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Title: "Nonparametric Instrumental Variable Regression through Stochastic Approximate Gradient Descent"

Abstract

In this work, we introduce a novel nonparametric estimation procedure for instrumental variable (IV) models, which are extensively used in econometric practice to counteract the damaging effects of endogenous covariates.

This method works through the construction of a suitable risk functional, which is used to perform SGD-like updates within an appropriate function space.

The computation of the stochastic gradients requires approximations to a conditional expectation operator as well as to a ratio of densities.

We'll analyze the convergence properties of our method, as well as its practical performance.

Joint work with Yuri Saporito (FGV EMAp) and Yuri Resende (Columbia University).