The Hong Kong Polytechnic University
Department of Logistics and Maritime Studies
Research Seminar

Stochastic Optimization with Decisions Truncated by Random Variables

by

Dr Xiangyu Gao
Assistant Professor
Department of Decision Sciences and Managerial Economics
CUHK Business School
The Chinese University of Hong Kong

Date: 12 September 2018 (Wednesday)
Time: 10:30am-11:30am
Venue: M802, Li Ka Shing Tower
The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

Many operations management problems can be formulated as stochastic optimization problems in which the decision variables are truncated by some random variables. Examples include inventory control with random capacities and revenue management capacity allocation problem with random demands. An intrinsic challenge arises from the fact that the truncation by random variables may destroy convexity of the underlying optimization problem. We develop a transformation technique to convert the original non-convex problems to equivalent convex ones. Our transformation allows us to prove the preservation of some desired structural properties, such as convexity, submodularity, and L-natural-convexity, under optimization operations, that are critical for identifying the structures of optimal policies and developing efficient algorithms.

Bio:

Xiangyu Gao is an assistant professor in the department of Decision Sciences and Managerial Economics at the CUHK business school, the Chinese University of Hong Kong. He obtained his doctoral degree from Department of Industrial and Enterprise Systems Engineering at the University of Illinois at Urbana Champaign. His current research interests include inventory and supply chain management, dynamic pricing and revenue management, and data-driven online learning algorithms.

Please email to clare.lau@polyu.edu.hk for enquiries.

All are welcome!