Abstract
Multi-fold Cross-validation is the bread-and-butter for many procedures in statistics, applied mathematics and machine learning. Despite its popularity, it is known to have high variability. I will present a space-filling design approach to reduce this variability in building an approximation model for a black-box function. The key of this approach is to generate a structured cross-validation sample such that the input values in each fold achieve uniformity. The advantage of the proposed method will be demonstrated by theoretical and numerical results.

I will then talk about a spatial model for predicting the sales performance of brands in marketing research. This model uses qualitative factors to quantify the inter-dependence of brands. The correlation function of the model is constructed to simultaneously handle brand dependence and spatial dependence. Integer programming is used in the estimation to uncover the hidden group structure among brands. The effectiveness of this model is illustrated by using a consumer packaged goods dataset to understand the competitive landscape among brands within a product category.

About the Speaker
Qiong Zhang is a Ph.D. candidate in the Department of Statistics at the University of Wisconsin-Madison. She received her M.A. Degree in Economics.
in Guanghua School of Management at Peking University in 2009, and her B.S. Degree in Statistics at Nankai University in 2007. Her research interests include computer experiments and uncertainty quantification, design of experiments and subsampling for big data, statistical methods for nanotechnology, and spatial and spatial-temporal modeling with applications in marketing.

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*All are Welcome!*