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Computer Science Seminar Series
### National Capital Region

Efficient Stochastic Simulation Optimization Algorithms and Their Applications

Speaker: Prof. Jie Xu
George Mason University
Friday, October 20, 2017
1:00PM- 2:00PM, NVC T3

Abstract

Stochastic simulation optimization provides a powerful and general tool to optimize the design of complex systems. However, major difficulties arise when the simulation is time-consuming and computational budget is limited. In this talk, we discuss several efforts that aim to improve the computational efficiency of stochastic simulation optimization algorithms for large-scale applications. First, we discuss a class of locally convergent adaptive stochastic search algorithms. We then study the integration of search algorithms with optimal sampling allocation policies. Finally, we illustrate the benefit of using multi-fidelity models in simulation optimization. A power grids line hardening application will also be introduced as a case study.

Biography
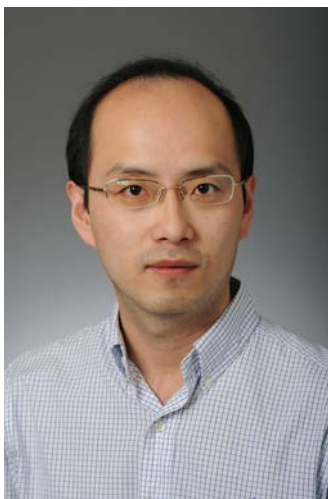
Dr. Jie Xu is an Associate Professor of Systems Engineering & Operations Research at George Mason University, Fairfax, VA, USA. He received his Ph.D. degree in Industrial Engineering and Management Sciences from Northwestern University, Evanston, IL, USA, in 2009. His research interests are the modeling, simulation, and optimization of complex stochastic systems. His expertise includes stochastic simulation optimization, rare event simulation, computational intelligence, and their applications in artificial intelligence, air transportation, cloud computing, health care systems, machine learning, power systems, and risk management. His work has been sponsored by the National Science Foundation, Air Force of Scientific Research, Jeffress Trust of Interdisciplinary Research, Oak Ridge Associated Universities, Office of Naval Research, National Cancer Institute of France, and National Natural Science Foundation of China.