Yizhen Xu

Curriculum Vitae

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Education

2020-present **Postdoctoral Fellow**, Johns Hopkins University, Baltimore, MD
- Advisor: Zheyu Wang, Scott Zeger

2014-2020 **Ph.D. Biostatistics**, Brown University, Providence, RI
- Advisor: Joseph Hogan
- Dissertation Part 1: Classification using Ensemble Learning under Weighted Misclassification Loss (Student Paper Award, Joint Statistical Meeting 2017; Published in Stat Med 2019)
- Dissertation Part 2: Bayesian Framework for Predictive and Causal Modeling with Application to HIV Care Cascade
- Dissertation Part 3: Inference for Bayesian Additive Regression Trees (BART) with Multinomial Outcomes (Student Paper Award, Applied Statistics Symposium 2020)

2012-2014 **M.S. Biotatistics**, Yale University, New Haven, CT
- Dissertation: Sample Size Calculation for Nonparametric Rank Tests with Clustered Survival Data

2008-2012 **B.S. Statistics**, University of Science and Technology of China, Hefei, Anhui, China
- Special Class for the Gifted Youngs
- Dissertation: Review of Optimal Capital Allocation Principles

Publications and Preprints

First author(s) denoted by *

Methodological

[1] **Xu Y***, Liu T, Daniels MJ, Kantor R, Mwangi A, Hogan JW. Classification using Ensemble Learning under Weighted Misclassification Loss. *Statistics in Medicine, 2019.*https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7045125/.

[2] **Xu Y***, Daniels MJ, Kantor R, Mwangi A, Hogan JW. Augmentation Samplers for Multinomial Probit Bayesian Additive Regression Trees. *Under review at Journal of Computational and Graphical Statistics.* https://yizhenxu.github.io/assets/pdffiles/MPBART_samplers.pdf.

[3] **Xu Y***, Hogan JW, Daniels MJ, Mwangi A, Liu T, Kantor R. Bayesian Framework for Predictive and Causal Modeling with Application to HIV Care Cascade. *To be submitted to Biometrics* https://yizhenxu.github.io/assets/pdffiles/draft%20w%20author%20details.pdf.

[4] **Xu Y*** and Wang Z. Probabilistic Clustering using Shared Latent Variable Model for Assessing Alzheimer's Disease Biomarkers. *To be submitted to Biostatistics* https://yizhenxu.github.io/assets/pdffiles/ZW1.pdf.

[5] **Xu Y***, Kim J., Shah A., Hummers L., Zeger S. Causal Inference using Multivariate Generalized Linear Mixed-Effects Models with Longitudinal Data. *To be submitted to Jasa.* https://yizhenxu.github.io/assets/pdffiles/Scleroderma.pdf.

[6] Ghassami A*, Sani N*, **Xu Y***, Shpitser I. Multiply Robust Causal Mediation Analysis with Continuous Treatments.https://arxiv.org/abs/2105.09254.

Work in Progress

[1] Kim J*, **Xu Y***, Shah A, Zeger S. Longitudinal Probabilistic Clustering of Biomarker Trajectories for Scleroderma. https://yizhenxu.github.io/assets/pdffiles/TrajClustering.pdf.

[2] **Xu Y*** , Garibaldi B, Zeger S. Subgroup Treatment Evaluation for Longitudinal Competing Risks Outcomes: Evaluation of Ventilation Effectiveness on Patients with Severe Acute Respiratory Syndrome Coronavirus 2. https://yizhenxu.github.io/assets/pdffiles/Covid_intubation.pdf.

[3] **Xu Y*** and Wang Z. Semi-supervised learning in biomarker assessment under shared latent variable model for subgroup identification in the preclinical stages of Alzheimer's disease.

Collaborative (Published or Submitted)

[1] Liu T*, Hogan JW, Daniels MJ, Coetzer M, **Xu Y**, Bove G, DeLong AK, Ledingham L, Orido M, Diero L, Kantor R. Improved HIV-1 Viral Load Monitoring Capacity Using Pooled Testing With Marker-Assisted Deconvolution. *Journal of Acquired Immune Deficiency Syndromes, Aug 2017.*

[2] Genberg BL*, Hogan JW, **Xu Y**, Nyambura M, Tarus C, Rotich E, Kafu C, Wachira J, Goodrich S, Braitstein P. Population-based estimates of engagement in HIV care and mortality using double-sampling methods following home-based counseling and testing in western Kenya. *PLOS ONE, 2019.*

[3] Chan P*, King E, **Xu Y**, Goedel W, Lasher L, Vargas M, Bringdamour K, Huard R, Clyne A, McDonald J, Bandy U, Yokum D, Rogers M, Chambers L, Napoleon S, Alexander NS, Hogan JW. Seroprevalence of SARS-CoV-2 Antibodies in Rhode Island from a Statewide Random Sample. *American Journal of Public Health, 2021.*

[4] Bowring MG*, Wang Z, **Xu Y**, Betz J, Muscelli J, Bandeen-Roche K, Garibaldi BT, Zeger S. Outcome Stratified Analysis of Biomarker Trajectories for Patients with SARS-CoV-2 Infection. *American Journal of Epidemiology, 2021.*

[5] Liu T*, Hogan JW, Su W, **Xu Y**, Daniels M, Kantor R. Informed Pooled Testing with Quantitative Assays. *In submission.*

[6] DeLong SM*, **Xu Y**, Braitstein P, Nyambura M, Ndege S, Goodrich S, Tarus C, Hogan JW, Genberg BL. Population-based estimates and predictors of child and adolescent linkage to HIV care or death in western Kenya. *In submission.*

Work Experience

2022-present **Postdoctoral Researcher - Division of Biostatistics, Department of Oncology, Johns Hopkins University**

2020-2022 **Postdoctoral Researcher - Department of Biostatistics, Johns Hopkins University**

2015-2019 **Research Assistant - Department of Biostatistics, Brown University**

2013-2014 **Research Assistant - Department of Biostatistics, Yale University**

Skills

Programming: R, C++, C, Stan, SQL, Python, Matlab, SAS, JAGS

Technical Skills: Machine Learning, Bayesian Computing, Causal Inference, Latent Variable Models etc.

Presentations

Invited Talks

2023 **Causal Inference using Multivariate Generalized Mixed Effect Models with Longitudinal Data**, *ENAR*, Nashville, TN.

Contributed Talks

2022 **Causal Framework for Subgroup Treatment Evaluation using Multivariate Generalized Mixed Effect Models with Longitudinal Data**, *Joint Statistical Meetings.*

2021 **Causal Framework for Individualized Treatment Evaluation using Multivariate Generalized Mixed Effect Models with Longitudinal Data**, *Joint Statistical Meetings.*

2020 **Inference for Bayesian Additive Regression Trees with Multinomial Outcomes**, *Applied Statistics Symposium.*

2020 **Inference for Bayesian Additive Regression Trees with Multinomial Outcomes**, *Joint Statistics Meetings.*

2019 **Accelerated Multinomial Probit Bayesian Additive Regression Trees**, *Brown University Department of Biostatistics Ph.D. Research Presentation Day*, Providence, RI.

2019 **Bayesian Framework for Predictive and Causal Modeling using BART**, *Joint Statistics Meetings*, Denver, CO.

2018 **Comparison of Treatment Policies using Bayesian Nonparametric G-Formula**. *Joint Statistics Meetings*, Vancouver, Canada.

2018 **Comparison of Treatment Policies in HIV Care using Bayesian Nonparametric G-Formula**, *Brown University Department of Biostatistics Ph.D. Research Presentation Day*, Providence, RI.

2017 **Classification using Ensemble Learning under Weighted Misclassification Loss**, *Joint Statistics Meetings*, Baltimore, MD.

2017 **Comparison of Treatment Policies using Bayesian Nonparametric G-Formula**, *Brown University Department of Biostatistics Ph.D. Research Presentation Day*, Providence, RI.

2016 **Comparison of Ensemble Learning Methods under Weighted Misclassification Loss**, *Brown University Department of Biostatistics Ph.D. Research Presentation Day*, Providence, RI.

Poster Presentations

2021 **Causal Framework for Individualized Treatment Evaluation using Multivariate Generalized Mixed Effect Models with Longitudinal Data**, *Bayesian Young Statisticians Meeting.*

2019 **Bayesian Framework for Predictive and Causal Modeling with Application to HIV Care Cascade**, *International Workshop on HIV and Hepatitis Observational Databases*, Athens, Greece.

2019 **Bayesian Framework for Predictive and Causal Modeling with Application to HIV Care Cascade**, Providence, RI.

2018 **Causal Effect Estimation of HIV Treatment Initiation on Patient Retention**, *Brown University Public Health Research Day*, Providence, RI.

2017 **Using double-sampling methods to estimate linkage to HIV care among individuals newly diagnosed with HIV through home-based counseling and testing in western Kenya**, *International Conference on HIV Treatment and Prevention Adherence*, Miami, FL.

2017 **Causal Effect Estimation of Early Treatment Initiation on Patient Retention using Multinomial Probit Bayesian Additive Regression Trees**, *Brown University Public Health Research Day*, Providence, RI.

2016 **Comparison of machine learning and rule-combining methods for clinical decision making in HIV/AIDS**, *Brown University Public Health Research Day*, Providence, RI.

Awards

2020 Student Paper Award - Applied Statistics Symposium

2017 Student Paper Award, Section on Risk Analysis - Joint Statistics Meetings

2017 Tuition & Travel Scholarship - 9th SISMID, UWash Seattle

2016 Brown Public Health Research Day PhD Poster Award

2013 Collin White Scholar, Yale

Teaching Experience

Brown University, Providence, RI

Teaching Assistant

- PHP 2550: Practical Data Analysis (Fall 2015)
- PHP 2510: Principles of Biostatistics and Data Analysis (Fall 2014)

Yale University, New Haven, CT

Teaching Assistant

- BIS 628: Longitudinal Analysis (Spring 2014)
- BIS 557: Computational Statistics (Fall 2013)