MISSOURI S&T University of Science & Technology

Distinguished Research Seminar Series

Friday, October 17, 4:15 – 5:15 pm

Toomey Hall 295

Refreshments at 4:00 followed by the lecture at 4:15

Trace Pursuit: a General Framework for Model-free Variable Selection

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Abstract: We propose trace pursuit for model-free variable selection under the sufficient dimension reduction paradigm. Two distinct algorithms are proposed: stepwise trace pursuit and forward trace pursuit. Stepwise trace pursuit achieves selection consistency with fixed dimension, and is readily applicable in the challenging setting with the dimension larger than the sample size. Forward trace pursuit can serve as an initial screening step to speed up the computation in the case of ultrahigh dimensionality. The screening consistency property of forward trace pursuit based on sliced inverse regression is established. Finite sample performances of trace pursuit and other model-free variable selection methods are compared through numerical studies.

Biographical Sketch: Dr. Zhu is the structural chair professor and the head of Department of Mathematics at Hong Kong Baptist University, Hong Kong. His research interests include semiparametric and nonparametric statistics, high-dimensional data analysis, applications of empirical process theory to statistics and econometrics. He has published more than 250 papers in a wide variety of peer-reviewed journals. His monographs include "Nonparametric Monte Carlo Tests and Their Applications", "Nonparametric Monte Carlo Test with Applications" and "Empirical Likelihood in Nonparametric and Semiparametric Models". Dr. Zhu presides 35 funds with the cumulative amount of subsidy more than 10 million Hong Kong dollars. He has received many awards and honors, including the Humbolt Research Award from Germany and the State Natural Science Award of China (Class II) (the second awardee in Statistics in China). Dr. Zhu is an elected fellow of ASA and IMS, an elected member of ISI. He is also an honorary chair professor/distinguished adjunct professor for various universities, including a Chang-Jiang Chair Professor at Renmin University of China. He serves as a member in the physical science panel of the University Grants Council of Hong Kong.

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