Séminaire de Probabilités et Statistique

Mardi 9 janvier à 14h00

Salle de conférences

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High Probability and Risk-Averse Guarantees for Stochastic Saddle Point Problems

We investigate the stochastic accelerated primal-dual algorithm for strongly-convex-strongly-concave (SCSC) saddle point problems, common in distributionally robust learning, game theory, and fairness in machine learning. Our algorithm offers optimal complexity in several settings and we provide high probability guarantees for convergence to a neighborhood of the saddle point. For quadratic problems under gaussian perturbations, we derive analytical formulas for the limit covariance matrix together with lower bounds that show that our general analysis for SCSC problems is tight. Our risk-averse convergence analysis characterizes the trade-offs between bias and risk in approximate solutions. We present numerical experiments on zero-sum games and robust learning problems.