Engineering Management, Information, and Systems

Seminar Series

Research Seminar

New Algorithms and Complexity Analysis of Multistage Stochastic and Distributionally Robust Optimization

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Friday, March 12, 2021
11:00 a.m. – 12:15 p.m.
Zoom link: https://smu.zoom.us/j/95095343594

Abstract: In this talk, we will discuss some new advances in algorithm design and analysis for multistage stochastic optimization. In particular, we will present a general fr(e)-1.9 (s)-1.5(e8)1.3(-1.d( )Tj9f-37 p)-49-0.6(e)-1.8(r)-0.6(a)-37 1ul8M7i-1.8(o)-2.9 (c)-39 (h)-4

solving multistage stochastic mixed integer nonlinear programs (MS-MINLP). This new framework significantly generalizes the traditional SDDP algorithm for multistage stochastic linear program and the recent stochastic dual dynamic integer programming (SDDiP) for multistage stochastic mixed-integer linear programs to MS-MINLP and multistage distributionally robust optimization with non-Lipschitzian value functions. We will also present a complete result that settles an important open question regarding the iteration complexity of SDDP-type algorithms in this general framework. This is joint work with my doctoral student Shixuan Zhang.stuhctoDt