Adaptive Stochastic Algorithms for Nonlinearly Constrained Optimization

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I will discuss the interesting features that drive the convergence guarantees for a set of adaptive stochastic algorithms that my collaborators and I have proposed for solving nonlinearly constrained optimization problems. These algorithms are of the sequential quadratic optimization and interior-point varieties, and they operate in the fully stochastic regime in which we prove convergence-in-expectation and almost-sure-convergence guarantees.

Joint work with Albert S. Berahas (University of Michigan, USA), Xin Jiang (Lehigh University, USA), Michael J. O'Neill (University of North Carolina, USA), Daniel P. Robinson (Lehigh University, USA), Qi Wang (Lehigh University, USA) and Baoyu Zhou (University of Chicago, USA).