



Academic Seminar on

Time:

Uses of Sub-sample Estimates in Stochastic Optimization Models

15:00 - 16:00, 14 December 2011 (Wednesday)
(Tea reception after seminar)

Venue:

Room HJ203, The Hong Kong Polytechnic University

Abstract

Optimization software enables the solution of problems with millions of variables and associated parameters. These parameters are, however, often uncertain and represented with an analytical description of the parameter's distribution or with some form of sample. With large numbers of such parameters, optimization of the resulting model is often driven by mis-specifications or extreme sample characteristics, resulting in solutions that are far from a true optimum. This talk describes how asymptotic convergence results may not be useful in large-scale problems and how the optimization of problems based on sub-sample estimates may achieve improved results over models using full-sample solution estimates. A motivating example and numerical results from a portfolio optimization problem demonstrate the potential improvement. A theoretical analysis also provides insight into the structure of problems where sub-sample optimization may be most beneficial.



Professor John R. Birge
University of Chicago

Biography

John R. Birge received his M.S. and Ph.D. degrees from Stanford University in Operations Research. His A.B. is from Princeton University in Mathematics. He is currently the Jerry W. and Carol Lee Levin Professor of Operations Management at the University of Chicago Booth School of Business. Previously, he was Dean of the McCormick School of Engineering and Applied Science and Professor of Industrial Engineering and Management Sciences at Northwestern University since 1999. He also served as Professor and Chair of Industrial and Operations Engineering at the University of Michigan where he was from 1980 to 1999.

Professor Birge has worked for and been a consultant to a number of organizations including Morgan Stanley, Deutsche Bank, General Motors, Chrysler Corporation, Volkswagen, Detroit Edison, Herman Miller, TRW, Schlumberger, the Michigan State Senate, the Michigan State Police Troopers Association, and the Comision de Regulacion de Energia y Gas in Colombia.

Professor Birge is former Editor-in-Chief of Mathematical Programming, Series B. He also serves on the editorial boards of Mathematical Programming, Series A, Operations Research, Management Science, etc. In 1986, he was selected as an Office of Naval Research Young Investigator. He has also received the Medallion Award from the Institute of Industrial Engineers, the Fellows Award from the Institute for Operations Research and the Management Sciences (INFORMS), the Inyong Ham Distinguished Lectureship from Pennsylvania State University, the E. Leonard Arnoff Memorial Lectureship on the Practice of Management Science, the 2004 Best Paper Award from the Japan Society for Industrial and Applied Mathematics, the 2008 Kuhn Prize from the Naval Research Logistics journal, and the 2008 George Kimball Prize from INFORMS. In 2011, he was elected a member of the National Academy of Engineering. He has served as Vice-Chair of the University of Michigan Senate Assembly, as well as Vice President-Subdivisions and President of INFORMS. He is author of two books and more than seventy refereed publications in a variety of journals.

Sponsors:

The Hong Kong
Polytechnic University

The AMSS-PolyU
Joint Research Institute

All Are Welcome

Workshop Website:

<http://www.polyu.edu.hk/ama/jri/events.htm>

Enquiry:

Ms Mansfield Lee at 2766 6938 or makmlee@inet.polyu.edu.hk