Online Resource Allocation Problems

Abstract:

In this talk we are interested in a general class of online resource allocation problems exhibiting a combination of (i) incomplete and uncertain input streams revealed over time, (ii) time-sensitive objectives, and (iii) computational constraints for making online decisions. After discussing some contexts and applications for this class of problems (sponsored search auctions and online auctions; on-demand video/movie requests; kidney exchanges) we will discuss in details various methodological and algorithmic results we have obtained on some basic canonical problems from this class including: online bipartite matching problems, online matroidal secretary problems, and online linear programming. Research funded in part by NSF, ONR, and AFOSR.

Biography: Patrick Jaillet is the Dugald C. Jackson Professor in the Department of Electrical Engineering and Computer Science and a member of the Laboratory for Information and Decision Systems at MIT. He is also Co-Director of the MIT Operations Research Center. Before MIT, he held faculty positions at the University of Texas at Austin and at the Ecole Nationale des Ponts et Chaussees, Paris. He received a Diplôme d'Ingénieur from France, and then an SM and PhD in Operations Research from MIT. His research interests include on-line problems; real-time and dynamic optimization; network design and optimization; probabilistic combinatorial optimization; and financial engineering. Dr. Jaillet was a Fulbright Scholar in 1990 and has received several awards including the recent 2010 Glover-Klingman Prize. He is a member of the INFORMS and SIAM. He is currently an Associate Editor for Networks, Transportation Science, and Naval Research Logistics, and was an Associate Editor for Operations Research from 1994 to 2005.