

The University of Chicago
Department of Statistics

Seminar

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**“Local Projections and Varying Coefficients in
Nonparametric Multiple Regression”**

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ABSTRACT

The conditional expected value of a response given a vector of covariate values contain much of the information about the relationship between the response and the covariates. However, this regression surface cannot be estimated efficiently nor displayed when the number of covariates is moderate or large. In this case it is useful to extract essential features of the regression surface that can be estimated efficiently and that can be displayed and interpreted easily. For this purpose, we explore local projections of the regression surface onto the sample space of each covariate. We estimate the varying coefficients of the projections using locally linear methods and give significance plots to display the regions where the response is significantly correlated with each covariate. We propose to select the bandwidth by maximizing the power of a test of whether the average gradients in the directions of each of the covariates are zero.

This is joint work with Alex Samarov and Chad Schafer
