03036	0.00001	0.82940	0.00045
54	0.83673	0.00013	0.81836	0.00022	0.96858	0.00001	0.03142	0.00001	0.82023	0.00021
55	0.93443	0.00018	0.92332	0.00026	0.98737	0.00001	0.01263	0.00001	0.92734	0.00021
56	0.92353	0.00013	0.91840	0.00016	0.98598	0.00000	0.01402	0.00000	0.91983	0.00013
57	0.34408	0.00733	0.21061	0.00058	0.84655	0.00002	0.15345	0.00002	0.17391	0.00049
58	0.47129	0.00290	0.36228	0.00175	0.88352	0.00009	0.11648	0.00009	0.37043	0.00182
59	0.81775	0.00038	0.81408	0.00045	0.96655	0.00001	0.03345	0.00001	0.81343	0.00043
60	0.81544	0.00025	0.79960	0.00035	0.96511	0.00001	0.03489	0.00001	0.80216	0.00031

Table 62. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 0.7 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.87515	0.00039	0.88231	0.00050	0.97725	0.00002	0.02275	0.00002	0.87486	0.00051
2	0.88129	0.00033	0.88462	0.00046	0.97836	0.00001	0.02164	0.00001	0.87924	0.00042
3	0.85573	0.00029	0.84984	0.00032	0.97345	0.00001	0.02655	0.00001	0.84886	0.00034
4	0.84428	0.00010	0.83454	0.00008	0.97128	0.00000	0.02872	0.00000	0.83413	0.00008
5	0.86275	0.00018	0.85834	0.00019	0.97475	0.00000	0.02525	0.00000	0.85688	0.00017
6	0.84664	0.00036	0.83131	0.00047	0.97181	0.00001	0.02819	0.00001	0.83377	0.00050
7	0.86310	0.00033	0.86863	0.00027	0.97489	0.00001	0.02511	0.00001	0.86156	0.00034
8	0.86686	0.00044	0.86827	0.00043	0.97504	0.00001	0.02496	0.00001	0.86181	0.00044
9	0.63208	0.00113	0.44910	0.00102	0.90275	0.00008	0.09725	0.00008	0.44539	0.00083
10	0.65438	0.00397	0.53484	0.00099	0.92564	0.00003	0.07436	0.00003	0.54545	0.00127
11	0.86013	0.00016	0.85147	0.00021	0.97402	0.00001	0.02598	0.00001	0.85289	0.00020
12	0.83625	0.00010	0.81651	0.00014	0.96892	0.00000	0.03108	0.00000	0.82189	0.00010
13	0.93092	0.00012	0.92712	0.00009	0.98776	0.00000	0.01224	0.00000	0.92830	0.00011
14	0.93239	0.00005	0.92954	0.00004	0.98781	0.00000	0.01219	0.00000	0.92962	0.00004
15	0.85502	0.00034	0.84041	0.00055	0.97277	0.00001	0.02723	0.00001	0.84407	0.00047
16	0.87671	0.00017	0.86284	0.00017	0.97672	0.00001	0.02328	0.00001	0.86668	0.00015
17	0.87476	0.00020	0.86491	0.00016	0.97658	0.00001	0.02342	0.00001	0.86681	0.00024
18	0.86536	0.00020	0.84797	0.00035	0.97427	0.00001	0.02573	0.00001	0.85210	0.00030
19	0.95603	0.00009	0.93979	0.00007	0.99031	0.00000	0.00969	0.00000	0.94591	0.00007
20	0.94948	0.00011	0.93552	0.00016	0.98964	0.00000	0.01036	0.00000	0.94091	0.00014
21	0.38525	0.00472	0.27003	0.00207	0.86188	0.00008	0.13812	0.00008	0.23097	0.00216
22	0.51895	0.00229	0.38560	0.00119	0.89239	0.00004	0.10761	0.00004	0.39617	0.00095
23	0.84715	0.00032	0.84159	0.00036	0.97195	0.00001	0.02805	0.00001	0.84200	0.00036
24	0.83997	0.00020	0.81456	0.00030	0.96916	0.00000	0.03084	0.00000	0.82164	0.00022
25	0.92034	0.00016	0.92049	0.00010	0.98554	0.00000	0.01446	0.00000	0.91921	0.00013
26	0.92231	0.00012	0.92273	0.00011	0.98607	0.00000	0.01393	0.00000	0.92094	0.00012
27	0.88704	0.00014	0.88124	0.00014	0.97918	0.00001	0.02082	0.00001	0.88233	0.00014
28	0.88687	0.00015	0.87515	0.00031	0.97875	0.00001	0.02125	0.00001	0.87763	0.00023
29	0.88445	0.00016	0.88187	0.00014	0.97904	0.00001	0.02096	0.00001	0.88134	0.00015
30	0.87883	0.00007	0.86654	0.00019	0.97730	0.00000	0.02270	0.00000	0.86954	0.00010
31	0.91001	0.00024	0.90842	0.00025	0.98328	0.00001	0.01672	0.00001	0.90770	0.00024
32	0.90564	0.00008	0.90644	0.00010	0.98270	0.00000	0.01730	0.00000	0.90451	0.00009
33	0.52619	0.01136	0.33837	0.00154	0.87778	0.00007	0.12222	0.00007	0.31808	0.00212
34	0.62259	0.00242	0.48254	0.00058	0.91205	0.00003	0.08795	0.00003	0.49751	0.00058
35	0.88021	0.00030	0.87376	0.00046	0.97798	0.00001	0.02202	0.00001	0.87515	0.00042
36	0.86676	0.00015	0.85370	0.00017	0.97518	0.00000	0.02482	0.00000	0.85654	0.00012
37	0.91543	0.00011	0.91820	0.00007	0.98463	0.00000	0.01537	0.00000	0.91507	0.00010
38	0.91016	0.00019	0.91263	0.00022	0.98371	0.00001	0.01629	0.00001	0.90871	0.00021
39	0.88599	0.00018	0.88158	0.00018	0.97894	0.00001	0.02106	0.00001	0.88163	0.00019
40	0.87747	0.00019	0.86678	0.00021	0.97749	0.00001	0.02251	0.00001	0.86994	0.00020
41	0.88392	0.00020	0.88246	0.00025	0.97884	0.00001	0.02116	0.00001	0.88142	0.00024
42	0.87002	0.00030	0.85631	0.00029	0.97610	0.00001	0.02390	0.00001	0.85946	0.00028
43	0.89571	0.00032	0.89798	0.00037	0.98092	0.00001	0.01908	0.00001	0.89507	0.00034
44	0.89987	0.00021	0.90011	0.00022	0.98164	0.00001	0.01836	0.00001	0.89784	0.00022
45	0.61126	0.00202	0.40315	0.00214	0.89451	0.00010	0.10549	0.00010	0.40440	0.00208
46	0.65132	0.00210	0.50157	0.00088	0.91778	0.00003	0.08222	0.00003	0.51733	0.00084
47	0.87987	0.00013	0.87606	0.00013	0.97793	0.00000	0.02207	0.00000	0.87575	0.00012
48	0.85746	0.00017	0.84155	0.00022	0.97345	0.00001	0.02655	0.00001	0.84580	0.00019
49	0.92907	0.00009	0.92652	0.00007	0.98723	0.00000	0.01277	0.00000	0.92686	0.00007
50	0.93081	0.00011	0.92942	0.00006	0.98766	0.00000	0.01234	0.00000	0.92896	0.00007
51	0.87029	0.00016	0.85630	0.00021	0.97614	0.00001	0.02386	0.00001	0.86052	0.00019
52	0.89319	0.00007	0.88167	0.00007	0.97995	0.00000	0.02005	0.00000	0.88432	0.00005
53	0.88289	0.00015	0.87756	0.00018	0.97865	0.00000	0.02135	0.00000	0.87880	0.00016
54	0.87757	0.00015	0.86270	0.00012	0.97692	0.00000	0.02308	0.00000	0.86649	0.00011
55	0.94887	0.00020	0.93432	0.00027	0.98945	0.00001	0.01055	0.00001	0.93997	0.00025
56	0.93653	0.00010	0.92884	0.00013	0.98800	0.00000	0.01200	0.00000	0.93168	0.00010
57	0.40722	0.01200	0.26578	0.00171	0.86255	0.00011	0.13745	0.00011	0.22484	0.00165
58	0.55409	0.00240	0.43942	0.00117	0.90280	0.00004	0.09720	0.00004	0.44789	0.00119
59	0.86982	0.00020	0.86412	0.00022	0.97629	0.00001	0.02371	0.00001	0.86542	0.00022
60	0.86298	0.00011	0.84908	0.00032	0.97417	0.00001	0.02583	0.00001	0.85302	0.00024

Table 63. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 0.7 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88933	0.00032	0.89057	0.00035	0.97957	0.00001	0.02043	0.00001	0.88705	0.00037
2	0.90124	0.00024	0.89981	0.00030	0.98183	0.00001	0.01817	0.00001	0.89714	0.00029
3	0.87409	0.00028	0.86784	0.00049	0.97663	0.00001	0.02337	0.00001	0.86785	0.00041
4	0.86795	0.00021	0.85510	0.00040	0.97504	0.00001	0.02496	0.00001	0.85695	0.00036
5	0.88225	0.00011	0.87594	0.00018	0.97807	0.00000	0.02193	0.00000	0.87631	0.00014
6	0.86629	0.00020	0.84653	0.00036	0.97441	0.00001	0.02559	0.00001	0.85111	0.00033
7	0.88518	0.00018	0.88769	0.00017	0.97889	0.00001	0.02111	0.00001	0.88271	0.00018
8	0.89436	0.00029	0.88977	0.00047	0.98019	0.00001	0.01981	0.00001	0.88700	0.00045
9	0.73189	0.00109	0.56325	0.00177	0.92920	0.00010	0.07080	0.00010	0.57003	0.00170
10	0.72998	0.00214	0.63107	0.00038	0.94439	0.00001	0.05561	0.00001	0.63791	0.00054
11	0.87915	0.00019	0.87361	0.00032	0.97725	0.00001	0.02275	0.00001	0.87366	0.00028
12	0.85769	0.00017	0.84019	0.00028	0.97272	0.00001	0.02728	0.00001	0.84347	0.00027
13	0.94423	0.00016	0.93857	0.00018	0.98983	0.00000	0.01017	0.00000	0.94058	0.00016
14	0.94803	0.00007	0.94279	0.00008	0.99055	0.00000	0.00945	0.00000	0.94445	0.00007
15	0.89366	0.00015	0.87766	0.00021	0.98005	0.00001	0.01995	0.00001	0.88286	0.00019
16	0.90575	0.00014	0.89682	0.00025	0.98241	0.00000	0.01759	0.00000	0.89946	0.00019
17	0.89405	0.00016	0.88991	0.00015	0.98067	0.00000	0.01933	0.00000	0.89030	0.00016
18	0.89618	0.00015	0.88370	0.00031	0.98029	0.00001	0.01971	0.00001	0.88695	0.00024
19	0.96776	0.00004	0.95409	0.00004	0.99253	0.00000	0.00747	0.00000	0.95913	0.00003
20	0.97083	0.00007	0.95639	0.00015	0.99335	0.00000	0.00665	0.00000	0.96225	0.00012
21	0.52595	0.00239	0.32090	0.00261	0.87561	0.00018	0.12439	0.00018	0.30017	0.00207
22	0.61646	0.00353	0.47126	0.00030	0.91311	0.00001	0.08689	0.00001	0.47356	0.00045
23	0.88218	0.00023	0.87623	0.00030	0.97831	0.00001	0.02169	0.00001	0.87726	0.00028
24	0.87841	0.00020	0.85921	0.00029	0.97687	0.00001	0.02313	0.00001	0.86552	0.00023
25	0.93292	0.00015	0.93268	0.00014	0.98786	0.00000	0.01214	0.00000	0.93170	0.00014
26	0.93447	0.00007	0.93625	0.00012	0.98824	0.00000	0.01176	0.00000	0.93377	0.00009
27	0.90853	0.00015	0.90248	0.00019	0.98294	0.00001	0.01706	0.00001	0.90367	0.00017
28	0.90770	0.00018	0.89852	0.00030	0.98284	0.00001	0.01716	0.00001	0.90085	0.00027
29	0.90478	0.00022	0.90088	0.00031	0.98255	0.00001	0.01745	0.00001	0.90122	0.00027
30	0.89855	0.00018	0.88686	0.00021	0.98111	0.00001	0.01889	0.00001	0.88952	0.00022
31	0.93514	0.00018	0.93166	0.00017	0.98786	0.00001	0.01214	0.00001	0.93197	0.00017
32	0.94105	0.00018	0.93926	0.00023	0.98930	0.00001	0.01070	0.00001	0.93892	0.00020
33	0.64363	0.00108	0.42296	0.00574	0.90014	0.00022	0.09986	0.00022	0.41075	0.00553
34	0.70759	0.00150	0.57519	0.00084	0.93383	0.00003	0.06617	0.00003	0.57688	0.00097
35	0.89855	0.00008	0.89375	0.00010	0.98130	0.00000	0.01870	0.00000	0.89451	0.00009
36	0.88368	0.00008	0.87428	0.00012	0.97841	0.00000	0.02159	0.00000	0.87642	0.00010
37	0.92133	0.00021	0.92292	0.00022	0.98554	0.00001	0.01446	0.00001	0.92028	0.00023
38	0.92639	0.00008	0.92682	0.00017	0.98651	0.00000	0.01349	0.00000	0.92423	0.00014
39	0.90818	0.00014	0.90327	0.00022	0.98289	0.00000	0.01711	0.00000	0.90371	0.00017
40	0.89755	0.00013	0.88730	0.00021	0.98082	0.00001	0.01918	0.00001	0.88910	0.00019
41	0.90575	0.00018	0.90212	0.00022	0.98275	0.00000	0.01725	0.00000	0.90216	0.00020
42	0.88801	0.00013	0.87374	0.00018	0.97913	0.00001	0.02087	0.00001	0.87708	0.00017
43	0.92015	0.00022	0.92118	0.00024	0.98520	0.00001	0.01480	0.00001	0.91844	0.00022
44	0.92526	0.00026	0.92392	0.00042	0.98631	0.00001	0.01369	0.00001	0.92199	0.00036
45	0.71001	0.00109	0.51574	0.00259	0.91749	0.00011	0.08251	0.00011	0.51959	0.00242
46	0.71960	0.00224	0.60394	0.00044	0.93904	0.00002	0.06096	0.00002	0.60801	0.00060
47	0.89996	0.00005	0.89528	0.00011	0.98149	0.00000	0.01851	0.00000	0.89538	0.00007
48	0.87544	0.00010	0.85786	0.00022	0.97663	0.00000	0.02337	0.00000	0.86282	0.00019
49	0.94541	0.00020	0.94098	0.00018	0.99007	0.00001	0.00993	0.00001	0.94248	0.00019
50	0.94441	0.00010	0.94258	0.00012	0.99007	0.00000	0.00993	0.00000	0.94267	0.00011
51	0.90040	0.00016	0.88495	0.00024	0.98111	0.00001	0.01889	0.00001	0.88966	0.00020
52	0.90649	0.00015	0.89855	0.00010	0.98270	0.00000	0.01730	0.00000	0.90070	0.00011
53	0.90772	0.00016	0.90339	0.00011	0.98304	0.00000	0.01696	0.00000	0.90412	0.00010
54	0.90576	0.00015	0.89526	0.00027	0.98227	0.00000	0.01773	0.00000	0.89811	0.00021
55	0.96588	0.00004	0.95365	0.00008	0.99263	0.00000	0.00737	0.00000	0.95838	0.00005
56	0.96540	0.00005	0.95448	0.00009	0.99277	0.00000	0.00723	0.00000	0.95887	0.00005
57	0.56273	0.00692	0.31795	0.00249	0.87735	0.00015	0.12265	0.00015	0.29362	0.00321
58	0.62751	0.00281	0.52165	0.00083	0.92260	0.00002	0.07740	0.00002	0.52477	0.00127
59	0.89693	0.00019	0.89163	0.00022	0.98111	0.00001	0.01889	0.00001	0.89264	0.00022
60	0.89394	0.00019	0.88036	0.00025	0.98019	0.00001	0.01981	0.00001	0.88457	0.00022

Table 64. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 0.7 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88933	0.00032	0.89057	0.00035	0.97957	0.00001	0.02043	0.00001	0.88705	0.00037
2	0.90082	0.00012	0.89195	0.00018	0.98149	0.00000	0.01851	0.00000	0.89293	0.00016
3	0.86568	0.00015	0.84731	0.00020	0.97398	0.00001	0.02602	0.00001	0.85225	0.00017
4	0.87465	0.00016	0.85354	0.00024	0.97571	0.00001	0.02429	0.00001	0.85867	0.00023
5	0.87113	0.00014	0.85989	0.00024	0.97586	0.00001	0.02414	0.00001	0.86228	0.00020
6	0.87152	0.00013	0.84836	0.00017	0.97504	0.00000	0.02496	0.00000	0.85442	0.00017
7	0.88518	0.00018	0.88769	0.00017	0.97889	0.00001	0.02111	0.00001	0.88271	0.00018
8	0.88483	0.00027	0.87099	0.00048	0.97793	0.00001	0.02207	0.00001	0.87226	0.00043
9	0.80673	0.00011	0.63595	0.00149	0.94516	0.00007	0.05484	0.00007	0.64207	0.00076
10	0.80026	0.00108	0.66932	0.00046	0.95229	0.00001	0.04771	0.00001	0.67980	0.00061
11	0.87004	0.00018	0.85976	0.00021	0.97557	0.00001	0.02443	0.00001	0.86187	0.00019
12	0.86753	0.00006	0.84117	0.00014	0.97431	0.00000	0.02569	0.00000	0.84884	0.00010
13	0.95057	0.00010	0.94318	0.00011	0.99084	0.00000	0.00916	0.00000	0.94608	0.00011
14	0.95964	0.00008	0.94997	0.00010	0.99239	0.00000	0.00761	0.00000	0.95391	0.00009
15	0.92304	0.00007	0.90896	0.00011	0.98525	0.00000	0.01475	0.00000	0.91410	0.00008
16	0.92448	0.00006	0.90056	0.00013	0.98506	0.00000	0.01494	0.00000	0.90883	0.00009
17	0.90027	0.00002	0.89257	0.00002	0.98149	0.00000	0.01851	0.00000	0.89499	0.00001
18	0.91739	0.00008	0.89350	0.00007	0.98390	0.00000	0.01610	0.00000	0.90191	0.00006
19	0.96776	0.00004	0.95409	0.00004	0.99253	0.00000	0.00747	0.00000	0.95913	0.00003
20	0.97949	0.00005	0.96765	0.00011	0.99499	0.00000	0.00501	0.00000	0.97235	0.00009
21	0.65430	0.00223	0.42927	0.00078	0.90207	0.00006	0.09793	0.00006	0.41625	0.00091
22	0.69395	0.00196	0.53193	0.00047	0.92723	0.00002	0.07277	0.00002	0.53316	0.00050
23	0.88899	0.00018	0.88049	0.00012	0.97957	0.00001	0.02043	0.00001	0.88303	0.00015
24	0.90219	0.00007	0.87545	0.00021	0.98096	0.00000	0.01904	0.00000	0.88479	0.00015
25	0.93501	0.00022	0.93371	0.00016	0.98805	0.00001	0.01195	0.00001	0.93305	0.00018
26	0.95012	0.00005	0.94202	0.00011	0.99060	0.00000	0.00940	0.00000	0.94474	0.00008
27	0.92162	0.00010	0.91351	0.00015	0.98516	0.00000	0.01484	0.00000	0.91610	0.00012
28	0.91476	0.00004	0.89985	0.00015	0.98424	0.00000	0.01576	0.00000	0.90406	0.00011
29	0.91786	0.00010	0.90819	0.00017	0.98429	0.00000	0.01571	0.00000	0.91158	0.00012
30	0.91306	0.00007	0.89529	0.00009	0.98361	0.00000	0.01639	0.00000	0.90039	0.00011
31	0.93514	0.00018	0.93166	0.00017	0.98786	0.00001	0.01214	0.00001	0.93197	0.00017
32	0.95286	0.00011	0.94500	0.00018	0.99123	0.00000	0.00877	0.00000	0.94702	0.00017
33	0.73737	0.00258	0.56484	0.00059	0.93320	0.00003	0.06680	0.00003	0.55874	0.00081
34	0.76852	0.00156	0.60625	0.00053	0.94188	0.00002	0.05812	0.00002	0.61231	0.00068
35	0.90429	0.00017	0.89617	0.00033	0.98217	0.00001	0.01783	0.00001	0.89839	0.00026
36	0.90353	0.00011	0.88300	0.00013	0.98169	0.00000	0.01831	0.00000	0.88937	0.00014
37	0.92075	0.00020	0.92250	0.00021	0.98545	0.00001	0.01455	0.00001	0.91975	0.00022
38	0.93088	0.00014	0.92359	0.00017	0.98718	0.00001	0.01282	0.00001	0.92510	0.00017
39	0.90464	0.00010	0.89511	0.00008	0.98207	0.00000	0.01793	0.00000	0.89777	0.00009
40	0.90245	0.00009	0.88799	0.00017	0.98169	0.00000	0.01831	0.00000	0.89136	0.00016
41	0.90271	0.00010	0.89666	0.00012	0.98193	0.00000	0.01807	0.00000	0.89785	0.00010
42	0.90063	0.00007	0.88485	0.00018	0.98140	0.00000	0.01860	0.00000	0.88882	0.00015
43	0.92015	0.00022	0.92118	0.00024	0.98520	0.00001	0.01480	0.00001	0.91844	0.00022
44	0.93104	0.00011	0.92259	0.00018	0.98708	0.00000	0.01292	0.00000	0.92355	0.00017
45	0.78108	0.00212	0.60377	0.00147	0.93894	0.00006	0.06106	0.00006	0.60483	0.00125
46	0.78029	0.00116	0.64167	0.00006	0.94776	0.00000	0.05224	0.00000	0.64756	0.00009
47	0.89259	0.00009	0.88351	0.00011	0.98019	0.00000	0.01981	0.00000	0.88654	0.00009
48	0.89304	0.00011	0.87451	0.00023	0.97981	0.00000	0.02019	0.00000	0.88012	0.00020
49	0.95280	0.00007	0.94773	0.00007	0.99118	0.00000	0.00882	0.00000	0.94959	0.00007
50	0.96315	0.00014	0.95489	0.00011	0.99296	0.00000	0.00704	0.00000	0.95817	0.00012
51	0.92782	0.00009	0.91280	0.00013	0.98598	0.00000	0.01402	0.00000	0.91781	0.00012
52	0.92355	0.00007	0.90669	0.00009	0.98545	0.00000	0.01455	0.00000	0.91257	0.00009
53	0.92035	0.00016	0.91239	0.00012	0.98501	0.00000	0.01499	0.00000	0.91488	0.00012
54	0.91780	0.00006	0.89787	0.00013	0.98429	0.00000	0.01571	0.00000	0.90491	0.00011
55	0.96861	0.00003	0.95711	0.00009	0.99316	0.00000	0.00684	0.00000	0.96162	0.00006
56	0.97562	0.00005	0.96438	0.00006	0.99460	0.00000	0.00540	0.00000	0.96898	0.00005
57	0.64611	0.00520	0.43955	0.00214	0.90684	0.00016	0.09316	0.00016	0.42206	0.00161
58	0.72084	0.00292	0.56073	0.00077	0.93282	0.00002	0.06718	0.00002	0.56531	0.00110
59	0.90416	0.00024	0.89609	0.00018	0.98207	0.00001	0.01793	0.00001	0.89820	0.00018
60	0.91120	0.00004	0.89157	0.00011	0.98304	0.00000	0.01696	0.00000	0.89862	0.00007

Table 65. Macro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 0.7 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.86819	0.00030	0.86819	0.00030	0.97364	0.00001	0.02636	0.00001	0.86819	0.00030
2	0.86723	0.00022	0.86723	0.00022	0.97345	0.00001	0.02655	0.00001	0.86723	0.00022
3	0.82747	0.00028	0.82747	0.00028	0.96549	0.00001	0.03451	0.00001	0.82747	0.00028
4	0.81711	0.00036	0.81711	0.00036	0.96342	0.00001	0.03658	0.00001	0.81711	0.00036
5	0.84747	0.00016	0.84747	0.00016	0.96949	0.00001	0.03051	0.00001	0.84747	0.00016
6	0.81181	0.00039	0.81181	0.00039	0.96236	0.00002	0.03764	0.00002	0.81181	0.00039
7	0.85349	0.00019	0.85349	0.00019	0.97070	0.00001	0.02930	0.00001	0.85349	0.00019
8	0.84771	0.00011	0.84771	0.00011	0.96954	0.00000	0.03046	0.00000	0.84771	0.00011
9	0.39325	0.00425	0.39325	0.00425	0.87865	0.00017	0.12135	0.00017	0.39325	0.00425
10	0.56120	0.00104	0.56120	0.00104	0.91224	0.00004	0.08776	0.00004	0.56120	0.00104
11	0.82602	0.00018	0.82602	0.00018	0.96520	0.00001	0.03480	0.00001	0.82602	0.00018
12	0.79855	0.00032	0.79855	0.00032	0.95971	0.00001	0.04029	0.00001	0.79855	0.00032
13	0.91470	0.00019	0.91470	0.00019	0.98294	0.00001	0.01706	0.00001	0.91470	0.00019
14	0.91108	0.00011	0.91108	0.00011	0.98222	0.00000	0.01778	0.00000	0.91108	0.00011
15	0.80723	0.00033	0.80723	0.00033	0.96145	0.00001	0.03855	0.00001	0.80723	0.00033
16	0.82819	0.00028	0.82819	0.00028	0.96564	0.00001	0.03436	0.00001	0.82819	0.00028
17	0.82434	0.00020	0.82434	0.00020	0.96487	0.00001	0.03513	0.00001	0.82434	0.00020
18	0.81036	0.00048	0.81036	0.00048	0.96207	0.00002	0.03793	0.00002	0.81036	0.00048
19	0.94169	0.00017	0.94169	0.00017	0.98834	0.00001	0.01166	0.00001	0.94169	0.00017
20	0.93855	0.00007	0.93855	0.00007	0.98771	0.00000	0.01229	0.00000	0.93855	0.00007
21	0.24795	0.00081	0.24795	0.00081	0.84959	0.00003	0.15041	0.00003	0.24795	0.00081
22	0.40048	0.00054	0.40048	0.00054	0.88010	0.00002	0.11990	0.00002	0.40048	0.00054
23	0.80506	0.00029	0.80506	0.00029	0.96101	0.00001	0.03899	0.00001	0.80506	0.00029
24	0.77759	0.00061	0.77759	0.00061	0.95552	0.00002	0.04448	0.00002	0.77759	0.00061
25	0.91494	0.00007	0.91494	0.00007	0.98299	0.00000	0.01701	0.00000	0.91494	0.00007
26	0.90819	0.00011	0.90819	0.00011	0.98164	0.00000	0.01836	0.00000	0.90819	0.00011
27	0.85470	0.00038	0.85470	0.00038	0.97094	0.00002	0.02906	0.00002	0.85470	0.00038
28	0.85494	0.00015	0.85494	0.00015	0.97099	0.00001	0.02901	0.00001	0.85494	0.00015
29	0.86193	0.00022	0.86193	0.00022	0.97239	0.00001	0.02761	0.00001	0.86193	0.00022
30	0.84434	0.00014	0.84434	0.00014	0.96887	0.00001	0.03113	0.00001	0.84434	0.00014
31	0.90795	0.00018	0.90795	0.00018	0.98159	0.00001	0.01841	0.00001	0.90795	0.00018
32	0.90602	0.00009	0.90602	0.00009	0.98120	0.00000	0.01880	0.00000	0.90602	0.00009
33	0.30289	0.00106	0.30289	0.00106	0.86058	0.00004	0.13942	0.00004	0.30289	0.00106
34	0.47229	0.00095	0.47229	0.00095	0.89446	0.00004	0.10554	0.00004	0.47229	0.00095
35	0.85687	0.00045	0.85687	0.00045	0.97137	0.00002	0.02863	0.00002	0.85687	0.00045
36	0.83687	0.00027	0.83687	0.00027	0.96737	0.00001	0.03263	0.00001	0.83687	0.00027
37	0.90048	0.00012	0.90048	0.00012	0.98010	0.00000	0.01990	0.00000	0.90048	0.00012
38	0.90145	0.00014	0.90145	0.00014	0.98029	0.00001	0.01971	0.00001	0.90145	0.00014
39	0.84988	0.00043	0.84988	0.00043	0.96998	0.00002	0.03002	0.00002	0.84988	0.00043
40	0.84169	0.00021	0.84169	0.00021	0.96834	0.00001	0.03166	0.00001	0.84169	0.00021
41	0.86265	0.00018	0.86265	0.00018	0.97253	0.00001	0.02747	0.00001	0.86265	0.00018
42	0.83398	0.00020	0.83398	0.00020	0.96680	0.00001	0.03320	0.00001	0.83398	0.00020
43	0.89277	0.00013	0.89277	0.00013	0.97855	0.00001	0.02145	0.00001	0.89277	0.00013
44	0.89205	0.00024	0.89205	0.00024	0.97841	0.00001	0.02159	0.00001	0.89205	0.00024
45	0.30313	0.00098	0.30313	0.00098	0.86063	0.00004	0.13937	0.00004	0.30313	0.00098
46	0.49639	0.00094	0.49639	0.00094	0.89928	0.00004	0.10072	0.00004	0.49639	0.00094
47	0.86048	0.00030	0.86048	0.00030	0.97210	0.00001	0.02790	0.00001	0.86048	0.00030
48	0.82964	0.00016	0.82964	0.00016	0.96593	0.00001	0.03407	0.00001	0.82964	0.00016
49	0.92434	0.00021	0.92434	0.00021	0.98487	0.00001	0.01513	0.00001	0.92434	0.00021
50	0.92145	0.00009	0.92145	0.00009	0.98429	0.00000	0.01571	0.00000	0.92145	0.00009
51	0.82289	0.00032	0.82289	0.00032	0.96458	0.00001	0.03542	0.00001	0.82289	0.00032
52	0.85711	0.00016	0.85711	0.00016	0.97142	0.00001	0.02858	0.00001	0.85711	0.00016
53	0.84819	0.00031	0.84819	0.00031	0.96964	0.00001	0.03036	0.00001	0.84819	0.00031
54	0.84289	0.00013	0.84289	0.00013	0.96858	0.00001	0.03142	0.00001	0.84289	0.00013
55	0.93687	0.00017	0.93687	0.00017	0.98737	0.00001	0.01263	0.00001	0.93687	0.00017
56	0.92988	0.00011	0.92988	0.00011	0.98598	0.00000	0.01402	0.00000	0.92988	0.00011
57	0.23277	0.00060	0.23277	0.00060	0.84655	0.00002	0.15345	0.00002	0.23277	0.00060
58	0.41759	0.00214	0.41759	0.00214	0.88352	0.00009	0.11648	0.00009	0.41759	0.00214
59	0.83277	0.00033	0.83277	0.00033	0.96655	0.00001	0.03345	0.00001	0.83277	0.00033
60	0.82554	0.00030	0.82554	0.00030	0.96511	0.00001	0.03489	0.00001	0.82554	0.00030

Table 66. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 50 Feature Vectors, Polynomial Kernel with Degree 0.7 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.88627	0.00040	0.88627	0.00040	0.97725	0.00002	0.02275	0.00002	0.88627	0.00040
2	0.89181	0.00028	0.89181	0.00028	0.97836	0.00001	0.02164	0.00001	0.89181	0.00028
3	0.86723	0.00031	0.86723	0.00031	0.97345	0.00001	0.02655	0.00001	0.86723	0.00031
4	0.85639	0.00010	0.85639	0.00010	0.97128	0.00000	0.02872	0.00000	0.85639	0.00010
5	0.87373	0.00012	0.87373	0.00012	0.97475	0.00000	0.02525	0.00000	0.87373	0.00012
6	0.85904	0.00032	0.85904	0.00032	0.97181	0.00001	0.02819	0.00001	0.85904	0.00032
7	0.87446	0.00032	0.87446	0.00032	0.97489	0.00001	0.02511	0.00001	0.87446	0.00032
8	0.87518	0.00037	0.87518	0.00037	0.97504	0.00001	0.02496	0.00001	0.87518	0.00037
9	0.51373	0.00208	0.51373	0.00208	0.90275	0.00008	0.09725	0.00008	0.51373	0.00208
10	0.62819	0.00081	0.62819	0.00081	0.92564	0.00003	0.07436	0.00003	0.62819	0.00081
11	0.87012	0.00023	0.87012	0.00023	0.97402	0.00001	0.02598	0.00001	0.87012	0.00023
12	0.84458	0.00009	0.84458	0.00009	0.96892	0.00000	0.03108	0.00000	0.84458	0.00009
13	0.93880	0.00008	0.93880	0.00008	0.98776	0.00000	0.01224	0.00000	0.93880	0.00008
14	0.93904	0.00005	0.93904	0.00005	0.98781	0.00000	0.01219	0.00000	0.93904	0.00005
15	0.86386	0.00030	0.86386	0.00030	0.97277	0.00001	0.02723	0.00001	0.86386	0.00030
16	0.88361	0.00016	0.88361	0.00016	0.97672	0.00001	0.02328	0.00001	0.88361	0.00016
17	0.88289	0.00018	0.88289	0.00018	0.97658	0.00001	0.02342	0.00001	0.88289	0.00018
18	0.87133	0.00021	0.87133	0.00021	0.97427	0.00001	0.02573	0.00001	0.87133	0.00021
19	0.95157	0.00006	0.95157	0.00006	0.99031	0.00000	0.00969	0.00000	0.95157	0.00006
20	0.94819	0.00011	0.94819	0.00011	0.98964	0.00000	0.01036	0.00000	0.94819	0.00011
21	0.30940	0.00205	0.30940	0.00205	0.86188	0.00008	0.13812	0.00008	0.30940	0.00205
22	0.46193	0.00104	0.46193	0.00104	0.89239	0.00004	0.10761	0.00004	0.46193	0.00104
23	0.85976	0.00031	0.85976	0.00031	0.97195	0.00001	0.02805	0.00001	0.85976	0.00031
24	0.84578	0.00012	0.84578	0.00012	0.96916	0.00000	0.03084	0.00000	0.84578	0.00012
25	0.92771	0.00011	0.92771	0.00011	0.98554	0.00000	0.01446	0.00000	0.92771	0.00011
26	0.93036	0.00010	0.93036	0.00010	0.98607	0.00000	0.01393	0.00000	0.93036	0.00010
27	0.89590	0.00015	0.89590	0.00015	0.97918	0.00001	0.02082	0.00001	0.89590	0.00015
28	0.89373	0.00017	0.89373	0.00017	0.97875	0.00001	0.02125	0.00001	0.89373	0.00017
29	0.89518	0.00013	0.89518	0.00013	0.97904	0.00001	0.02096	0.00001	0.89518	0.00013
30	0.88651	0.00004	0.88651	0.00004	0.97730	0.00000	0.02270	0.00000	0.88651	0.00004
31	0.91639	0.00018	0.91639	0.00018	0.98328	0.00001	0.01672	0.00001	0.91639	0.00018
32	0.91349	0.00007	0.91349	0.00007	0.98270	0.00000	0.01730	0.00000	0.91349	0.00007
33	0.38892	0.00173	0.38892	0.00173	0.87778	0.00007	0.12222	0.00007	0.38892	0.00173
34	0.56024	0.00068	0.56024	0.00068	0.91205	0.00003	0.08795	0.00003	0.56024	0.00068
35	0.88988	0.00033	0.88988	0.00033	0.97798	0.00001	0.02202	0.00001	0.88988	0.00033
36	0.87590	0.00011	0.87590	0.00011	0.97518	0.00000	0.02482	0.00000	0.87590	0.00011
37	0.92313	0.00009	0.92313	0.00009	0.98463	0.00000	0.01537	0.00000	0.92313	0.00009
38	0.91855	0.00016	0.91855	0.00016	0.98371	0.00001	0.01629	0.00001	0.91855	0.00016
39	0.89470	0.00018	0.89470	0.00018	0.97894	0.00001	0.02106	0.00001	0.89470	0.00018
40	0.88747	0.00017	0.88747	0.00017	0.97749	0.00001	0.02251	0.00001	0.88747	0.00017
41	0.89422	0.00023	0.89422	0.00023	0.97884	0.00001	0.02116	0.00001	0.89422	0.00023
42	0.88048	0.00022	0.88048	0.00022	0.97610	0.00001	0.02390	0.00001	0.88048	0.00022
43	0.90458	0.00024	0.90458	0.00024	0.98092	0.00001	0.01908	0.00001	0.90458	0.00024
44	0.90819	0.00017	0.90819	0.00017	0.98164	0.00001	0.01836	0.00001	0.90819	0.00017
45	0.47253	0.00250	0.47253	0.00250	0.89451	0.00010	0.10549	0.00010	0.47253	0.00250
46	0.58892	0.00071	0.58892	0.00071	0.91778	0.00003	0.08222	0.00003	0.58892	0.00071
47	0.88964	0.00012	0.88964	0.00012	0.97793	0.00000	0.02207	0.00000	0.88964	0.00012
48	0.86723	0.00013	0.86723	0.00013	0.97345	0.00001	0.02655	0.00001	0.86723	0.00013
49	0.93614	0.00007	0.93614	0.00007	0.98723	0.00000	0.01277	0.00000	0.93614	0.00007
50	0.93831	0.00008	0.93831	0.00008	0.98766	0.00000	0.01234	0.00000	0.93831	0.00008
51	0.88072	0.00021	0.88072	0.00021	0.97614	0.00001	0.02386	0.00001	0.88072	0.00021
52	0.89976	0.00003	0.89976	0.00003	0.97995	0.00000	0.02005	0.00000	0.89976	0.00003
53	0.89325	0.00009	0.89325	0.00009	0.97865	0.00000	0.02135	0.00000	0.89325	0.00009
54	0.88458	0.00011	0.88458	0.00011	0.97692	0.00000	0.02308	0.00000	0.88458	0.00011
55	0.94723	0.00016	0.94723	0.00016	0.98945	0.00001	0.01055	0.00001	0.94723	0.00016
56	0.94000	0.00008	0.94000	0.00008	0.98800	0.00000	0.01200	0.00000	0.94000	0.00008
57	0.31277	0.00270	0.31277	0.00270	0.86255	0.00011	0.13745	0.00011	0.31277	0.00270
58	0.51398	0.00098	0.51398	0.00098	0.90280	0.00004	0.09720	0.00004	0.51398	0.00098
59	0.88145	0.00018	0.88145	0.00018	0.97629	0.00001	0.02371	0.00001	0.88145	0.00018
60	0.87084	0.00022	0.87084	0.00022	0.97417	0.00001	0.02583	0.00001	0.87084	0.00022

Table 67. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 100 Feature Vectors, Polynomial Kernel with Degree 0.7 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89783	0.00032	0.89783	0.00032	0.97957	0.00001	0.02043	0.00001	0.89783	0.00032
2	0.90916	0.00024	0.90916	0.00024	0.98183	0.00001	0.01817	0.00001	0.90916	0.00024
3	0.88313	0.00029	0.88313	0.00029	0.97663	0.00001	0.02337	0.00001	0.88313	0.00029
4	0.87518	0.00024	0.87518	0.00024	0.97504	0.00001	0.02496	0.00001	0.87518	0.00024
5	0.89036	0.00010	0.89036	0.00010	0.97807	0.00000	0.02193	0.00000	0.89036	0.00010
6	0.87205	0.00021	0.87205	0.00021	0.97441	0.00001	0.02559	0.00001	0.87205	0.00021
7	0.89446	0.00018	0.89446	0.00018	0.97889	0.00001	0.02111	0.00001	0.89446	0.00018
8	0.90096	0.00031	0.90096	0.00031	0.98019	0.00001	0.01981	0.00001	0.90096	0.00031
9	0.64602	0.00255	0.64602	0.00255	0.92920	0.00010	0.07080	0.00010	0.64602	0.00255
10	0.72193	0.00026	0.72193	0.00026	0.94439	0.00001	0.05561	0.00001	0.72193	0.00026
11	0.88627	0.00020	0.88627	0.00020	0.97725	0.00001	0.02275	0.00001	0.88627	0.00020
12	0.86361	0.00017	0.86361	0.00017	0.97272	0.00001	0.02728	0.00001	0.86361	0.00017
13	0.94916	0.00011	0.94916	0.00011	0.98983	0.00000	0.01017	0.00000	0.94916	0.00011
14	0.95277	0.00006	0.95277	0.00006	0.99055	0.00000	0.00945	0.00000	0.95277	0.00006
15	0.90024	0.00014	0.90024	0.00014	0.98005	0.00001	0.01995	0.00001	0.90024	0.00014
16	0.91205	0.00012	0.91205	0.00012	0.98241	0.00000	0.01759	0.00000	0.91205	0.00012
17	0.90337	0.00011	0.90337	0.00011	0.98067	0.00000	0.01933	0.00000	0.90337	0.00011
18	0.90145	0.00015	0.90145	0.00015	0.98029	0.00001	0.01971	0.00001	0.90145	0.00015
19	0.96265	0.00003	0.96265	0.00003	0.99253	0.00000	0.00747	0.00000	0.96265	0.00003
20	0.96675	0.00009	0.96675	0.00009	0.99335	0.00000	0.00665	0.00000	0.96675	0.00009
21	0.37807	0.00457	0.37807	0.00457	0.87561	0.00018	0.12439	0.00018	0.37807	0.00457
22	0.56554	0.00033	0.56554	0.00033	0.91311	0.00001	0.08689	0.00001	0.56554	0.00033
23	0.89157	0.00020	0.89157	0.00020	0.97831	0.00001	0.02169	0.00001	0.89157	0.00020
24	0.88434	0.00021	0.88434	0.00021	0.97687	0.00001	0.02313	0.00001	0.88434	0.00021
25	0.93928	0.00011	0.93928	0.00011	0.98786	0.00000	0.01214	0.00000	0.93928	0.00011
26	0.94120	0.00006	0.94120	0.00006	0.98824	0.00000	0.01176	0.00000	0.94120	0.00006
27	0.91470	0.00015	0.91470	0.00015	0.98294	0.00001	0.01706	0.00001	0.91470	0.00015
28	0.91422	0.00014	0.91422	0.00014	0.98284	0.00001	0.01716	0.00001	0.91422	0.00014
29	0.91277	0.00018	0.91277	0.00018	0.98255	0.00001	0.01745	0.00001	0.91277	0.00018
30	0.90554	0.00013	0.90554	0.00013	0.98111	0.00001	0.01889	0.00001	0.90554	0.00013
31	0.93928	0.00014	0.93928	0.00014	0.98786	0.00001	0.01214	0.00001	0.93928	0.00014
32	0.94651	0.00016	0.94651	0.00016	0.98930	0.00001	0.01070	0.00001	0.94651	0.00016
33	0.50072	0.00538	0.50072	0.00538	0.90014	0.00022	0.09986	0.00022	0.50072	0.00538
34	0.66916	0.00078	0.66916	0.00078	0.93383	0.00003	0.06617	0.00003	0.66916	0.00078
35	0.90651	0.00005	0.90651	0.00005	0.98130	0.00000	0.01870	0.00000	0.90651	0.00005
36	0.89205	0.00007	0.89205	0.00007	0.97841	0.00000	0.02159	0.00000	0.89205	0.00007
37	0.92771	0.00019	0.92771	0.00019	0.98554	0.00001	0.01446	0.00001	0.92771	0.00019
38	0.93253	0.00008	0.93253	0.00008	0.98651	0.00000	0.01349	0.00000	0.93253	0.00008
39	0.91446	0.00012	0.91446	0.00012	0.98289	0.00000	0.01711	0.00000	0.91446	0.00012
40	0.90410	0.00015	0.90410	0.00015	0.98082	0.00001	0.01918	0.00001	0.90410	0.00015
41	0.91373	0.00012	0.91373	0.00012	0.98275	0.00000	0.01725	0.00000	0.91373	0.00012
42	0.89566	0.00013	0.89566	0.00013	0.97913	0.00001	0.02087	0.00001	0.89566	0.00013
43	0.92602	0.00017	0.92602	0.00017	0.98520	0.00001	0.01480	0.00001	0.92602	0.00017
44	0.93157	0.00023	0.93157	0.00023	0.98631	0.00001	0.01369	0.00001	0.93157	0.00023
45	0.58747	0.00285	0.58747	0.00285	0.91749	0.00011	0.08251	0.00011	0.58747	0.00285
46	0.69518	0.00039	0.69518	0.00039	0.93904	0.00002	0.06096	0.00002	0.69518	0.00039
47	0.90747	0.00003	0.90747	0.00003	0.98149	0.00000	0.01851	0.00000	0.90747	0.00003
48	0.88313	0.00010	0.88313	0.00010	0.97663	0.00000	0.02337	0.00000	0.88313	0.00010
49	0.95036	0.00015	0.95036	0.00015	0.99007	0.00001	0.00993	0.00001	0.95036	0.00015
50	0.95036	0.00009	0.95036	0.00009	0.99007	0.00000	0.00993	0.00000	0.95036	0.00009
51	0.90554	0.00014	0.90554	0.00014	0.98111	0.00001	0.01889	0.00001	0.90554	0.00014
52	0.91349	0.00007	0.91349	0.00007	0.98270	0.00000	0.01730	0.00000	0.91349	0.00007
53	0.91518	0.00007	0.91518	0.00007	0.98304	0.00000	0.01696	0.00000	0.91518	0.00007
54	0.91133	0.00012	0.91133	0.00012	0.98227	0.00000	0.01773	0.00000	0.91133	0.00012
55	0.96313	0.00004	0.96313	0.00004	0.99263	0.00000	0.00737	0.00000	0.96313	0.00004
56	0.96386	0.00005	0.96386	0.00005	0.99277	0.00000	0.00723	0.00000	0.96386	0.00005
57	0.38675	0.00377	0.38675	0.00377	0.87735	0.00015	0.12265	0.00015	0.38675	0.00377
58	0.61301	0.00039	0.61301	0.00039	0.92260	0.00002	0.07740	0.00002	0.61301	0.00039
59	0.90554	0.00017	0.90554	0.00017	0.98111	0.00001	0.01889	0.00001	0.90554	0.00017
60	0.90096	0.00015	0.90096	0.00015	0.98019	0.00001	0.01981	0.00001	0.90096	0.00015

Table 68. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 200 Feature Vectors, Polynomial Kernel with Degree 0.7 with Added Constant.

TDM	Precision	Precision Variance	Recall	Recall Variance	Accuracy	Accuracy Variance	Error	Error Variance	F1	F1 Variance
1	0.89783	0.00032	0.89783	0.00032	0.97957	0.00001	0.02043	0.00001	0.89783	0.00032
2	0.90747	0.00011	0.90747	0.00011	0.98149	0.00000	0.01851	0.00000	0.90747	0.00011
3	0.86988	0.00015	0.86988	0.00015	0.97398	0.00001	0.02602	0.00001	0.86988	0.00015
4	0.87855	0.00017	0.87855	0.00017	0.97571	0.00001	0.02429	0.00001	0.87855	0.00017
5	0.87928	0.00013	0.87928	0.00013	0.97586	0.00001	0.02414	0.00001	0.87928	0.00013
6	0.87518	0.00010	0.87518	0.00010	0.97504	0.00000	0.02496	0.00000	0.87518	0.00010
7	0.89446	0.00018	0.89446	0.00018	0.97889	0.00001	0.02111	0.00001	0.89446	0.00018
8	0.88964	0.00028	0.88964	0.00028	0.97793	0.00001	0.02207	0.00001	0.88964	0.00028
9	0.72578	0.00177	0.72578	0.00177	0.94516	0.00007	0.05484	0.00007	0.72578	0.00177
10	0.76145	0.00034	0.76145	0.00034	0.95229	0.00001	0.04771	0.00001	0.76145	0.00034
11	0.87783	0.00017	0.87783	0.00017	0.97557	0.00001	0.02443	0.00001	0.87783	0.00017
12	0.87157	0.00004	0.87157	0.00004	0.97431	0.00000	0.02569	0.00000	0.87157	0.00004
13	0.95422	0.00008	0.95422	0.00008	0.99084	0.00000	0.00916	0.00000	0.95422	0.00008
14	0.96193	0.00005	0.96193	0.00005	0.99239	0.00000	0.00761	0.00000	0.96193	0.00005
15	0.92627	0.00005	0.92627	0.00005	0.98525	0.00000	0.01475	0.00000	0.92627	0.00005
16	0.92530	0.00005	0.92530	0.00005	0.98506	0.00000	0.01494	0.00000	0.92530	0.00005
17	0.90747	0.00002	0.90747	0.00002	0.98149	0.00000	0.01851	0.00000	0.90747	0.00002
18	0.91952	0.00005	0.91952	0.00005	0.98390	0.00000	0.01610	0.00000	0.91952	0.00005
19	0.96265	0.00003	0.96265	0.00003	0.99253	0.00000	0.00747	0.00000	0.96265	0.00003
20	0.97494	0.00007	0.97494	0.00007	0.99499	0.00000	0.00501	0.00000	0.97494	0.00007
21	0.51036	0.00148	0.51036	0.00148	0.90207	0.00006	0.09793	0.00006	0.51036	0.00148
22	0.63614	0.00038	0.63614	0.00038	0.92723	0.00002	0.07277	0.00002	0.63614	0.00038
23	0.89783	0.00013	0.89783	0.00013	0.97957	0.00001	0.02043	0.00001	0.89783	0.00013
24	0.90482	0.00007	0.90482	0.00007	0.98096	0.00000	0.01904	0.00000	0.90482	0.00007
25	0.94024	0.00014	0.94024	0.00014	0.98805	0.00001	0.01195	0.00001	0.94024	0.00014
26	0.95301	0.00005	0.95301	0.00005	0.99060	0.00000	0.00940	0.00000	0.95301	0.00005
27	0.92578	0.00008	0.92578	0.00008	0.98516	0.00000	0.01484	0.00000	0.92578	0.00008
28	0.92120	0.00004	0.92120	0.00004	0.98424	0.00000	0.01576	0.00000	0.92120	0.00004
29	0.92145	0.00009	0.92145	0.00009	0.98429	0.00000	0.01571	0.00000	0.92145	0.00009
30	0.91807	0.00006	0.91807	0.00006	0.98361	0.00000	0.01639	0.00000	0.91807	0.00006
31	0.93928	0.00014	0.93928	0.00014	0.98786	0.00001	0.01214	0.00001	0.93928	0.00014
32	0.95614	0.00010	0.95614	0.00010	0.99123	0.00000	0.00877	0.00000	0.95614	0.00010
33	0.66602	0.00069	0.66602	0.00069	0.93320	0.00003	0.06680	0.00003	0.66602	0.00069
34	0.70940	0.00041	0.70940	0.00041	0.94188	0.00002	0.05812	0.00002	0.70940	0.00041
35	0.91084	0.00019	0.91084	0.00019	0.98217	0.00001	0.01783	0.00001	0.91084	0.00019
36	0.90843	0.00008	0.90843	0.00008	0.98169	0.00000	0.01831	0.00000	0.90843	0.00008
37	0.92723	0.00018	0.92723	0.00018	0.98545	0.00001	0.01455	0.00001	0.92723	0.00018
38	0.93590	0.00013	0.93590	0.00013	0.98718	0.00001	0.01282	0.00001	0.93590	0.00013
39	0.91036	0.00008	0.91036	0.00008	0.98207	0.00000	0.01793	0.00000	0.91036	0.00008
40	0.90843	0.00010	0.90843	0.00010	0.98169	0.00000	0.01831	0.00000	0.90843	0.00010
41	0.90964	0.00005	0.90964	0.00005	0.98193	0.00000	0.01807	0.00000	0.90964	0.00005
42	0.90699	0.00008	0.90699	0.00008	0.98140	0.00000	0.01860	0.00000	0.90699	0.00008
43	0.92602	0.00017	0.92602	0.00017	0.98520	0.00001	0.01480	0.00001	0.92602	0.00017
44	0.93542	0.00012	0.93542	0.00012	0.98708	0.00000	0.01292	0.00000	0.93542	0.00012
45	0.69470	0.00149	0.69470	0.00149	0.93894	0.00006	0.06106	0.00006	0.69470	0.00149
46	0.73880	0.00008	0.73880	0.00008	0.94776	0.00000	0.05224	0.00000	0.73880	0.00008
47	0.90096	0.00006	0.90096	0.00006	0.98019	0.00000	0.01981	0.00000	0.90096	0.00006
48	0.89904	0.00010	0.89904	0.00010	0.97981	0.00000	0.02019	0.00000	0.89904	0.00010
49	0.95590	0.00005	0.95590	0.00005	0.99118	0.00000	0.00882	0.00000	0.95590	0.00005
50	0.96482	0.00011	0.96482	0.00011	0.99296	0.00000	0.00704	0.00000	0.96482	0.00011
51	0.92988	0.00008	0.92988	0.00008	0.98598	0.00000	0.01402	0.00000	0.92988	0.00008
52	0.92723	0.00004	0.92723	0.00004	0.98545	0.00000	0.01455	0.00000	0.92723	0.00004
53	0.92506	0.00012	0.92506	0.00012	0.98501	0.00000	0.01499	0.00000	0.92506	0.00012
54	0.92145	0.00004	0.92145	0.00004	0.98429	0.00000	0.01571	0.00000	0.92145	0.00004
55	0.96578	0.00005	0.96578	0.00005	0.99316	0.00000	0.00684	0.00000	0.96578	0.00005
56	0.97301	0.00004	0.97301	0.00004	0.99460	0.00000	0.00540	0.00000	0.97301	0.00004
57	0.53422	0.00394	0.53422	0.00394	0.90684	0.00016	0.09316	0.00016	0.53422	0.00394
58	0.66410	0.00054	0.66410	0.00054	0.93282	0.00002	0.06718	0.00002	0.66410	0.00054
59	0.91036	0.00014	0.91036	0.00014	0.98207	0.00001	0.01793	0.00001	0.91036	0.00014
60	0.91518	0.00004	0.91518	0.00004	0.98304	0.00000	0.01696	0.00000	0.91518	0.00004

Table 69. Micro Averaged Performance Measurements for the FVS-LDA Classifier with 400 Feature Vectors, Polynomial Kernel with Degree 0.7 with Added Constant.

APPENDIX B. SOFTWARE CODE DESCRIPTION

allfvsldatmgieee.m

1. Description: *allfvsldatmgieee*(Mapping,fv,p) calculates all 60 TDM combinations possible with *tmg.m*, included in the Text to Matrix Generator (TMG) package. For each TDM created training and testing vectors are selected. The training vectors are used to create the FVS-LDA classifier chosen and the testing vectors are used to evaluate the classifier. The input arguments are: Mapping is the kernel type selected, fv is the maximum number of feature vectors (FVs), and p corresponds to the global variable p1.
2. Sub-programs: *runfvslda.m*, *trainvstest.m*, *tmg.m* (included in TMG package)

allsvdtmgieee.m

1. Description: *allsvdtmgieee*(ksvd) calculates all 60 TDM combinations possible with *tmg.m*, included in the TMG package. For each TDM created training and testing vectors are selected. The training vectors are used to create the Singular Value Decomposition (SVD) classifier chosen and the testing vectors are used to evaluate the classifier. The input argument ksvd is the number of FVs selected.
2. Sub-programs: *runsvd.m*, *trainvstest.m*, *tmg.m* (included in TMG package)

dist2.m

1. Description: D = *dist2*(X,C) takes two matrices of vectors and calculates the squared Euclidean distance between them. Both matrices must be of the same column dimension. If X has M rows and N columns, and C has L rows and N columns, then the result has M rows and L columns. The (*i*,*j*) entry is the squared distance from the row *i* of X to row *j* of C.
2. Sub-programs: None

fld.m

1. Description: [W,D] = *fld*(A,C) computes the fisher linear discriminant W that maximizes the ratio |Wt x SB x W| / |Wt x SW x W| where WS is the within class scatter matrix, and SB is the between class scatter matrix. The data is contained within the columns of A. C defines the classes for each columns of A. W is the

weight matrix which contains the vectors in columns. D contains the eigenvalues on the diagonal.

2. Sub-programs: *sortem.m*

FVSelection2.m

1. Description: dataFVS=*FVSelection2*(X,ker,nbFV,maxFitness) computes a structure with the selected FVs, their numbers and the projected input data into the FV subspace. Feature vector selection (FVS) is accomplished using the a priori scheme to select the FVs. The FVs are chosen to minimize in *F* the reconstruction error of all the input data. This selection procedure ends as soon as we reach a numerical basis in F, hit the maximum fitness value maxFitness (0 up to 1), or exhausted the amount of FV allowed by nbFV (1 up to the size of the input database (M)). The input arguments are: the data in X where each row is a given sample, ker is the type of kernel, nbFV is maximum number of desired FVs (M is the default), and maxFitness (1-eps is the default).
2. Sub-programs: *FVSKernel2.m*, *invrec.m*

FVSKernel2.m

1. Descripton: k=*FVSKernel2*(ker,x1,x2) computes the kernel function for FVS and projection. The input arguments are: ker the kernel type, x1 and x2 are kernel arguments, p1 and p2 are global MatLab variable for specific kernel types. Values for ker are:
    a. linear: no parameter
    b. poly: p1 is the degree of polynomial kernel with a constant added (+1)
    c. poly2: p1 is the degree of polynomial kernel (with no constant)
    d. gauss: p1 is the value of sigma^2
    e. spline: no parameter, works for dimension 1 only
    f. sigmoid: both p1 and p2 must be specified
2. Sub-programs: None

invrec.m

1. Description: [M,r]=*invrec*(A,V) computes a recursive inversion of a symmetric matrix and its rank. This approach allows to inverse, at each iteration, a matrix

with a complexity of N^2 instead of N^3. Also the program tests if the inversion is numerically possible. The input arguments are: A is the previous inverse matrix (N-1)x(N-1), V is a line vector which is added to the matrix (the inverse of A) as its last line/column.

2. Sub-programs: None

runfvslda.m

1. Description: [Correct,Incorrect,wfile,grtrue,grmatch,keep2] = *runfvslda*(Test,Train,KTest,KTrain,Mapping,fv,p) computes classification performance measures for the FVS-LDA classifier. The input arguments are: Test is a matrix containing the testing vectors, Train is a matrix containing the training vectors, KTest is a vectors which contains the true classes of the test vectors, KTrain is a vector which contain the true classes of the training vectors, Mapping is the kernel type selected, fv is the maximum number of FVs, and p corresponds to the global variable p1. The output arguments are: Correct is the total number of documents correctly classified, Incorrect is the total number of documents in correctly classified, wfile is a vector of indexes which correspond to the specific documents misclassified, grtrue is a vector of the true classes associated with wfile, grmatch is a vector of the match classes associated with wfile, and keep2 is the total number of FVs selected.
2. Sub-programs: *fld.m*, *FVSelection2.m*, *FVSKernel2.m*

runsvd.m

1. Description: [Correct,Incorrect,wfile,grtrue,grmatch] = *runsvd*(Test,Train,KTest,KTrain,ksvd,svd_method) computes classification performance measures for a SVD classifier. The input arguments are: Test is a matrix containing the testing vectors, Train is a matrix containing the training vectors, KTest is a vectors which contains the true classes of the test vectors, KTrain is a vector which contain the true classes of the training vectors, ksvd is the number of FVs selected, and svd_method selects between two method to calculate the svd. The output arguments are: Correct is the total number of documents correctly classified, Incorrect is the total number of documents in

correctly classified, wfile is a vector of indexes which correspond to the specific documents misclassified, grtrue is a vector of the true classes associated with wfile, and grmatch is a vector of the match classes associated with wfile.

2. Sub-programs: *svd_tmg.m* (included in TMG package)

sortem.m

1. Description: [NV,ND] = *sortem*(V,D) sorts the columns of V along with the absolute value of the elements of D and eliminates the column of V corresponding to a zero eigenvalue.
2. Sub-programs: None

trainvstest.m

1. Description: *trainvstest*(A,per,curdir) separates a matrix a into ten randomly chosen training and testing sets. The input arguments are: A is a matrix contain all available data, per is the percentage to be used for training, curdir is the current working directory which is used to create directories. The program outputs MatLab variable of testing and training matrices along with class keys.
2. Sub-programs: None

APPENDIX C. COMMON TERMS

a	below	everyone	i	must	perhaps	sup	value
about	beside	everything	ie	my	placed	t	various
above	besides	everywhere	if	myself	please	take	very
accordingly	best	ex	ignored	n	plus	taken	via
across	better	example	immediate	name	possible	than	viz
after	between	except	in	namely	probably	that	vs
afterwards	beyond	f	inasmuch	near	provides	the	w
again	both	far	inc	necessary	q	their	was
against	brief	few	indeed	neither	que	theirs	way
all	but	fifth	indicate	never	quite	them	we
allows	by	first	indicated	nevertheless	r	themselves	well
almost	c	five	indicates	new	rather	then	went
alone	came	followed	inner	next	really	thence	were
along	can	following	insofar	nine	relatively	there	what
already	cannot	for	instead	no	respectively	thereafter	whatever
also	cant	former	into	nobody	right	thereby	when
although	cause	formerly	inward	none	s	therefore	whence
always	causes	forth	is	noone	said	therein	whenever
am	certain	four	it	nor	same	thereupon	where
among	changes	from	its	normally	second	these	whereafter
amongst	co	further	itself	not	secondly	they	whereas
an	come	furthermore	j	nothing	see	third	whereby
and	consequently	g	just	novel	seem	this	wherein
another	contain	get	k	now	seemed	thorough	whereupon
any	containing	gets	keep	nowhere	seeming	thoroughly	wherever
anybody	contains	given	kept	o	seems	those	whether
anyhow	corresponding	gives	know	of	self	though	which
anyone	could	go	l	off	selves	three	while
anything	currently	gone	last	often	sensible	through	whither
anywhere	d	good	latter	oh	sent	throughout	who
apart	day	got	latterly	old	serious	thru	whoever
appear	described	great	least	on	seven	thus	whole
appropriate	did	h	less	once	several	time	whom
are	different	had	lest	one	shall	to	whose
around	do	hardly	life	ones	she	together	why
as	does	has	like	only	should	too	will
aside	doing	have	little	onto	since	toward	with
associated	done	having	long	or	six	towards	within
at	down	he	ltd	other	so	twice	without
available	downwards	hence	m	others	some	two	work
away	during	her	made	otherwise	somebody	u	world
awfully	e	here	make	ought	somehow	under	would
b	each	hereafter	man	our	someone	unless	x
back	eg	hereby	many	ours	something	until	y
be	eight	herein	may	ourselves	sometime	unto	year
became	either	hereupon	me	out	sometimes	up	years
because	else	hers	meanwhile	outside	somewhat	upon	yet
become	elsewhere	herself	men	over	somewhere	us	you
becomes	enough	him	might	overall	specified	use	your
becoming	et	himself	more	own	specify	used	yours
been	etc	his	moreover	p	specifying	useful	yourself
before	even	hither	most	particular	state	uses	yourselves
beforehand	ever	how	mostly	particularly	still	using	z
behind	every	howbeit	mr	people	sub	usually	zero
being	everybody	however	much	per	such	v	

Table 70. List of Common Terms.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

[1] Carnegie Mellon School of Computer Science, "CMU World Wide Knowledge Base Project," [http://www.cs.cmu.edu/~WebKB/], last accessed November 2009.

[2] IEEE, "IEEE Xplore," [http://ieeexplore.ieee.org.libproxy.nps.edu/search/advsearch.jsp], last accessed November 2009.

[3] Scolarpedia, "Text Categorization," [http://www.scholarpedia.org/article/Text_categorization], last accessed November 2009.

[4] University of Glasgow Department of Computer Science, "Test Collections," [http://www.dcs.gla.ac.uk/idom/ir_resources/test_collections/], last accessed April 2009.

[5] Alexandropoulos, I.M., Uncooled Infrared Imaging Face Recognition Using Kernel-Based Feature Vector Selection. Master of Science in Electrical Engineering, Naval Postgraduate School, Monterey, CA, (2006).

[6] Baudat, G. and Anouar, F., "Generalized Discriminant Analysis Using a Kernel Approach." Neural Computation 12, (2000): 2385–2404.

[7] Baudat, G. and Anouar, F., "Feature Vector Selection and Projection using Kernels." Neurocomputing 55, no. 1 (2003): 21–38.

[8] Chen, H., Fei-Yue, W. and Zeng, D., "Intelligence and security informatics for homeland security: information, communication, and transportation." Intelligent Transportation Systems, IEEE Transactions on, no. 4 (2004): 329–341.

[9] Domboulas, D.I., Infrared Imaging Face Recognition using Nonlinear Kernel-Based Classifiers. Master of Science in Electrical Engineering, Naval Postgraduate School, Monterey, CA, (2004)

[10] Duda, R.O., Hart, P.E. and Stork, D.G., Pattern Classification John Wiley & Sons, Inc., 2001.

[11] Hou, J., Zhang, Y., Cao, J. and Lai, W., "Visual support for text information retrieval based on matrix's singular value decomposition." Web Information Systems Engineering, 2000. Proceedings of the First International Conference on, (2000): 344–351.

[12] Joachims, T, Learning to Classify Test using Support Vector Machines Kluwer Academic Publishers / Springer, 2002.

[13] Liu, C., "Gabor-based kernel PCA with fractional power polynomial models for face recognition." Pattern Analysis and Machine Intelligence, IEEE Transactions on, no. 5 (2004): 572–581.

[14] Manning, C.D., Raghavan, P. and Schutze, H., Introduction to Information Retrieval Cambridge University Press, 2008.

[15] Menon, R., Keerthi, S.S., Loh, H.T. and Brombacher, A.C., "On the effectiveness of latent semantic analysis for the categorization of call centre records." Engineering Management Conference, 2004. Proceedings. 2004 IEEE International, (2004): 546–550.

[16] Mokris, I. and Skovajsova, L., "Document space dimension reduction by Latent Semantic Analysis and Hebbian neural network." Intelligent Systems and Informatics, 2008. SISY 2008. 6th International Symposium on, (2008): 1–4.

[17] Muller, K.R., Mika, S., Ratsch, G., Tsuda, K. and Scholkopf, B., "An introduction to kernel-based learning algorithms." Neural Networks, IEEE Transactions on, no. 2 (2001): 181-201.

[18] Scholkopf, B. and Smola, A.J., Learning with Kernels: Support Vector Machines, Regularization, Optimization and Beyond MIT Press, 2002.

[19] Zeimpekis, D. and Gallopoulos, E., TMG: A MATLAB Toolbox for Generatring Term-Document Matricies from Text Collections, Grouping Multidimensional Data Springer Berlin Heidelberg, 2006.

[20] Zeimpekis, D. and Gallopoulos, E., "Text to Matrix Generator User's Guide," Department of Computer Engineering and Informatics, University of Patras, Greece (2007).

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Ft. Belvoir, Virginia

2. Dudley Knox Library
   Naval Postgraduate School
   Monterey, California

3. Professor Jeffrey B. Knorr
   Chairman, Department of Electrical and Computer Engineering
   Naval Postgraduate School
   Monterey, California

4. Professor Monique P. Fargues
   Department of Electrical and Computer Engineering
   Naval Postgraduate School
   Monterey, California

5. Professor Roberto Cristi
   Department of Electrical and Computer Engineering
   Naval Postgraduate School
   Monterey, California

6. Professor Phillip E. Pace
   Department of Electrical and Computer Engineering
   Naval Postgraduate School
   Monterey, California

7. Steven M. Benveniste
   Department of Electrical and Computer Engineering
   Naval Postgraduate School
   Monterey, California