

Sparse Tensor Optimization Approaches for Traffic Flow Prediction, Anomaly Detection and Video Surveillance

报告人：

Ziyan Luo, Professor, Beijing Jiaotong University

邀请人：

Yuhong Dai, Professor

题目：

Sparse Tensor Optimization Approaches for Traffic Flow Prediction, Anomaly Detection and Video Surveillance

时间地点：

15:00-16:00 April 4 (Tuesday), Z311

摘要：

Tensor-based modeling and computation emerge prominently with urgent demands from practical applications in the big data era. With the intrinsic sparsity in real data sets and the dimensionality reduction demands from applications, sparse tensor optimization (STO) is emerging, and efforts are distributed in a variety of specific applications, such as tensor regression in statistics, tensor recovery in imaging/video processing, and related engineering problems in data analysis. In this talk, we will give a brief introduction to the optimization models and algorithms of STO arising from several recent application works of our research group, including the traffic flow prediction, internet traffic anomaly detection, and background subtraction in video surveillance. Indeed, STO is heavily relied on the traditional sparse optimization and low-rank matrix optimization, and the optimization theory and algorithms for STO are still in the early stage. Researchers from Science and Engineering will be so welcomed to join in the study of STO.

报告人简介：罗自炎，女，北京交通大学数学与统计学院教授、博士生导师。曾为美国斯坦福大学、新加坡国立大学、英国南安普顿大学访问学者，香港理工大学研究助理。发表 SCI 论文 40 余篇 (ESI 高被引论文 2 篇)，涉及期刊《Math Program》《SIAM J Optim》《J Mach Learn Res》《IEEE Trans Signal Process》《SIAM J Matrix Anal Appl》等。合作撰写中文著作 1 部、SIAM 出版社英文专著 1 部；主持国家自然科学基金“面上”、“青年”项目、北京市自然科学基金“重点”项目等。获教育部自然科学奖二等奖、中国运筹学会青年科技奖提名奖、北京市青年教师教学基本功比赛二等奖、北京市本科毕设优秀指导教师等。主要研究兴趣：大规模稀疏低秩优化、张量优化、统计学习，及其在压缩感知、视频分析、智慧交通中的应用。