

*Strong Convexification and Distributed Optimization for
Nonconvex Optimization over a Network*

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Abstract

This talk is motivated by the desire to develop distributed algorithms for constrained nonconvex optimization over a network. The network can be a physical one, such as the power network, or an abstract one, that describes the constraint coupling between variables. So, this type of problems is ubiquitous in applications. Despite the recent progress in distributed algorithms for nonconvex programs, highly complicated constraints still pose significant challenges for theory and practice. In this talk, we will propose the first distributed algorithm for nonconvex optimization over networks that guarantees global and local convergence. Applications to the optimal power flow problems, optimization over manifolds, and nonsmooth optimization will be discussed.

Biography

Andy Sun is currently the Anderson-Interface Early Career Professor, Associate Professor, at the H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology. Dr. Sun received his doctoral degree from the Operations Research Center at MIT. He has broad interests in optimization, both deterministic and stochastic, convex and nonconvex. Dr. Sun also has worked extensively on various aspects of power system analysis and operations, including robust unit commitment, socp based AC OPF, and voltage stability. His work has won several awards including the NSF CAREER award, INFORMS ENRE best paper in Energy, HICSS best paper award, and Dantzig dissertation award.

