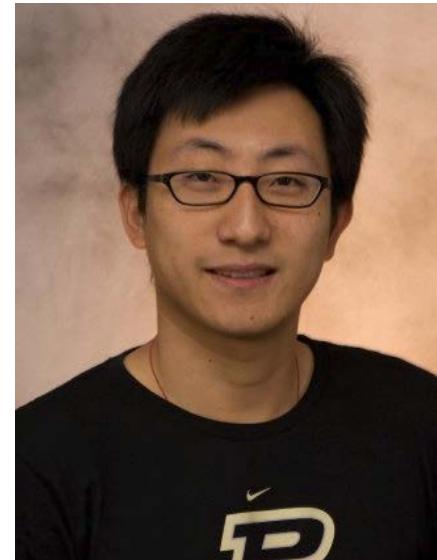


Sparse and Low-rank Tensor Estimation via Cubic Sketching

Professor Guang Cheng
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Date: 28 November 2017 (Tuesday)
Time: 2.00pm to 3.00pm
Venue: Lecture Theatre 4 (SPMS-03-09)
School of Physical and Mathematical Sciences

Abstract

In this talk, we propose a general framework for sparse and low-rank tensor recovery from rank-one cubic sketchings. Two related statistical problems are covered by symmetric and non-symmetric models. One is high-dimensional linear regression model with interaction effect. Another one is statistical compressed image transmission. A block-wise thresholding gradient decent algorithm is proposed for stable recovery in both noiseless and noisy cases. Both upper bound and lower bound for the estimation accuracy are obtained over a large class of low-rank tensors, which show the optimality of the proposed procedure. To overcome the theoretical difficulty from high-order sub-Gaussian random variables, we also develop some novel tensor concentration inequalities, which may be of independent interests.

Speaker Biography

Professor Guang Cheng is a full professor at Purdue University. He did his Ph.D. in statistics at University of Wisconsin-Madison, 2006. His research interests include, Big Data, Machine Learning, High Dimensional Statistical Inferences, Modern Bayesian and Bootstrap Methods, Semi-Nonparametric Inferences and Personalized Medicine.

He won Simons Fellowship in Mathematics in 2014. He has been associate editors of Journal of Statistical Planning and Inference and Electronic Journal of Statistics.

Host: Associate Professor Pan Guangming

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