

JIACHENG ZOU

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

Healthcare Management, Machine Learning, Experiment Design, Human-AI Interaction, Methodology for Large Panel Data, Network Analysis, Time Series Analysis, FinTech.

RESEARCH

1. Inferences of Large Panels with Many Variables

Coauthor: Markus Pelger

Job Market Paper

Big panel data enables customization of models for different sub-populations. Can we select a joint model by combining statistical evidence from many sub-population models? A key challenge is the sub-population models can use varying sets of covariates. We formulate a novel 2D hypotheses family to capture this variation: one dimension along the different covariates, and another dimension along the cross-section. The hypotheses embed what is testable vs untestable in the data. We then propose Panel Multiple Testing to select covariates that explain a large cross-section with false discovery control. 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

We propose a fully data-driven framework of identifying a relationship graph, with no assumption of network structures. Leveraging repeated observations of interactions in a system, the method identifies edges by statistically significant fixed effects. The fixed effects inference allows machine learning estimators, such as neural networks and random forests. The learned graph controls for falsely discovered edges via multiple testing. We study the national kidney allocation system by analysis of deceased donor acceptance decisions of 86 transplantation hospitals.

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 tool influences practitioners decision making. As an IRB/HRSA-approved study, we built the underlying technology, made significant outreach efforts, and recruited > 10 participating (reaching > 25% of the system's participants) Organ Procurement Organizations.

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

With hundreds of time series and unknown number of change points to detect, we use multiple testing after LASSO screening to exactly recover change points, 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 studied the complex cashflow designs of credit risk derivative issued by FannieMae post the Dodd-Frank reforms with MDP loan state transition models for 3 million U.S. Single Family mortgages across 1.1 billion observations, fitted with deep neural networks. This captures the credit sharing distribution of the newly created Mortgage-Backed Securities.

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, Stanford First-generation Low-income Student Club (FLI)

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