

# Wei Jin

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Postdoctoral Fellow  
Department of Applied Mathematics and Statistics  
Johns Hopkins University

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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

**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., Spence, A.B., Rubin, L.H., and Xu, Y. (2024) "A Bayesian Approach for Investigating the Pharmacogenetics of Combination Antiretroviral Therapy in People with HIV." **Biostatistics**, In Press.
2. 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., Maki, P.M., Xu, Y., and Rubin, L.H. (2024) "Common Antiretroviral Combinations are Associated with Somatic Depressive Symptoms in Women with HIV." **AIDS**, 38(2), 167-176.

3. **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**, 17(4), 3035-3055. (Winner of the Conference on Advances in Bayesian and Frequentist Statistics Poster Award)
4. 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.
5. **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)
6. 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.
7. 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.
8. 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.

## WORKING PAPERS

9. **Jin, W.**, Ni, Y., Spence, A.B., Rubin, L.H., and Xu, Y. "Directed Cyclic Graphs for Simultaneous Discovery of Time-Lagged and Instantaneous Causality from Time-Series Data." **Journal of Machine Learning Research**, Under Revision.
10. **Jin, W.**, Gao, Q., and Xu, Y. "BayTetra: A Bayesian Semiparametric Approach for Testing Trajectory Differences." Submitted.
11. **Jin, W.**, Xu, Y., and Wang, Z. "Modeling Alzheimer's Disease Biomarkers' Trajectory in the Absence of a Gold Standard using a Bayesian Approach." Submitted.
12. **Jin, W.**, Ni, Y., and Xu, Y. "Robust Bayesian Learning for Individualized Treatment Rules Under Unmeasured Confounding and Data Partial Coverage." In Preparation.
13. Yao, D., **Jin, W.**, and Xu, Y. "HIV-AICare: A Deep Reinforcement Learning Approach for Optimizing Antiretroviral Therapy in People with HIV." In Preparation.

## INVITED TALKS

- Division of Biostatistics, Department of Population Health  
New York University Grossman School of Medicine, New York, NY  
Title: *A Bayesian Decision Framework for Optimizing Sequential Combination Antiretroviral Therapy in People with HIV* December 2023
- International Chinese Statistical Association (ICSA)  
Applied Statistics Symposium, Ann Arbor, MI  
Title: *Long-Short-Term Cyclic Structural Causal Model for Time-Series Causal Discovery* June 2023
- Bayesian Seminar, Eli Lilly and Company, Indianapolis, IN  
Title: *A Bayesian Nonparametric Approach for Inferring Drug Combination Effects on Mental Health in People with HIV* July 2022

## **CONTRIBUTED PRESENTATIONS**

- Joint Statistical Meetings (JSM), Toronto, ON, Canada August 2023  
Title: *Long-Short-Term Cyclic Structural Causal Model for Time-Series Causal Discovery*
- Eastern North American Region (ENAR) March 2023  
International Biometric Society Spring Meeting, Nashville, TN  
Title: *A Bayesian Decision Framework for Optimizing Sequential Combination Antiretroviral Therapy in People with HIV*
- Conference on Advances in Bayesian and Frequentist Statistics April 2022  
Rutgers University, New Brunswick, NJ (Poster Session)  
Title: *A Bayesian Decision Framework for Optimizing Sequential Combination Antiretroviral Therapy in People with HIV*
- Joint Statistical Meetings (JSM), Virtual August 2021  
Title: *A Bayesian Nonparametric Approach for Inferring Drug Combination Effects on Mental Health in People with HIV*
- World Meeting of the International Society for Bayesian Analysis (ISBA), Virtual June 2021  
Title: *A Bayesian Tree Model for Inferring Longitudinal Drug Combination Effects on Depression in People with HIV*
- International Chinese Statistical Association (ICSA) December 2020  
Applied Statistics Symposium, Virtual (Poster Session)  
Title: *A Bayesian Nonparametric Approach for Inferring Drug Combination Effects on Mental Health in People with HIV*
- Applied Mathematics and Statistics Student Seminar October 2020  
Johns Hopkins University, Baltimore, MD  
Title: *A Bayesian Nonparametric Approach for Inferring Drug Combination Effects on Mental Health in People with HIV*
- Applied Mathematics and Statistics Student Seminar October 2017  
Johns Hopkins University, Baltimore, MD  
Title: *Mathematical Models of Proportional Reasoning in Cognitive Science*

## **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 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

- Sehee Park, Ph.D. Candidate, Applied Mathematics and Statistics 2023 - Present
- Qixun Gao, Master's Student, 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 (2)

## **TECHNICAL SKILLS**

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