Research Seminar

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

Dr. Andy Sun
Associate Professor
H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology

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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)-1.5e$)1.3 -1.d( )Tj9f-$\mathcal{J}$ p)-$\mathcal{A}$-0.6(e)-1.8r)-0.6(a)-$\mathcal{J}$ 1uIB17i-1.8(o)-2.9 (c)-$\mathcal{J}$ (h)-

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