Simeng Shao

CONTACT INFORMATION
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PERSONAL WEBSITE
https://simengshao.github.io

EDUCATION

University of Southern California, Los Angeles, CA **2017-2022** (Expected)
Ph.D. Candidate in Statistics
Advisors: Dr. Adel Javanmard, Dr. Jacob Bien

Renmin University of China, Beijing, China **2013-2017**
B.S. in Statistics
Thesis Advisor: Dr. Jianxin Yin

University of California, Davis, Davis, CA **2015-2016**
General Course. Statistics

RESEARCH INTERESTS

Statistical Inference, Feature Selection, Selective Inference, High-dimensional Statistics, Multiple and Structured Testing, Dynamic Pricing.

PUBLICATIONS

A. Javanmard, H. Nazerzadeh and **S. Shao**. "Multi-Product Dynamic Pricing in High-Dimensions with Heterogeneous Price Sensitivity."
IEEE International Symposium on Information Theory (ISIT), 2020.

S. Shao, J. Bien, and A. Javanmard. "Controlling the False Split Rate in Tree-Based Aggregation."
Submitted to Journal of the American Statistical Association, 2021.

WORKING PAPERS

S. Shao, J. Bien, and A. Javanmard. "Statistical Inference for Model Parameters of a Mixture of Linear Models."
Manuscript in Preparation

PROJECTS

A Blessing or Curse? Analysis on the Dark Side of the Oscar Award, Los Angeles, CA **2020**

- The project studied how the Academy Awards impact the movie industry by studying two questions: i) does winning Oscar's have an economic benefit? and ii) what is the risk of making films specifically targeting winning the Academy Awards? Using analysis that applied machine-learning methods (such as k-means clustering) and causal inference methods (such as propensity-score matching, difference-in-difference and synthetic control), we analyzed the effects on ratings and box-office performances of winning and be nominated for the Oscar Awards. We also developed a machine-learning method for identifying Oscar-bait movies and mainstream movies and compared the benefits and risks of both strategies.

Functional Graphical Model for High-dimensional Data with Sparsity and Irregularity, Beijing, China **2016-2017**

- Undergraduate thesis on modeling conditional dependence structure among multivariate Gaussian random processes using Graphical Model
- Proposed extension to model sparse and irregularly-observed data, investigated the sparsity conditions for maintaining consistency and implemented with numerical study and EEG data

Classified Mixed Model Prediction (CMMP), Davis, CA **2016**

- Leader of NSF-funded undergraduate research group that focused on prediction with mixed model with subject-specific random effects

- Proposed a restricted maximum likelihood (REML) prediction and Implemented the method with numerical experiments and crop area data in Iowa counties

Functional Data Analysis with Applications to Stock Market Data, Davis, CA **2016**

- NSF-funded undergraduate research that focused on applying functional data analysis methods to 30-year S&P 500 indices and predicting future volatility
- Explained the yearly variation of stock data by Functional Principal Component (FPC) analysis, investigated contemporaneous relationships by Functional Concurrent Regressions using longitudinal varying coefficient model

Teaching Experience

University of Southern California

Instructor, BUAD 310 Applied Business Statistics **Summer 2020**

Teaching Assistant, BUAD 310 Applied Business Statistics **Spring 2020**

Honors and Awards

Marshall/Graduate School Fellowship **2017-2022**

Competitive fellowship for graduate students to support their doctoral work, covering their tuition and stipend.

Highest Prize of Academic Scholarship **2015-2016**

First place among department of Statistics.

Chancellor Scholarship **2015-2016**

One of the total 57 students in school and full year of scholarship for exchanging program.

Conferences & Invited Talks

- INFORMS Annual Meeting, Anaheim, CA **Oct. 2021**
- Joint Statistical Meetings (Virtual) **Aug. 2020**
- IEEE International Symposium on Information Theory (Virtual) **Jun. 2020**

Software

Software package "HAT" available on CRAN.

Activities

IIDATA Statistics Convention **Dec. 2015 – May. 2016**

The first student-run Statistics Convention at UC Davis.

Core Member, Academic Team.

Technology & Education Connecting Culture, Summer Institute Jul. 2015

Provided academic and pedagogical training to village school teachers in Binchuan, Yunnan, China.

Computing

R, Python, Matlab, C, LaTeX, Microsoft Office.