

JIACHENG ZOU

+1 650 2234385 jiachengzou@stanford.edu Expected graduation: July, 2024

EDUCATION

Stanford University

Stanford, CA

PhD in Management Science & Engineering. PhD Minor in Statistics.

July 2018 - Present

MS in Management Science & Engineering.

July 2016 - June 2018

Tianjin University of Finance and Economics

Tianjin, China

BEcon in Financial Engineering.

Sept 2012 - July 2016

RESEARCH INTERESTS

Econometrics, Human-AI Interaction, Causal Inference, Healthcare, FinTech.

RESEARCH

1. Inferences of Large Panels with Many Variables

Coauthor: Markus Pelger

Job Market Paper

We identify, formulate and provide a solution for a new class of multiple testing problems, which arises from using machine learning on different individuals. Regularized ML methods complicates even which statistical hypotheses to test, when different variables are selected for different individuals. We formalize this problem as a two-dimensional hypotheses test, and combine post-selection inference with a novel multiple testing method to control for false discoveries. Empirically, we select sparse risk factors from a factor zoo of 114 variables, to explain 243 doubly-sorted U.S. stock portfolio returns.

Presented at *NASMES 2023, AMES 2023, INFORMS 2023, Western Conference on Math Finance 2023, NBER-NSF SBIES 2022, California Econometrics 2022*.

2. Learning Bipartite Relationship Graph with Applications for National Kidney Allocation Policy Evaluations

Coauthors: Johan Ugander, Itai Ashlagi

Does exchange occur due to supply-demand relationship, beyond consideration of quality on two-sided platforms? We use the potential outcome framework from causal inference to define dyadic relationships, and leverage repeated observations of interactions in the platform to identify edges that have statistically significant fixed effects. Learning of the fixed effects allows machine learning estimators, such as boosting forests, to control for covariates. The learned graph controls for falsely discovered edges via multiple testing. We study the U.S. deceased donor kidney allocation system by analysis of > 500,000 deceased donor acceptance decisions of 90 Transplant Centers. The learned graph provides characteristics that can help explain the acceptance rate differences across the country.

3. AI Assistance in US Deceased Donor Kidney Allocation: an Information Nudge Experiment

Coauthors: Itai Ashlagi, Paulo Somaini, Nikhil Agarwal, Grace Guan

We use medical, geographical and temporal information to identify at-risk cadaveric kidneys, through a novel donor risk score. The score is the predicted probability of non-utilization, estimated by random forests. We design a retrospective Randomized-Control Trial to analyze how this AI generated

information influences the decisions of practitioners in an IRB/HRSA-approved study.

Presented at *NeurIPS 2023 Workshop on Learning from Time Series for Health (Spotlight)*, *INFORMS 2022*.

4. **Large Dimensional Change Point Detection**

Coauthors: Yang Fan, Markus Pelger

We study change point detection with hundreds of time series and unknown number of change points. We use multiple testing after LASSO screening to exactly recover change point positions, providing trade-off of power versus false discovery. We provide FWER control theory. In simulations, we showed 20% lift in F1 scores against benchmarks of Dynamic Programming search.

Presented at *ICML 2023 Workshop on Structured Probabilistic Inference & Generative Modeling*.

5. **Risk Premia Analysis in Post-Dodd-Frank MBS**

Coauthor: Kay Giesecke

We study the different risk premia of Mortgage-Backed (MBS) Securities and To-Be-Announced (TBA) Securities. While these two markets are linked by deliveries of MBS to TBA, it is unclear how much inefficiencies occur due to the degree of freedom in deliveries. We price both classes of assets with detailed mortgage characteristics and deep neural networks. Our comparative studies capture the credit sharing distribution among different types of investors, and inform regulators of the MBS markets.

Presented at *AI in Fintech Forum at Stanford, Stanford HAI*.

TEACHING EXPERIENCES AS TEACHING ASSISTANT AT STANFORD

Undergraduate level course of

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|---|------|
| 1. MS&E 121, Introduction to Stochastic Modeling (Basic Markov Chains & CTMC) | 2020 |
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Master's/MBA level courses of

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| 1. MS&E 211X, Introduction to Optimization (Linear Programs, Lagrange Multipliers) | 2019 |
| 2. MS&E 245A, Investment Science (Mortgages, Bonds, CAPM & FF3) | 2020 (Twice), 2021 |
| 3. MS&E 245B, Advanced Investment Science (Black-Scholes Option Pricing) | 2018 |
| 4. Saudi Industrial Development Fund Credit Analyst Mini-MBA Program | 2019, 2020, 2021 |

Cumulatively served > 300 students and received overall teaching evaluations of > 4 out of 5.

REFERENCES AT STANFORD

Markus Pelger mpelger@stanford.edu

Assistant Professor of Management Science & Engineering

Itai Ashlagi iashlagi@stanford.edu

Professor of Management Science & Engineering, and Institute for Economic Policy Research

Kay Giesecke giesecke@stanford.edu

Professor of Management Science & Engineering, and Institute for Computational & Mathematical Engineering

SERVICES

Referee - ICML, Management Science.

Organizer - Stanford Advanced Financial Technology Lab Doctoral Seminar.

Member - Stanford MS&E Admission Committee, First-generation Low-income Student Club of Stanford, Stanford Allies for Women in Science and Engineering.

INDUSTRY EXPERIENCES

Meta (Formerly: Facebook)	Data Scientist Intern	2022	Menlo Park, CA
Lianhai Capital	Quant Trading Intern	2016	Beijing, China
Siemens	Software Project Management Intern	2016	Beijing, China