



Operations Research Seminar

Operational Models for Searching Using Unmanned Underwater Vehicles

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Unmanned underwater vehicles (UUVs) are increasingly being used in a diverse range of operations. In mine sweeping applications the mission objective is to search the area of interest, using underwater imaging sensors such as side scan sonars, until either the first mine is located, or it is verified that none can be found. Communication constraints require that the vehicle be connected with physically for data downloads. In one particular scenario the search area can be considered a line, and prior probabilities of finding a mine on the line can be related to external considerations such as the bottom characteristics etc. The optimization problem is to determine a sequence of points on the line where the UUV should be configured to return for a data download, so as to minimize the expected mission time. Extensions of this case are also developed for the exploration of a set of potential contacts, each with some probability of success, to minimize the expected mission time.

Date: Thursday, August 21, 2008

Time: 14:00-15:00

Location: GL-286