Faculty of Business Administration

SEMINAR SERIES No. 07/1011
Operations Science

"Optimal Keyword Bids in Search-Based Advertising with Stochastic Ad Positions"

Prof. Mahmut Parlar

Professor of Operations Science
McMaster University, Canada

Abstract

U.S. expenditures on search engine advertising in 2010 are estimated to total over $12.4 billion, nearly half of all internet advertising expenditures. In search-based advertising, advertisers bid for keywords, where bid price determines ad placement, which in turn affects the click--through rate and the conversion rate. Advertisers typically have a fixed daily budget that should not be exceeded, so an advertiser must spend the budget intelligently by selecting the right keywords and then allocating the right proportion of the budget for each keyword. In this paper, we construct and examine a stochastic model for this selection and allocation process. We provide analytical results for the single-keyword problem and examine the multiple-keyword problem numerically. We show the implications of having a probabilistic budget constraint on the model and its solution. We investigate the interaction between keywords of varying levels of risk and return. Our paper provides a critical analysis of the advertiser's problem that will serve as a jumping point for future research.

Date: **February 16, 2011 (Wednesday)**

Time: **10:30 – 12:00**

Venue: **J307**

ALL ARE WELCOME!

A Short Biography of Prof. Mahmut Parlar

Prof Mahmut Parlar is Full Professor of Operations Science at McMaster University, Canada, and is visiting Lingnan University in Hong Kong. He got this PhD degree in Management Sciences from University of Waterloo in 1979. He specializes in the applications of operations research techniques (i.e., mathematical modeling of decision problems using stochastic processes and optimization theory) to supply chain management decisions. His recent research interests include coordination and competition in supply chain management, operations research applications in eBusiness, stochastic inventory modeling and the use of computer algebra system Maple in operations research modeling. He teaches courses in operations management, stochastic processes, management science and computer simulation.

Prof. Parlar has published almost one hundred papers in top-tier journals, including Management Science and Operations Research, and his papers have been cited more than one thousand times in total according to ISI Web of Science. He has recently published a book (Interactive Operations Research with Maple: Methods and Models, Birkhauser, Boston) that describes the effective use of the computer algebra system Maple in operations research modelling. He has consulted on issues related to design optimization, bidding strategies and production planning. Professor Parlar is currently serving as a member of the Editorial Board of IIE Transactions.