Wei Jin

Department of Applied Mathematics and Statistics
Johns Hopkins University, Baltimore, MD

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EDUCATION

Johns Hopkins University, Baltimore, MD
Ph.D. in Applied Mathematics and Statistics 2018 - 2022
Dissertation Title: *Novel Bayesian Methods for Precision Medicine in HIV*
Advisor: Yanxun Xu
M.S.E in Computer Science 2019 - 2021
M.S.E in Applied Mathematics and Statistics 2016 - 2018
Cumulative GPA: 4.00/4.00

Sichuan University, Chengdu, China
B.S. in Mathematics and Applied Mathematics 2012 - 2016
Honor Degree in Wu Yuzhang Honors College
Advisor: Nanjing Huang
Cumulative GPA: 3.72/4.00 (Rank: 1/37)

EMPLOYMENT

Postdoctoral Fellow 2022 - Present
Department of Applied Mathematics and Statistics
Johns Hopkins University, Baltimore, MD
Advisor: Yanxun Xu

Research Scientist Intern Summer 2022
Eli Lilly and Company, Indianapolis, IN

Research Assistant 2018 - 2022
Department of Applied Mathematics and Statistics
Johns Hopkins University, Baltimore, MD

RESEARCH INTERESTS

- **Theory and Methods**
  Bayesian Nonparametrics, Dynamic Treatment Regimes, Reinforcement Learning, Causal Discovery, Graphical Models, Longitudinal Data Analysis
- **Applications**
  Electronic Health/Medical Record Data, Precision Medicine, Mental Health in People with HIV, Early Detection of Alzheimer's Disease, Proportional Reasoning in Cognitive Science

PUBLICATIONS

1. **Jin, W.**, Ni, Y., O'Halloran, J., Spence, A.B., Rubin, L.H., and Xu, Y. (2023) *"A Bayesian Decision Framework for Optimizing Sequential Combination Antiretroviral Therapy in People with HIV."* **Annals of Applied Statistics**. Accepted. **(Winner of the Conference on Advances in Bayesian and Frequentist Statistics Poster Award)**
2. Rubin, L.H., Maki, P.M., Dastgheyb, R., Steigman, P., Burke-Miller, J., Xu, Y., **Jin, W.**, Sosanya, O., Gustafson, D., Merenstein, D., Milam, J., Weber, K., Springer, G., and Cook, J. (2023) *"Trauma Across the Lifespan and Multisystem Morbidity in Women with HIV."* **Psychosomatic Medicine**, 85(4), 341-350.

3. **Jin, W.**, Ni, Y., Rubin, L.H., Spence, A.B., and Xu, Y. (2022) *"A Bayesian Nonparametric Approach for Inferring Drug Combination Effects on Mental Health in People with HIV."* **Biometrics**, 78(3), 988-1000. **(Winner of the Joint Statistical Meetings (JSM) Student Paper Award, Mental Health Statistics Section)**
4. Gouet, C., **Jin, W.**, Naiman, D.Q., Peña, M., and Halberda, J. (2021) *"Bias and Noise in Proportion Estimation: A Mixture Psychophysical Model."* **Cognition**, 213, 104805.
5. Fitzgerald, K.C., Maki, P.M., Xu, Y., **Jin, W.**, Dastgheyb, R., Williams, D.W., Springer, G., Anastos, K., Gustafson, D., Spence, A.B., Adimora, A.A., Waldrop, D., Vance, D.E., Bolivar, H., Valcour, V.G., and Rubin, L.H. (2020) *"Factors Predicting Detrimental Change in Declarative Memory Among Women with HIV: A Study of Heterogeneity in Cognition."* **Frontiers in Psychology**, 11, 548521.
6. Xie, F., **Jin, W.**, and Xu, Y. (2019) *"Rates of Contraction with Respect to L_2-Distance for Bayesian Nonparametric Regression."* **Electronic Journal of Statistics**, 13(2), 3485-3512.

PAPERS UNDER REVIEW

7. **Jin, W.**, Ni, Y., Spence, A.B., Rubin, L.H., and Xu, Y. (2023) *"Long-Short-Term Cyclic Structural Causal Model for Time-Series Causal Discovery."* **Journal of Machine Learning Research**.
8. **Jin, W.**, Ni, Y., Spence, A.B., Rubin, L.H., and Xu, Y. (2023) *"A Bayesian Approach for Investigating the Pharmacogenetics of Combination Antiretroviral Therapy in People with HIV."* **Biostatistics**.
9. Parra-Rodriguez, L., O'Halloran, J., Wang, Y., **Jin, W.**, Dastgheyb, R., Spence, A.B., Sharma, A., Gustafson, D., Milam, J., Weber, K., Adimora, A.A., Ofotokun, I., Fischl, M., Konkle-Parker, D., Xu, Y., and Rubin, L.H. (2023) *"Common Antiretroviral Combinations are Associated with Somatic Depressive Symptoms in Women with HIV."* **AIDS**.

PAPERS IN PREPARATION

10. **Jin, W.**, Gao, Q., Rubin, L.H., and Xu, Y. *"A Bayesian Semi-parametric Approach for Testing the Differences of Longitudinal Trajectories."*
11. **Jin, W.**, Wang, Z., and Xu, Y. *"Bayesian Longitudinal Model of Alzheimer's Disease Biomarkers with an Unknown Gold Standard."*
12. **Jin, W.**, Ni, Y., and Xu, Y. *"Bayesian Causal Learning for Individualized Treatment Rules Under Unmeasured Confounding."*
13. Yao, D., **Jin, W.**, and Xu, Y. *"Deep Reinforcement Learning for Optimizing Sequential Personalized Treatments Under Non-Markov Environments."*
14. Park, S., **Jin, W.**, and Xu, Y. *"Functional Causal Discovery for Mixed-Type Longitudinal Data."*

ACADEMIC PRESENTATIONS

- Title: *Long-Short-Term Cyclic Structural Causal Model for Time-Series Causal Discovery*
  - Joint Statistical Meetings (JSM), Toronto, ON, Canada — August 2023
  - International Chinese Statistical Association — June 2023
    Applied Statistics Symposium, Ann Arbor, MI (Invited Talk)
- Title: *A Bayesian Decision Framework for Optimizing Sequential Combination Antiretroviral Therapy in People with HIV*
  - Eastern North American Region (ENAR) — March 2023
    International Biometric Society Spring Meeting, Nashville, TN
  - Conference on Advances in Bayesian and Frequentist Statistics — April 2022
    Rutgers University, New Brunswick, NJ (Poster Session)

- Title: *A Bayesian Tree Model for Inferring Longitudinal Drug Combination Effects on Depression in People with HIV*
  - World Meeting of the International Society for Bayesian Analysis (ISBA), Virtual — June 2021
- Title: *A Bayesian Nonparametric Approach for Inferring Drug Combination Effects on Mental Health in People with HIV*
  - Bayesian Seminar, Eli Lilly and Company, Indianapolis, IN — July 2022
  - Joint Statistical Meetings (JSM), Virtual — August 2021
  - International Chinese Statistical Association — December 2020
    Applied Statistics Symposium, Virtual (Poster Session)
  - Applied Mathematics and Statistics Student Seminar — October 2020
    Johns Hopkins University, Baltimore, MD
- Title: *Mathematical Models of Proportional Reasoning in Cognitive Science*
  - Applied Mathematics and Statistics Student Seminar — October 2017
    Johns Hopkins University, Baltimore, MD

HONORS AND AWARDS

- Junior Participant Travel Award — 2023
  CBMS Conference - Foundations of Causal Graphical Models and Structure Discovery
  National Science Foundation (NSF) and Department of Statistics, Texas A&M University
- Rufus P. Isaacs Graduate Fellowship — 2022
  Department of Applied Mathematics and Statistics, Johns Hopkins University
- Conference on Advances in Bayesian and Frequentist Statistics Poster Award — 2022
  Department of Statistics, Rutgers University
- Conference on Advances in Bayesian and Frequentist Statistics Student Travel Award — 2022
  Department of Statistics, Rutgers University
- Joint Statistical Meetings (JSM) Student Paper Award — 2021
  American Statistical Association, Mental Health Statistics Section
- Acheson J. Duncan Fund for the Advancement of Research in Statistics — 2017
  Department of Applied Mathematics and Statistics, Johns Hopkins University
- First Class Scholarship for Undergraduate Study — 2015
  School of Mathematics, Sichuan University
- Honorable Mention of Mathematical Contest in Modeling — 2014
  Consortium for Mathematics and its Applications

TEACHING AND MENTORING

- **Teaching Assistant**
  Johns Hopkins University, Baltimore, MD
  - EN.553.602 Research and Design in Applied Mathematics — Spring 2020
  - EN.553.636 Data Mining/Introduction to Data Science — Fall 2018, Spring 2019, Spring 2020
  - EN.553.720 Probability Theory I — Fall 2019
  - EN.553.731 Statistical Theory II — Spring 2018, Spring 2019
  - EN.553.782 Statistical Uncertainty Quantification — Fall 2018

- **Student Advising**
  Johns Hopkins University, Baltimore, MD
  - Jiefeng Bi, Ph.D. Candidate, Applied Mathematics and Statistics 2023 - Present
  - Qiuxin Gao, Master's Student, Applied Mathematics and Statistics 2023 - Present
  - Sehee Park, Ph.D. Candidate, Applied Mathematics and Statistics 2023 - Present

ACADEMIC SERVICES

- **Professional Memberships**
  - American Statistical Association (ASA)
  - Eastern North American Region (ENAR) International Biometric Society
  - International Chinese Statistical Association (ICSA)
  - International Society for Bayesian Analysis (ISBA)
- **Journal Reviewer**
  - Biometrics

TECHNICAL SKILLS

- Proficient in R, Python, C++, SQL, Linux, LaTeX