

Dimension reduction and variable selection for high-dimensional multivariate linear regression

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Abstract

This talk will have two parts. In the first part, I will develop reduced rank regression with matrix projections for high-dimensional multivariate linear regression model. After introducing the basic setup of the model, I will discuss the estimation methods and present some of their key properties, and then illustrate their performance through simulation studies as well as a real-life data analysis. Then, in the second part, I will develop envelope-based sparse reduced rank regression for high-dimensional multivariate linear model. I will describe the method of estimation and then present some optimality properties of the estimates. I will finally illustrate their performance through Monte Carlo simulation and a real-life data analysis. I will also compare the performance of the developed methods with some other well-known methods existing in the literature.

Keywords

High-dimensional multivariate linear regression model, Reduced rank regression, Envelope-based sparse reduced rank regression, Monte Carlo simulation.