Colloquium

Computational Large-Scale Continuous Optimization, Uncertainty and Robustness

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Abstract: Optimal decisions often rely on assumptions about the models and their associated parameter values. Therefore, it is essential to assess the suitability of these assumptions and to understand the sensitivity of outcomes when they are altered. More importantly, appropriate approaches should be developed to achieve a robust solution. In this talk, we first present a sensitivity analysis on parameter values as well as model specification of a problem in portfolio management, namely the optimal portfolio execution problem. We then propose more robust solution techniques and models including regularized robust optimization for convex optimization programs and computational stochastic optimization. Extensions of these approaches for energy storage operational management and electricity price modeling are discussed.

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