



Department of Systems Engineering
and Engineering Management

香港城市大學
City University of Hong Kong

Seminar Series

Rate-optimal contextual ranking and selection

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Date: 13 January 2020 (Monday)

Time: 10:30 am - 11:30 am

Venue: P7510, Yeung Kin Man Academic Building (YEUNG), City University of Hong Kong

Abstract

The ranking and selection (R&S) problem seeks to efficiently select the best simulated system design among a finite number of alternatives. It is a well-established problem in simulation-based optimization, and has wide applications in the production, service and operation management. In this research, we consider R&S in the presence of context (also known as the covariates, side information or auxiliary information in the literature), where the context corresponds to some input information to the simulation model and can influence the performance of each design. This is a new and emerging problem in simulation for personalized decision making. The goal is to determine the best allocation of the simulation budget among various contexts and designs so as to efficiently identify the best design for all the contexts that might possibly appear. We call it contextual ranking and selection (CR&S). We utilize the OCBA approach in R&S, and solve the problem by developing appropriate objective measures, identifying the rate-optimal budget allocation rule and analyzing the convergence of the selection algorithm. We numerically test the performance of the proposed algorithm via a set of abstract and real-world problems, and show the superiority of the algorithm in solving these problems and obtaining real-time decisions.

About the Speaker

Jianzhong Du is a PhD student in the Department of Systems Engineering and Engineering Management, City University of Hong Kong. He received his M.Sc. in Mathematics from Shandong University, China. His research interests include simulation optimization and its applications.

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All are Welcome!