# Liangyuan Hu

**Curriculum Vitae** 

Address:Department of Biostatistics and Epidemiology, Rut-<br/>gers School of Public HealthPhone:+1 732 235 4646

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Email: liangyuan.hu@rutgers.edu

#### **EDUCATION**

2015	Ph.D.	Biostatistics	Brown University
2007	M.Sc.	Statistics	University of Alberta
2002	B.Eng.	Civil Engineering	South China University of Technology

# ACADEMIC APPOINTMENTS

- 2021 pres. Associate Professor, Department of Biostatistics and Epidemiology, Rutgers University
- 2016 2021 Assistant Professor (Biostatistics), Icahn School of Medicine at Mount Sinai
- 2016 2021 Core Faculty Member, Institute for Healthcare Delivery Science, Mount Sinai
- 2016 2021 Core Faculty Member, Tisch Cancer Institute, Mount Sinai

# **OTHER PROFESSIONAL POSITIONS**

- 2015 2016 Associate, Analysis Group, Inc., New York, NY
- 2008 2009 Statistician, Alberta Health & Wellness, Canada

# AWARDS

- 2021 Delta Omega Honorary Society
- 2019 American Statistical Association Outstanding Statistical Application Award, Denver, CO.
- 2017 Travel Award, MCW Biostatistics Conference, Milwaukee, WI.
- 2015 American Statistical Association Student Paper Award, Health Policy Statistics Section, Seattle, WA.
- 2015 Best Graduate or Post-Doctoral Trainee Poster Presentation, SPH, Brown University.
- 2015 CFAR Trainee Support Award, Lifespan/Turfs/Brown Center for AIDS Research.
- 2014 Best Poster Award, 18th International Workshop on HIV Observational Databases, Spain.
- 2007 Josephine M. Mitchell Scholarship for Excellence in Academic Achievements, University of Alberta.
- 2006 Canadian Federation of University Women Edmonton Academic Awards Fund, University of Alberta.

PUBLICATIONS (\* trainee author + senior author ‡ joint first author )

# Papers in Peer-Reviewed Journals

- 1. **Hu** L<sup>+</sup>, Ji J, Joshi H, Scott E, and Li F (2024). Estimating the causal effects of multiple intermittent treatments with application to COVID-19. *J R Stat Soc: Ser C*. In Press.
- 2. Hu L (2024). A new method for clustered survival data: Estimation of treatment effect heterogeneity and variable selection. *Biometrical Journal*. In Press.
- 3. Li J, Wisnivesky J, Lin JJ, Campbell KN, **Hu** L, and Kale MS (2024). Examining the trajectory of health-related quality of life among coronavirus disease patients. *Journal of General Internal Medicine*. In Press.
- 4. Gluck MA, Gills JL, Fausto BA, Malin SK, Duberstein PR, Erickson K, and **Hu L** (2023). Examining the efficacy of a cardio-dance intervention on brain health and the moderating role of ABCA7 in older African Americans: a protocol for a randomized controlled trial. *Frontiers in Aging Neuroscience* **15**, 1266423.
- 5. Jadow B, **Hu L**, Zou J, Labovitz D, Ibeh C, Ovbiagele B, and Esenwa C (2023). Associations of historical redlining and social determinants with contemporary occurrence of stroke in New York City. *JAMA Network Open* **6** (4), e235875.
- 6. Zeng S, Li F, **Hu L**, and Li F (2023). Propensity score weighting analysis of survival outcomes using pseudo-observations. *Statistica Sinica* **33** (3), 2161–2184.

- 7. **Hu** L<sup>+</sup>, Zou J<sup>\*</sup>, Gu C, Ji J, Lopez M, and Kale M (2022). A flexible sensitivity analysis approach for unmeasured confounding with multiple treatments and a binary outcome with application to SEER-Medicare lung cancer data. *The Annals of Applied Statistics* **62** (2), 1014–1037.
- 8. **Hu** L<sup>+</sup> and Ji J (2022). CIMTx: An R package for causal inference with multiple treatments using observational data. *The R Journal* 14 (3), 213–230.
- 9. Hu L<sup>+</sup>, Ji J, Ennis RD, and Hogan JW (2022). A flexible approach for causal inference with multiple treatments and clustered survival outcomes. *Statistics in Medicine* 41 (25), 4982–4999.
- 10. **Hu** L<sup>+</sup>, Ji J, Liu H, and Ennis R (2022). A flexible approach for assessing heterogeneity of causal treatment effects on patient survival using large datasets with clustered observations. *International Journal of Environmental Research and Public Health* **19** (22), 14903.
- 11. Hu L<sup>+</sup> and Li L (2022). Using tree-based machine learning for health studies: Literature review and case studies. *International Journal of Environmental Research and Public Health* **19** (23), 16080.
- 12. Lin J<sup>\*</sup>, **Hu** L<sup>+</sup>, Huang C<sup>\*</sup>, Lawrence S<sup>\*</sup>, and Govindarajulu U (2022). Strategies for variable selection in large-scale healthcare database studies with missing covariate and outcome data. *BMC Medical Research Methodology* **22**, 132.
- 13. Cohen B, Fleshner P, et al., **Hu L**, and Sands B (2022). Prospective Cohort Study to Investigate the Safety of Preoperative Tumor Necrosis Factor Inhibitor Exposure in Patients with Inflammatory Bowel Disease Undergoing Intra-abdominal Surgery. *Gastroenterology* **163** (1), 204–221.
- Niu L, Hu L, Li Y, and Liu B (2022). Correlates of Cancer Prevalence across Census Tracts in the United States: A Bayesian Machine Learning Approach. *Spatial and Spatio-temporal Epidemiology* 42, 100522.
- 15. Veluswamy R, **Hu L**, Smith C, Ji J, Wang X, Wisnivesky J, and Kale M (2022). Immunotherapy Outcomes in Individuals with Non-small Cell Lung Cancer and Poor Performance Status. *JNCI Cancer Spectrum* **6** (2), pkac013.
- Hu L<sup>+</sup>, Lin J<sup>\*</sup>, Sigel K, and Kale M (2021). Estimating heterogeneous survival treatment effects of lung cancer screening approaches: A causal machine learning analysis. *Annals of Epidemiology* 62, 36–42.
- Hu L<sup>+</sup> and Gu C (2021). Estimation of causal effects of multiple treatments in healthcare database studies with rare outcomes. *Health Services & Outcomes Research Methodology* 21 (3), 287–308.
- 18. **Hu** L<sup>+</sup>, Ji J, and Li F (2021). Estimating heterogenous survival treatment effect in observational data using machine learning. *Statistics in Medicine* **40** (21), 4691–4713.
- 19. **Hu** L<sup>+</sup>, Ji J, Li Y, and Liu B (2021). Quantile regression forests to identify determinants of neighborhood stroke prevalence in 500 cities in the United States: implications for neighborhoods with high prevalence. *Journal of Urban Health* **98** (2), 259–270.
- Hu L<sup>+</sup>, Lin J<sup>\*</sup>, and Ji J<sup>\*</sup> (2021). Variable selection with missing data in both covariates and outcomes: Imputation and machine learning. *Statistical Methods in Medical Research* 30 (12), 2651– 2671.
- 21. Li L<sup>‡</sup>, **Hu L<sup>‡</sup>**, Ji J, Mckendrick K, Moreno J, Kelley A, Mazumdar M, and Aldridge M (2021). Determinants of total end-of-life healthcare spending by medicare beneficiaries: A quantile regression forests analysis. *The Journals of Gerontology: Series A* **77** (5), 1065–1071.
- Hirten R, Danieletto M, Scheel R, Shervey M, Ji J, Hu L, Sauk J, Chang L, Arnrich B, Böttinger E, Dunley J, Keefer L, and Sands B (2021). Longitudinal Autonomic Nervous System Measures Correlate with Ulcerative Colitis Disease Activity and Predict Flare. *Inflammatory Bowel Diseases* 27 (10), 1576–1584.
- 23. Li L, Zhan S, **Hu L**, Wilson K, Mazumdar M, and Liu B (2021). Examining the role of healthcare access in racial/ethnic disparities in receipt of provider-patient discussion about smoking: A latent class analysis. *Preventive Medicine* **148**, 106584.
- 24. Rabinowitz LG, Zylberberg HM, Yang J, Gold SL, Chesner J, Ji J, **Hu L**, and Dubinsky MC (2021). De Novo Ostomy Placement Is Associated with Increased Outpatient Opioid Use In Patients with Inflammatory Bowel Disease. *Digestive Disease and Sciences* **1** (1), 1–10.

- Ungaro R, Hu L, Ji J, Nayar S, Kugathasan S, Dubinsky M, Sands B, and Cho J (2021). Machine Learning Identifies Novel Blood Proteomic Predictors of Penetrating and Stricturing Complications in Newly Diagnosed Pediatric Crohn's Disease. *Alimentary Pharmacology & Therapeutics* 53 (2), 281–290.
- 26. Walshe M, Nayeri S, Ji J, Hernandez-Rocha C, Sabic K, **Hu L**, and et al. (2021). A role for CXCR3 ligands as biomarkers of post-operative Crohn's disease recurrence. *Journal of Crohn's and Colitis* **1** (1), jjab186.
- Hu L<sup>+</sup>, Gu C, Lopez M, Ji J<sup>\*</sup>, and Wisnivesky J (2020). Estimation of causal effects of multiple treatments in observational studies with a binary outcome. *Statistical Methods in Medical Research* 29 (11), 3218–3234.
- 28. Hu L<sup>+</sup>, Li L, and Ji J (2020). Machine learning to identify and understand key factors for provider-patient discussions about smoking. *Preventive Medicine Reports* **20**, 101238.
- 29. **Hu** L<sup>+</sup>, Li L, Ji J, and Sanderson M (2020). Identifying and understanding determinants of high healthcare costs for breast cancer: a quantile regression machine learning approach. *BMC Health Services Research* **20**, 1066.
- 30. **Hu** L<sup>+</sup>, Liu B, Ji J, and Li Y (2020). Tree-based machine learning to identify and understand major determinants for stroke at the neighborhood level. *Journal of American Heart Association* **9** (22), e016745.
- 31. Ji J<sup>\*</sup>, **Hu** L<sup>+</sup>, Liu B, and Li Y (2020). Identifying and assessing the impact of key neighborhoodlevel determinants on geographic variation in stroke: A machine learning and multilevel modeling approach. *BMC Public Health* **20**, 1066.
- Hu L (2020). Discussion on "Bayesian Regression Tree Models for Causal Inference: Regularization, Confounding, and Heterogeneous Effects" by Hahn, Murray and Carvalho. *Bayesian Analysis* 15 (3), 1020–1023.
- 33. **Hu** L, Liu B, and Li Y (2020). Ranking sociodemographic, health behavior, prevention, and environmental factors in predicting neighborhood cardiovascular health: A Bayesian machine learning approach. *Preventive Medicine* **141**, 106240.
- Leng S, Moshier E, Tremblay D, Hu L, Biran N, Barman N, Parekh S, Cho H, Maddui D, Richter J, Barlogie B, Jagannath S, and Chari A (2020). Timing of autologous stem cell transplantation for multiple myeloma in the era of current therapies. *Clinical Lymphoma, Myeloma and Leukemia* 20 (10), e734–e751.
- 35. Mazumdar M, Lin J\*, Zhang W, Liu M, Sanderson M, Isola L, and Hu L+ (2020). Comparison of Methods for Predicting High-cost Patients Captured within the Oncology Care Model (OCM): A Simulation Study. BMC Health Services Research 20, 350.
- 36. **Hu** L<sup>+</sup> and Hogan J (2019). Causal comparative effectiveness analysis of dynamic continuoustime treatment initiation rules with sparsely measured outcomes and death. *Biometrics* **75** (2), 695–707.
- 37. Ennis R, **Hu L**, Ryemon S, Lin J, and Mazumdar M (2019). Reply to Marieke J. Krimphove, Junaid Nabi, Alexander P. Cole, and Quoc-Dien Trinh's Letter to the Editor re: Ronald D. Ennis, Liangyuan Hu, Shannon N. Ryemon, Joyce Lin, Madhu Mazumdar. Brachytherapy-based Radiotherapy and Radical Prostatectomy Are Associated with Similar Survival in High-risk Localized Prostate Cancer. J Clin Oncol 2018; 36: 1192-8. *European Urology Oncology* 2(2), 226–227.
- 38. **Hu** L<sup>+</sup>, Hogan J, Mwangi A, and Siika A (2018). Modeling the causal effect of treatment initiation time on survival: Application to HIV/TB co-infection. *Biometrics* **74** (2), 703–713.
- 39. Ennis R, **Hu L**, Ryemon S, Lin J, and Mazumdar M (2018). Brachytherapy-based radiotherapy and radical prostatectomy are associated with similar survival in high-risk localized prostate cancer. *Journal of Clinical Oncology* **36**(12), 1192–1198.
- 40. Wang L, Sac A, Szabo P, Chasalow S, Castillo-Martin M, Domingo-Domenech J, Siefker-Radtke A, Sharma P, Sfakianos J, Gong Y, Dominguez-Andres A, Oh W, Mulholland D, Azrilevich A, **Hu L**, Cordon-Cardo C, Salmon H, Bhardwaj N, Zhu J, and Galsky M (2018). Epithelial-mesenchymal

transition gene expression, T cell infiltration, and outcomes with cystectomy or PD-1 blockade in urothelial cancer. *Nature Communications* 9(1), 3503.

- 41. Galsky M, Diefenbach M, Mohamed N, Baker C, Pokhriya S, Rogers J, Atreja A, **Hu L**, Tsao C, Sfakianos J, Mehrazin R, Waingankar N, Oh W, Mazumdar M, and Ferket B (2017). A web-based tool to facilitate shared decision-making regarding neoadjuvant chemotherapy use in muscle-invasive bladder cancer. *JCO Clinical Cancer Informatics* **1**, 1–12.
- 42. Ayuku D, Embleton L, Koech J, Atwoli L, **Hu L**, Ayaya S, Hogan J, Nyandiko W, Vreeman R, Kamanda A, and Braitstein P (2014). The government of Kenya cash transfer for orphaned and vulnerable children: cross-sectional comparison of household and individual characteristics of those with and without. *BMC International Health and Human Rights* 14(5), 14:25.
- 43. Sorber R, Winston S, Koech J, Ayuku D, **Hu L**, Hogan J, and Braitstein P (2014). Social and economic characteristics of street youth by gender and level of street involvement in Eldoret, Kenya. *PLoS ONE* **9**(5), e97587.

# **Book Chapters**

 Hogan J, Daniels M, and Hu L (2014). "A Bayesian perspective on assessing sensitivity to assumptions about unobserved data". In: *Handbook of Missing Data Methodology*. Ed. by G. Molenberghs, G. Fitzmaurice, M. G. Kenward, A. Tsiatis, and G. Verbeke. CRC Press. Chap. 18, pp.405– 434.

# Papers in Conference Proceedings

1. **Hu** L<sup>+</sup>, Hogan J, and Mwangi A (2015). Modeling the causal effect of treatment initiation time on survival: application to HIV/TB co-infection. In: *JSM Proceedings*. Alexandria, VA: American Statistical Association, pp.1401–1415.

# Papers Submitted or in Revision

- 1. Cheng C, **Hu** L, and Li F (2024). Doubly robust estimation and sensitivity analysis for marginal structural quantile models. *Biometrics*. Under review.
- Li L, Chen Y, Huang Y, Zhan S, Hu L, Zou J, Yu M, Mazumdar M, and Liu B (2024). Impact of the Medicaid expansion in California on breast cancer incidence across neighborhoods: A differencein-difference analysis of Synthetic California Breast Cancer Registry data, 2010-2017. *Medical Care*. Under review.
- 3. Ungaro R, **Hu L**, et al., and Cho J (2024). Discovery and Validation of a Blood Protein Panel Associated with Tumour Necrosis Factor Antagonist Treatment Failure in Recently Diagnosed Crohn's Disease. *Gut*. Under review.

# INVITED PRESENTATIONS AND LECTURES

- 1. July 2024. Estimating the causal effect of multiple intermittent treatments on censored survival outcomes, *Fifth International Workshop on Statistical Analyses of Multi-Outcome Data*, Salzburg, Austria.
- 2. July 2024. Bayesian nonparametric methods for inferring causal effects of longitudinal treatments amidst missing covariate data, *The ISBA 2024 World Meeting*, Venice, Italy.
- 3. March 2024. Novel BART-enhanced random intercept failure time models: causal estimation, heterogeneity, and variable selection in clustered survival dataData, *The 7th International Symposium on Biopharmaceutical Statistics*, Baltimore, USA.
- 4. December 2023. Leveraging Bayesian ML for Causal Inference with Missing Longitudinal Data, 17th International Conference on Computational and Financial Econometrics (CFE 2023), Berlin, Germany.
- 5. August 2023. Novel BART-enhanced random intercept failure time models: causal estimation, heterogeneity, and variable selection in clustered survival Data, *Biostatistics and Bioinformatics Seminar Series*, University of Maryland, Baltimore, MD.

- 6. August 2023. Causal inference methods for complex longitudinal treatments when covariates are subject to missing data, *Joint Statistical Meetings*, Toronto, Canada.
- 7. June 2023. Estimating the causal effect of a longitudinal treatment when covariates are subject to missing data, *ICSA China Conference*, Chengdu, China.
- 8. March 2023. Estimating the causal effects of multiple intermittent treatments with application to COVID-19, *Biometric Society/ENAR Spring Meetings*, Nashville, TN.
- 9. December 2022. Estimation of causal treatment effects from clustered survival data with application to prostate cancer, *International Conference on Statistics for Twenty-First Century*, University of Kerala, India. (\*Virtual)
- 10. November 2022. Estimation of causal treatment effects from clustered survival data with application to prostate cancer, *Biostatistics Seminar Series*, Memorial Sloan-Kettering Cancer Center, New York, NY.
- 11. July 2022. Statistical methods motivated by health databases: missing data, causal inference and machine learning, *PETS Research Meeting*, Center for Pharmacoepidemiology and Treatment Science, Rutgers University, New Brunswick, NJ.
- 12. July 2022. Bayesian machine learning for causal inferences and sensitivity analysis about treatment effects on patient survival using clustered and censored time-to-event data, *31st International Biometric Conference*, Riga, Latvia. (\*Coauthor presented this work on my behalf)
- 13. July 2022. A flexible approach for causal inference with multiple treatments and clustered survival outcomes, *ICSA-Canada Chapter 2022 Symposium*, Banff Centre, Canada.
- 14. December 2021. Bayesian machine learning for causal inference with multiple treatments and multilevel survival data, 14th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, United Kingdom. (\*Virtual due to the Covid-19 pandemic)
- 15. November 2021. Causal inference with multiple treatments and censored survival outcomes, *Biostatistics Seminar Series*, Division of Biostatistics, NYU Langone Health, New York, NY.
- 16. August 2021. Bayesian machine learning for causal inference with multiple treatments and multilevel survival data, *Joint Statistical Meetings*, Seattle, WA.
- 17. April 2021. Evaluating the causal effect of dynamic continuous-time treatment initiation rules with application to HIV in adolescents, *PRIISM Seminar Series*, Department of Applied Statistics, New York University, New York, NY.
- 18. December 2020. Causal inference and sensitivity analysis for unmeasured confounding in observational data with multiple treatments and a binary outcome, *ICSA Applied Statistics Symposium*, Huston, TX. (\*Virtual due to the Covid-19 pandemic)
- 19. December 2020. Marginal structural models for causal inference with continuous-time treatment and censored survival outcomes, *Biostatistics Seminar Series*, Department of Biostatistics, Yale University, CT.
- 20. November 2020. Marginal structural models for causal inference with continuous-time treatment and censored survival outcomes, *Math Seminar Series*, Department of Mathematics, Indiana University–Purdue University Indianapolis, IN.
- 21. October 2020. Estimation of causal effects of multiple treatments in observational studies, *Symposium on Artificial Intelligence for Learning Health Systems*, Bermuda, 2020. \*Canceled due to the Covid-19 pandemic
- 22. July 2020. Causal comparative effectiveness analysis of dynamic continuous-time treatment initiation rules with sparsely measured outcomes and death (Invited video talk due to the Covid-19 pandemic), *International Biometric Conference*, Seoul, Korea.
- 23. March 2020. Causal comparative effectiveness analysis of dynamic continuous-time treatment initiation rules with sparsely measured outcomes and death, *Biometric Society/ENAR Spring Meetings*, Nashville, TN. (\*Virtual due to the Covid-19 pandemic)

- 24. November 2018. Strategies and tactics of NIH R- and K- types research grantsmanship, *Workshop at Mount Sinai School of Medicine*, New York, NY.
- 25. October 2018. Approaches to evaluating the effectiveness of multiple treatment options on survival, *Biostatistics Analysis Workshop*, Tisch Cancer Institute, Mount Sinai, New York, NY.
- 26. April 2018. Oncology Care Model: Care Bundles, Risk Adjustment and Opportunity Analytics, *Biostatistics Analysis Workshop*, Tisch Cancer Institute, Mount Sinai, New York, NY.
- 27. January 2018. Causal inference methods for comparing and optimizing treatment strategies, *Biostatistics Seminar Series*, Division of Biostatistics, NYU Langone Health, New York, NY.
- 28. July 2017. Leveraging flexible modeling techniques in data-driven analytics, *Joint Statistical Meetings*, Baltimore, MD.
- 29. March 2017. Data-driven modeling techniques for medical decision making (Invited workshop), *Biometric Society/ENAR Spring Meetings*, Washington, DC.
- 30. December 2016. Statistical learning from electronic health records databases: challenges and opportunities, *Icahn School of Medicine at Mount Sinai*, New York, NY.

# **CONTRIBUTED PRESENTATIONS**

- 1. July 2018. A new sensitivity analysis framework for unmeasured confounding with multiple treatments and a binary and survival outcome, *Joint Statistical Meetings*, Vancouver, Canada.
- 2. March 2018. A flexible Bayesian approach to assessing sensitivity to unmeasured confounding with multiple treatments and a binary outcome, *Biometric Society/ENAR Spring Meetings*, Atlanta, GA.
- 3. September 2017. Assessing sensitivity to unmeasured confounding with multiple treatments: a Bayesian approach (\**won Travel Award*), *Biostatistics in the Modern Computing Era*, Milwaukee, WI.
- 4. August 2015. Estimating the causal effect of treatment timing on survival with censoring in both exposure and outcome (*\*won ASA Student Paper Award*), *Joint Statistical Meetings*, Seattle, WA.
- 5. March 2015. Comparative causal effectiveness analysis of treatment initiation rules for HIVinfected children, *19th International Workshop on HIV Observational Databases*, Catania, Italy.
- 6. April 2014. Estimating the causal effect of treatment timing on survival from observational data with censoring in both exposure and outcome, *PhD Research Seminar*, School of Public Health, Brown University, Providence, RI.
- 7. March 2014. Estimating the causal effect of treatment timing on survival from EHR data when both exposure and outcome are subject to censoring (\**won Best Poster Award*), 18th International Workshop on HIV Observational Databases, Sitges, Spain.
- 8. October 2007. Variance estimation of landmarks data, *Western Canadian Conference for Young Researchers in Mathematics*, Calgary, Canada.

# TEACHING

# A. Courses Taught

Semester	Course	Title	Institution
FA 2023	BIO 0633	Statistical Learning for Biomedical Studies	Rutgers University
SP 2023	BIO 0610	Advanced Regression Methods for Public Health Studies	<b>Rutgers University</b>
FA 2022	BIO 0633	Statistical Learning for Biomedical Studies	<b>Rutgers University</b>
SP 2021	BIO 8500	Probability and Inference II	Mount Sinai
SP 2020	BIO 8500	Probability and Inference II	Mount Sinai
SP 2019	BIO 8500	Probability and Inference II	Mount Sinai
SU 2011	Bootcamp	Introduction to Statistical Inference	Brown University

#### B. Short Courses and Tutorials

- 1. March 2017. "Data-driven modeling techniques for medical decision making", Biometric Society/ENAR Spring Meetings, Washington DC.
- 2. October 2016. "Tree-based statistical learning methods", Tisch Cancer Institute, Mount Sinai, New York.

# C. PhD Theses Directed

- Jia Li in Clinical Research Program, Icahn School of Medicine at Mount Sinai, 2024 (expected) (co-advisor with Minal Kale) *Investigating the relationship of chronic disease, post-COVID symptoms, vaccination, and healthrelated quality of life in individuals with COVID-19*
- 2. **Wenxuan Xiong** in Biostatistics, Rutgers School of Public Health, 2024 (expected) (co-advisor with Jason Roy)
- 3. **Ningya Wang** in Biostatistics, Rutgers School of Public Health, 2026 (expected) (co-advisor with Hao Liu)

# D. Dissertation Committees

- 1. Chang Xu, PhD Biostatistics, 2026 (Expected)
- 2. Weiyi Xia, PhD Biostatistics, 2026 (Expected)

#### E. Other Teaching and Advising Roles

2022 – pres.	Research Mentor
	Project: Bayesian nonparametric methods for missing data in longitudinal studies Jungang Zou, PhD student in Biostatistics, Columbia University
2020 - 2021	K-Award Research Co-Mentor Project: Digital Biomarkers of Ulcerative Colitis Flare Awardee: Robert Hirten, MD, Icahn School of Medicine at Mount Sinai
2020 – pres.	Research Mentor Project: Sensitivity analysis for unmeasured confounding Jungang Zou, MS student in Biostatistics, Columbia University
2020	Capstone Project Mentor Project: Machine learning analysis of the SWAN study data Chuyue Huang, MS student in Biostatistics, Icahn School of Medicine at Mount Sinai
2019 - 2021	Research Mentor Project: Variable selection with missing data Steven Lawrence. MS student in Biostatistics. Columbia University

#### ACADEMIC SERVICES

Editorial Positions

2023 – pres. **Associate Editor**, *The Annals of Applied Statistics* 2021 – 2023 **Editorial Board Member**, *Journal of Clinical Oncology* 

#### **Review and Advisory Panels**

- 2024 Reviewer. NIH Study Section, Clinical Data Management and Analysis (CDMA).
  2023 Reviewer. NIH Study Section, Clinical Data Management and Analysis (CDMA).
  2022 Device NIH E10 E the section of Device Active Ac
- 2022 **Reviewer.** NIH F18 Fellowships: Epidemiology & Populations Sciences Meeting.
- 2021 pres. **Statistical Reviewer.** JAMA Network Open.
- 2021 **Reviewer.** NIH Bridge2AI Other Transaction.
- 2020 **Poster Judge.** ICSA 2020 Applied Statistics Symposium, Huston.
- 2020 **Reviewer.** NIH Study Section, Clinical Oncology (CONC).
- 2020 External Methodology Reviewer. PCORI Awarded Research Project.
- 2019 External Methodology Reviewer. PCORI Awarded Research Project.
- 2018 **External Reviewer.** Medical Research Council, UK Research and Innovation.
- 2017 **Reviewer.** Student PaperCompetition, ASA Health Policy Statistics Section.

# Peer Review Service

2015 – pres. Peer Reviewer. Journal of the American Statistical Association, Biometrika,Biometrics, Statistics in Medicine, Statistical Methods in Medical Research, Biostatistics, Health Services & Outcomes Research Methodology, Journal of the Royal Statistical Society: Series C, Lifetime Data Analysis, Computational Statistics and Data Analysis, Observational Studies, BMC Medical Research Methods, Statistics and Probability Letters, Science, Journal of Clinical Oncology, JCO Cancer Clinical Informatics, PLOS One, American Journal of Public Health, World Journal of Surgical Oncology, Scientific Reports, Annals of Epidemiology, Health and Place, Population Health Metrics, Nature Communications, Computer Methods and Programs in Biomedicine, Applied Artificial Intelligence, JAMA Network Open, Patient-Centered Outcomes Research Institute

#### Committees

- 2023 pres. Curriculum Committee, Rutgers School of Public Health
- 2022 2023 JSM 2023 Program Committee, American Statistical Association
- 2022 pres. Faculty Search Committee, Department of Biostatistics and Epidemiology, Rutgers School of Public Health
- 2022 pres. Faculty Search Committee, Biostatistics Shared Resource, Rutgers Cancer Institute of New Jersey
- 2022 pres. **PhD Program Admission Committee**, Department of Biostatistics and Epidemiology, Rutgers School of Public Health
- 2022 pres. **MSc Program Admission Committee**, Department of Biostatistics and Epidemiology, Rutgers School of Public Health
- 2018 2021 Faculty Search Committee, Institute for Health Care Delivery Science, Mount Sinai
- 2017 2021 Biostatistics Seminar Workshop Organizing Committee, Mount Sinai
- 2016 2021 Protocol Review & Monitoring Committee, Tisch Cancer Institute, Mount Sinai

#### Conference Organizing and Service to Professional Societies

- 2023 **Organizer.** Invited paper session "New advances in causal inference and missing data," ICSA China Conference, Chengdu, China.
- 2023 2023 Joint Statistical Meetings Program Chair Representing ENAR
- 2022 **Organizer.** Invited paper session "New advances in causal inference with complex health datasets," Joint Statistical Meetings, Toronto.
- 2019 **Organizer.** Invited paper session "Modern Statistical Methods for Comparative Effectiveness Research," Joint Statistical Meetings, Denver.
- 2018 **Organizer.** Invited paper session "New Developments in Sensitivity Analysis for Unmeasured Confounding," Joint Statistical Meetings, Vancouver.
- 2017 **Organizer.** Invited paper session "Data-driven Modeling in Medical & Health Policy Decision Making," Joint Statistical Meetings, Baltimore.
- 2014 **Organizing Committee Member.** Atlantic Causal Inference Conference, Providence.

# **RESEARCH GRANTS**

#### Active Research Support

1. Bayesian machine learning for causal inference with incomplete longitudinal covariates and censored survival outcomes

Role:	Principal Investigator
Agency:	NHLBI/NIH (R01HL159077)
Period:	5/10/2022 - 4/30/2027
Amount:	\$3,301,474
Effort:	35% FTE

2. Robust longitudinal causal inference methods with machine learning

Role:	Principal Investigator
Agency:	PCORI (ME-2021C2-23685)
Period:	8/1/2022 - 7/31/2025
Amount:	\$1,069,876
Effort:	28% FTE

3. Towards Improved Design and Analysis of Stepped Wedge Trials by Leveraging Baseline Information (PI: Fan Li)

Role:	Sub-PI
Agency:	PCORI
Period:	9/1/2023 - 8/31/2026
Amount:	\$882,132
Effort:	15% FTE

4. Determinants of Individual Differences in the Efficacy of Aerobic Exercise to Improve Brain Health and Reduce Alzheimer Disease Risk in Older African Americans (PI: Mark Gluck)

Co-Investigator
NIA/NIH (R01AG078211)
9/15/2022 - 8/31/2027
\$4,710,752
6% FTE

5. Withdrawal of AdaliMumab: Strategies and OutComes in the CARRA Registry (WAM-SOCCR) (PI: Daniel Horton)

Role:	Co-Investigator
Agency:	Childhood Arthritis and Rheumatology Research Alliance
Period:	07/2023 - 06/2024
Amount:	\$50,000
Effort:	1.5% FTE

6. Systemic and dietary advanced glycation end products in type 2 diabetes-related cognitive decline and incident dementia: effects on Alzheimer's pathology and cerebrovascular disease (PI: Michal Beeri)

Role:	Co-Investigator
Agency:	NIH (R01AG061093)
Period:	07/2023 - 11/2024
Amount:	\$346,539
Effort:	10% FTE

7. Risk Factors for Future Cognitive Decline and Alzheimer's Disease in Older African American (PI: Gluck, Mark)

Role:	Co-Investigator
Agency:	NIA/NIH (R01AG053961)
Period:	09/2023 - 08/2028
Amount:	\$6,540,056
Effort:	10% FTE

#### Pending Research Support

1. Effects of combined intranasal insulin with aerobic exercise on brain vascular and insulin signaling function in older adults with prediabetes at high ADRD risk

1
Co-Investigator
Malin, Steven
NIH (R61)
04/2024 - 03/2026
\$1,007,694
5% FTE

2. Multimodal Connectome as a Sensitive Biomarker for Subtle Cognitive Decline in Asymptomatic Middle-Aged Adults at High Alzheimer's Disease Risk

Role:	Co-Investigator
PI:	Beeri, Michal
Agency:	NIH (R21)
Period:	04/2024 - 03/2026
Amount:	\$370,476
Effort:	7% FTE

3. Equitable Outcomes for Neurodiverse College Students with Autism and ADHD: Understanding and Embracing Diversity in Postsecondary Education

Role:	Co-Investigator
PI:	Langberg, Joshua
Agency:	IES
Period:	09/2024 - 08/2029
Amount:	\$4,999,890
Effort:	5% FTE

#### Completed Research Support

1. Flexible Bayesian approaches to causal inference with multilevel survival data and multiple treatments

Principal Investigator
NCI/NIH (R21CA245855)
7/16/2020 - 6/30/2023 (NCE: 7/1/2022 - 6/30/2023)
\$459,480
10% FTE

2. Bayesian modeling framework for causal inference and assessing sensitivity to unmeasured confounding with multiple treatments

Role:	Principal Investigator
Agency:	PCORI (ME-2017C3-9041)
Period:	12/1/2018 - 1/31/2023
Amount:	\$606,560
Effort:	30% FTE

3. Outcomes in advanced lung cancer patients with poor performance status Role: Co-Investigator PI: Minal Kale Agency: ACS Period: 08/01/2020 – 07/30/2021 Amount: \$74,982 Effort: 10% FTE

4. Validation study of California Breast Cancer Registry Data with Synthetic Census Tracts Role: Multiple PI

Agency:	NIH/NCI
Period:	9/1/2020 - 6/30/2021
Amount:	\$10,000
Effort:	3% FTE

5. The Tisch Cancer Institute – Cancer Center Support Grant

Role:	Co-Investigator
PI:	Steven J. Burakoff (Director)
Agency:	NIH/NCI (P30CA196521)
Period:	08/01/2016 - 06/30/2021
Amount:	\$1,000,000
Effort:	15% FTE

6. Inflammatory Bowel Disease Genetics Consortium Data Coordinating Center (DCC) Role: Co-Investigator
PI: Judy H. Cho
Agency: NIH/NIDDK (U24DK062429)
Period: 09/01/2018 - 08/30/2022
Amount: \$1,131,310
Effort: 15% FTE

# SOFTWARE

- 1. GitHub page: https://github.com/liangyuanhu
- 2. R package CIMTx: https://cran.r-project.org/web/packages/CIMTx/index.html
- 3. R package SAMTx: https://cran.r-project.org/web/packages/SAMTx/index.html

4. R package riAFTBART: https://cran.r-project.org/web/packages/riAFTBART/index.html

# **PROFESSIONAL MEMBERSHIPS**

American Statistical Association (ASA) International Biometric Society (ENAR) International Chinese Statistical Association (ICSA) International Society for Clinical Biostatistics (ISCB) Institute of Mathematical Statistics (IMS) International Statistical Institute (ISI)