

Seminar Announcement

Elad Gilboa
Post-doctorate Fellow
Technion, Israel Institute of Technology
Israel



Friday, November 13, 2015
Green Hall, Room 0120
11:10 AM

Probabilistic Modeling for Asset Management of Power Grid

Abstract: Power system reliability management requires taking multiple decisions under increasing uncertainty. One of the most important planning decisions for power system reliability involves maintenance scheduling as part of the asset management problem. Maintenance scheduling attempts to reduce the frequency and duration of service interruption. Asset management requires a large amount of coordination between multiple entities and long-term planning, often months in advance. In this talk, I will introduce our work in the mid-term asset management as a stochastic optimization problem with multiple hierarchical layers of decision making. We devised a tractable scenario approximation technique for efficiently assessing the complex implications that a maintenance schedule inflicts on a power system. This is done using efficient Monte-Carlo simulations that tradeoff between accuracy and tractability. Our method incorporates ideas from machine learning and sequential decision making, utilizing tools such as probabilistic risk assessment of rare events, stochastic scenario optimization and importance sampling using the cross-entropy method.

Bio: Dr. Elad Gilboa is currently working as a post-doctorate fellow at the Technion, Israel Institute of Technology, in the lab of Prof. Shie Mannor. He is an alumnus of Washington University in St. Louis, where he received his PhD under the guidance of Prof. Arye Nehorai. As part of his post-doctorate fellowship, Dr. Gilboa is working on the EU GARPUR research project, which aims to maximize social welfare in the coming decades through the development, assessment, and evaluation of new criteria for system reliability and management of European power grids.