



Operations Research Seminar

The Design and Performance Analysis of Index Policies for the Admission Control and Routing of Impatient Customers for Service

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15:00-16:00 in GL-115
Refreshment 14:45-15:00 in GL-239

There are a range of approaches to the development of heuristic policies for complex stochastic dynamic programs. It is usually a considerable challenge to say much about the quality of performance of such policies. We use a problem concerning the optimal dynamic control of (first) admissions and (then) routing of impatient customers for service to illustrate Lagrangian relaxation as an approach to the design of policies. Some insights regarding the strength of performance of the derived index heuristic for this problem are available from the nature of solutions to the relaxation itself. These insights are strengthened by the development of performance bounds. While we are able to assert the optimality of the index heuristic in a range of asymptotic regimes, the performance bounds are able to identify instances where its performance is relatively weak.

Kevin Glazebrook is Distinguished Professor of Operational Research (OR) at Lancaster University, having previously held a Chair in Applied Probability at the University of Newcastle upon Tyne and a Chair in Management Science at the University of Edinburgh. In 1989-90 he was an NRC Senior Research Fellow at NPS. He has (co-)authored around 140 papers in outlets which span the leading international journals in OR, applied probability and statistics. He is currently directing two major national initiatives in OR in the UK. One of these, the LANCS Initiative, is a £13M project to build national research capacity in the mathematics of OR.