Title: Non-convex methods for high-dimensional regression with noisy and missing data

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Time & Place:
Thursday, Feb. 13, 2014, 1:00-2:00pm
Room 3280 WID Building (3rd floor teaching lab)
**Use the special events elevator near the Aldo Café to access room 3280

Abstract:

Noisy and missing data are prevalent in many real-world statistical estimation problems. Popular techniques for handling non-idealities in data, such as imputation and expectation-maximization, are often difficult to analyze theoretically and/or terminate in local optima of non-convex functions -- these problems are only exacerbated in high-dimensional settings. We present new methods for obtaining high-dimensional regression estimators in the presence of corrupted data, and provide theoretical guarantees for the statistical consistency of our methods. Although our estimators also arise as minima of non-convex functions, we show the rather surprising result that all stationary points are clustered around a global minimum. We describe extensions of our work to non-convex regularizers, and demonstrate that an adaptation of composite gradient descent may be used to compute a global optimum up to statistical precision in log-linear time.