Jiaxin Yu

PhD Candidate in Statistics, University of California, Irvine.

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Research Interests

Causal Inference, Semiparametric Theory, Policy Learning, Experimental Design, Longitudinal Methods, Machine Learning.

Education

2020–Present **PhD, Statistics,** *University of California, Irvine,*
Advisor: Dr. Tianchen Qian

2017–2020 **Bachelor of Science, Mathematics**, *University of California, Irvine,*
summa cum laude

Fellowships & Awards

2025 **The Beall Family Foundation Graduate Student Social Impact Award in Statistics**
Awarded to research has shown societal impact and research consists of the development of novel methodologies that advance scientific knowledge.

Publications & Preprints

2025 **Modeling time-varying effects of mobile health interventions using longitudinal functional data from HeartSteps micro-randomized trial**
Jiaxin Yu and Tianchen Qian.
Annals of Applied Statistics (to appear), https://arxiv.org/abs/2410.15049.

2025 **Amyloid quantification in the oldest-old: selecting regions for optimizing correspondence between postmortem pathology and amyloid PET**
Jiaxin Yu, Davis C. Woodworth, Evan Fletcher, Dana E. Greenia, Syed Bukhari, Thomas J. Montine, Maria M. Corrada, Claudia H. Kawas, Charles DeCarli, Seyed Ahmad Sajjadi, and Tianchen Qian.
Under review at Alzheimer's & Dementia

2025 **Autoimmune antibodies and systemic inflammatory markers are prevalent and associated with cognition in individuals aged 90+**
Ghasem Farahmand, Anne-Marie C. Leiby, Jiaxin Yu, Aanan Ramanathan, Rojan Javaheri, Claudia H. Kawas, Davis C. Woodworth, Maria M. Corrada, Tianchen Qian, Seyed Ahmad Sajjadi.
Journal of Alzheimer's Disease (to appear),
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4958419

2024 **Doubly robust estimation of causal excursion effects in micro-randomized trials with missing longitudinal outcomes**
Jiaxin Yu and Tianchen Qian.
Under review at Biometrics, https://arxiv.org/abs/2411.10620.

2023 **Comparing longitudinal impact of LATE and Alzheimer's neuropathologic changes in the oldest old**
Seyed Ahmad Sajjadi, Jiaxin Yu, Tianchen Qian, Syed A. Bukhari, Thomas J. Montine, María M. Corrada, and Claudia H. Kawas.
Alzheimer's & Dementia

Presentations & Posters

2024 **Modeling time-varying effects of mobile health interventions using longitudinal functional data from HeartSteps micro-randomized trial.**
Jiaxin Yu and Tianchen Qian
Conference of ASA Section on Statistical Learning and Data Science, Newport Beach, CA

2024 **Modeling time-varying effects of mobile health interventions using longitudinal functional data from HeartSteps micro-randomized trial.**
Jiaxin Yu and Tianchen Qian
American Causal Inference Conference, Seattle, WA

2024 **A varying-coefficient model for causal excursion effect using nested longitudinal data in mobile health.**
Jiaxin Yu and Tianchen Qian
Statistical and Machine Learning Applications in Biomedical Sciences, Irvine, CA

2024 **Assessment of contribution of neuropathological changes to cognitive impairment in late life**
Jiaxin Yu, Tianchen Qian, and S. Ahmad Sajjadi
Alzheimer's Association International Conference, Toronto, Canada

2019 **The relationship between bank supervision and performance during the great depression**
Jiaxin Yu, Spencer Sween, and Isabella Sumner
Corporate Welfare Research Symposium, Irvine, CA

Industry Experience

May 2021 – Sep 2021 **PhD Statistician**
Harbour Biomed, Shanghai, China
- Developed four R Shiny applications to support Phase I and Phase II clinical trial designs, including continuous efficacy monitoring, i3+3, and Simon's two-stage designs.
- Conducted simulations to optimize dose level predictions and assess objective response rates (ORR) in clinical trials, enhancing decision-making accuracy.

Research Experience

Jun 2024 – Present **Generalized Causal Excursion Effect Models**
Department of Statistics, University of California Irvine, Irvine, CA
- Designed a causal effect model for binary outcomes on the odds ratio scale.
- Established theoretical properties, including convergence under model misspecification.

Jun 2024 – Apr 2025 **ROC and Cross-Validation Analysis on Amyloid Quantification**
The 90+ Study, UCI MIND, Irvine, CA
- Quantified positron emission tomography (PET) using standardized uptake value ratios by performing receiver operating characteristic (ROC) analysis.
- Determined optimal SUVR cutoff values through Youden's index to maximize sensitivity and specificity for amyloid pathology prediction.

Nov 2023 – Present **Doubly Robust Estimation in Causal Inference Models**
Department of Statistics, University of California Irvine, Irvine, CA
- Developed the augmented inverse probability weighting estimator for causal excursion effects with high proportions of missing data.
- Incorporated debiased machine learning frameworks to enhance the efficiency.

Nov 2023 – Jun 2024 **Longitudinal Analysis of Inflammatory Marker and Cognition**
The 90+ Study, UCI MIND, Irvine, CA
- Implemented linear mixed-effects models to examine associations between autoimmune antibodies, inflammatory markers, and cognitive performance.
- Conducted sensitivity analyses adjusting for amyloid PET imaging data to differentiate the associations of inflammation markers from Alzheimer's disease pathology.

Sep 2022 – Nov 2024 **Time-Varying Effect in Causal Inference**
Department of Statistics, University of California Irvine, Irvine, CA
- Developed a two-stage causal effect estimator robust against high-dimensional outcome models.
- Proposed the first semiparametric causal excursion effect model with varying coefficients.

Jun 2022 – Jan 2024 **Functional Data Analysis for Neuropsychological Tests**
The 90+ Study, UCI MIND, Irvine, CA
- Analyzed the association between various cognitive measures and neurodegenerative diseases using generalized additive models.
- Captured the nonlinearity of the cognitive trajectories and accounted for synergistic effect of pathologies.

Jun 2019 – Sep 2019 **Correlation Study of Bank Supervision with its Performance**
Corporate Welfare Program, Irvine, CA
- Digitized and cleaned 300 files from Federal Reserve examiners' report in the Chicago District.
- Developed cross-section, panel datasets, and designed multiple regression models to analyze the bank's risk management during crisis.

Teaching Experience

Sep 2020 – June 2023 **Teaching Assistant**
University of California, Irvine.
- Basic Statistics, STATS 7.
- Introduction to Biological Statistics, STATS 8.
- Introduction to Probability and Statistics, STATS 120A.
- Introduction to Probability and Statistics, STATS 120B.

Sep 2019 – June 2020 **Learning Assistant**
University of California, Irvine.
- Introduction to Abstract Mathematics, MATH 13.
- Introduction to Linear Algebra, Math 3A.