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Recent Advances in Rank Estimation Methods

Abstract

In this talk, I will discuss rank estimation methods. I will especially make the case of why it is method worth considering if we are concern with robustness of our statistical estimators. I will discuss some recent applications of this method, including semi-parametric estimation with splines/or wavelets, single-index estimation, nonlinear estimation, Bayesian estimation, penalized regression. I will also show how the method of ranks can be coupled with the Amplitude Message Passing (AMP) algorithm—often use in stochastic differential equations— to solve LASSO-type problems. In this era of “big data”, this is especially important if one is interested in high dimension estimation where there are often more covariates than data points.