

Beyond Matrix Completion

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Abstract

In this talk, we study some of the statistical and algorithmic problems that arise in recommendation systems. We will be interested in what happens when we move beyond the matrix setting, to work with higher order objects – namely, tensors. To what extent does inference over more complex objects yield better predictions, but at the expense of the running time? We will explore the computational vs. statistical tradeoffs for some basic problems about recovering approximately low rank tensors from few observations, and will show that our algorithms are nearly optimal among all polynomial time algorithms, under natural complexity-theoretic assumptions.

This is based on joint work with Boaz Barak.

1998 ACM Subject Classification F.2 Analysis of Algorithms and Problem Complexity

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