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EDUCATION

- 2014 **Johns Hopkins Bloomberg School of Public Health (JHSPH)**, Baltimore, MD, USA
Ph.D. in Biostatistics
Thesis: *Statistical Methods for Individualized Health: Etiology, Diagnosis, and Intervention Evaluation*
Advisors: Scott Zeger and Constantine Frangakis
- 2009 **Fudan University**, Shanghai, China
B.Sc. in Mathematics. First Class Honors

RESEARCH FOCUS

I am deeply passionate about advancement of modern Bayesian latent variable methods, with a keen focus on developing tools that address pivotal public health challenges faced predominantly by low and middle-income countries (LMIC). My contributions include the development of general methods and the creation of publicly-accessible software tailored for world's most updated pediatric pneumonia etiology estimates across seven sub-Saharan African and Southeast Asian countries (<https://perchresults.org/>). Additionally, in collaboration with demographers, I've pioneered domain-adaptive mortality estimation for deaths occurring outside the civil registration and vital statistics systems using computer-coded verbal autopsy (<https://openva.net/>). Recently, I've been working to advance digital mental health for healthcare workers in Kenya, in collaboration with the Data Science Initiative in Africa (<https://www.datascienceafrica.org/>). This effort draws upon my expertise in interventional and predictive mobile health, honed through pioneering studies in the US (Intern Health Study - world's largest multi-year microrandomized trial, and Caregiver Quality of Life Study). I enjoy embracing and navigating the unique challenges presented within the LMIC contexts and seizing the opportunity therein to shape how statistics can effect meaningful change.

My research is motivated by biomedical and public health problems and is centered on the design and application of statistical methods that inform health decisions made by individuals, or precision medicine. Towards this goal, I focus on two lines of methodological research: a) structured Bayesian latent variable models for clustering and disease subtyping, and b) study design and causal methods for evaluating sequential interventions that tailor to individuals' changing circumstances such as in mobile health studies. I am committed to developing robust, scalable, and interpretable statistical methods to harness real-world, high-dimensional, dynamic data for individualized health. The methods and software developed so far have supported studies in diverse scientific fields including infectious disease epidemiology, autoimmune diseases, mental health, behavioral health, and cancer.

- Statistical** Hierarchical Bayesian models; Latent variable models; Nonparametric Bayes; Bayesian scalable computation; Causal inference; Reinforcement learning.
- Substantive** Precision medicine; Mobile health; Infectious diseases; Electronic health records/claims data; Healthcare policy; Clinical trials; Computational Social Science.

PROFESSIONAL EXPERIENCE

- 2023 - present **Associate Professor** (with tenure); **Assistant Professor** (2016 - 2023)
Department of Biostatistics, University of Michigan (UMich)
- 2016 - present **Research Assistant Professor; Faculty Affiliate**
Michigan Institute for Data Science (MIDAS), UMich
- 2022 - present **Member**
Eisenberg Family Depression Center, UMich
- 2023- present **Faculty Affiliate**
Michigan Center for Applied and Interdisciplinary Mathematics (MCAIM), UMich
- 2017 - present **Faculty Associate**
Quantitative Methodology Program, Survey Research Center
Institute for Social Research (ISR), UMich
- 2018 - present **Member**
Institute for Health Policy Innovation (IHPI), UMich
- 2016- present **Member**
Cancer Epidemiology and Prevention (CEP) research program, Rogel Cancer Center
- 2014 - 2016 **Postdoctoral Fellow**
Hopkins individualized Health (*inHealth*), JHU
Department of Biostatistics, JHSPH
- 2014 - 2016 **Co-lead Statistician**
Pneumonia Etiology Research for Child Health (PERCH) funded by Gates Foundation, International Vaccine Access Center (IVAC), JHSPH
Principal Investigator: Katherine O'Brien
- 2015 August **Visiting Scholar**
Combining Health Information, Computation and Statistics (CHICAS)
Lancaster University, Lancaster, England
- 2013 - 2014 **External Consultant**
Child Health Research Foundation (CHRF), Dhaka, Bangladesh; National Center for Immunization and Respiratory Diseases (NCIRD), The U.S. CDC
- 2010 - 2014 **Research Assistant**, IVAC, JHSPH
- 2008 **Research Scholar**
California NanoSystems Institute, and Department of Mechanical and Aerospace Engineering, University of California, Los Angeles (UCLA)
- 2007 - 2009 **Research Scholar**
Center for Computational Systems Biology, Fudan University, Shanghai, China

HONORS AND AWARDS

UNIVERSITY OF MICHIGAN (UMich)

- 2021 Interdepartmental Research Seed Grant, February. Michigan Biostat/Stat Research Initiative.
- 2020 Precision Health Investigator Award, University of Michigan
- 2019 Winner of Shark Tank for Research Ideas in Data Science and Statistics (STRIDES), February 1. Michigan Biostat/Stat Research Retreat.
- 2018 Chair's Faculty Citizenship Award
- 2017 Travel Award for ENAR Junior Investigator Workshop, International Biometric Society. Washington, DC.

SELECTED AWARDS from DISSERTATION ADVISEES

(see the full list under each advisee's name in Section "Teaching")

- 2024 **Distinguished Student Paper Award**, International Biometric Society, Eastern North American Region, Baltimore, MD. (*Li M*)
- 2023 **Institute of Mathematical Statistics Hannan Graduate Student Travel Award** (*Li M*)
- 2023 **Winner of Research Poster Competition**, International Biometric Society, Eastern North American Region (*Li M*)
- 2023 **Travel Award** for the 14th International Conference on Health Policy Statistics (ICHPS), Scottsdale, AZ, 2023. (*Shi J*)
- 2022 **Paper Travel Award**, International Society for Bayesian Analysis (ISBA), Montreal, Canada. (*Yao TH*)
- 2022 **Junior Research Paper Travel Award**, American Causal Inference Conference (ACIC), Berkeley, CA. (*Shi J*)
- 2019 **Poster Competition Award**, "Most Likely to Make an Impact in the Field", Annual Data Science Symposium, MIDAS. (*Chen I*)
- 2018 **Best Speed Oral Presentation**, Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS). (*NeCamp T*)

JOHNS HOPKINS UNIVERSITY

- 2016 New Researcher Conference Travel Award, Institute of Mathematical Statistics. Madison, WI.
- 2016 NISS Writing Workshop for Junior Researchers. Chicago, IL.
- 2015 Top Performer (out of 60 teams globally) for [2015 Prostate Cancer DREAM Challenge](#) 1b; As part of *Bmore Dream Team*. [Press Release](#).
- 2015 Scholarship for Summer Institute in Statistics and Modeling in Infectious Diseases. University of Washington, Seattle, WA
- 2015 NSF Big Data Travel award for Drawing Causal Inference from Big Data. National Academy of Sciences, Washington DC
- 2015 Induction into Alpha Chapter of *Delta Omega* Public Health Honor Society
- 2015 Induction into *Phi Beta Kappa* Honor Society
- 2014 First Place: Biostatistics Section of the Delta Omega Poster Competition
- 2012-13 Joseph Zeger Travel Award to ENAR and JSM
- 2012 [June B. Culley Award](#), for outstanding achievement on school-wide oral exam paper
- 2011-14 [Johns Hopkins Sommer Scholar](#)
- 2009-14 Department of Biostatistics Graduate Fellowship

UNIVERSITY OF CALIFORNIA, LOS ANGELES

- 2008 UCLA-China Cross Disciplinary Scholarship in Science and Technology (CSST)

FUDAN UNIVERSITY

- 2009 B.Sc. with First Class Honors
- 2007-09 [Chun-Tsung Scholar](#), Chinese Undergraduate Research Endowment (CURE) Scholarship (3 in 600 Math Undergraduate Students)
- 2008 First Class National Scholarship, Ministry of Education, China (top 0.2%)
- 2007 Excellent Undergraduate Student, Government of Shanghai (top 0.2%)
- 2006-07 First Class People's Scholarship
- 2006 First Class Shi Dai Scholarship

PUBLICATIONS ♦: first/senior author papers; " _ ": advisee

Citations: 2,115 ([Google Scholar](#)); h-index: 22; i-10 index: 29

PUBLISHED PEER-REVIEWED ARTICLES

- 1 **Wu Z**, Li RZ, Chen I, Li M (2023). Tree-Informed Bayesian Multi-Source Domain Adaptation: Cross-population Probabilistic Cause-of-death Assignment using Verbal Autopsy. ► *Biostatistics*. Accepted. [[arXiv](#)][[R package](#)]
- 2 Li M, Park DE, Aziz M, Liu CM, Price LB, **Wu Z** (2023). Integrating sample similarity information into latent class analysis: a tree-structured shrinkage approach. ► *Biometrics* 79(1):264-279. doi: 10.1111/biom.13580. PMID:PMC10642217. PMID:34658017.[[Early View](#)][[bioRxiv](#)]
- 3 Li ZR, **Wu Z**, Chen I, Clark S (2023). Bayesian nested latent class models for cause-of-death assignment using verbal autopsies across heterogeneous domains. ► *Annals of Applied Statistics*. Accepted. [[arXiv](#)][[R package](#)].
- 4 Chen I, **Wu Z**, Harlow SD, Karvonen-Gutierrez CA, Hood M, Elliott M (2023). Variance as a predictor of health outcomes: using subject-level trajectories and variability of sex hormones to predict body fat changes in peri- and post-menopausal women. ► *Annals of Applied Statistics*. Accepted. [[arXiv](#)]
- 5 Kubale J[#], Kujawski S[#], Chen I, **Wu Z**, Mercado ES, Abu Khader I, Hasibra I, Whitaker B, Gresh L, Simaku A, Simoes EAF, Al-Gazo M, Rogers S, Gerber SI, Balmaseda A, Tallo V, Al-Sanouri TM, Porter R, Bino S, Azziz-Baumgartner E, McMorow M, Hunt D, Thompson M, Biggs H, Gordon A (2023). Etiology of acute lower respiratory illness hospitalizations among infants in four countries. ([#]: co-first-authors) ► *Open Forum Infectious Diseases*. Accepted.
- 6 Wang J, **Wu Z**, Choi SW, Sen S, Yan X, Miner JA, Sander AM, Lyden AK, Troost J, Carlozzi N (2023). The Dosing of Mobile-Based Just-in-Time Adaptive Self-Management Prompts for Caregivers: Preliminary Findings From a Pilot Microrandomized Study. ► *Journal of Medical Internet Research, Formative Research*. doi:10.2196/43099.
- 7 Yan X, Newman MW, Park SY, Sander A, Choi SW, Miner J, **Wu Z**, Carlozzi N (2023). Identifying Design Opportunities for Adaptive mHealth Interventions that Target General Wellbeing: An Interview Study with Informal Care Partners. ► *JMIR Formative Research* 7:e47813. doi: 10.2196/47813; PMID: 37874621.
- 8 Willie N, Maina R, Frank E, Atwoli L, **Wu Z**, Ngugi A, Sen S, Wang JL, Wong S, Baker J, Weinheimer-Haus E, Khakali L, Aballa A, Orwa J, Nyongesa M, Waljee A, Abubakar A, Merali Z (2023). Use of mobile technology to identify behavioral mechanisms linked to mental health outcomes in Kenya: protocol for development and validation of predictive model. ► *BMC Research Notes* 16(1):1-9.
- 9 Piette JD, Thomas L, Krauss J, Newman S, Chen J, **Wu Z**, Bohnert ASB (2023). An Automatically-Adaptive Digital Health Intervention to Decrease Opioid-Related Risk While Conserving Counselor Time: Analysis of Treatment Decisions Based on Artificial Intelligence and Patient-Reported Risk Measures ► *Journal of Medical Internet Research*. In press.
- 10 Carlozzi NE, Choi SW, **Wu Z**, Sen S, Troost J, Lyden AK, Miner JA, Graves C, Sander AM (2023). The Reliability and Validity of the TBI-CareQOL System in Four Diverse Caregiver Groups. ► *Journal of Patient-Reported Outcomes*. In press.
- 11 Wang J, Shi C, **Wu Z** (2023). A Robust Test for the Stationarity Assumption in Sequential Decision Making. ► *40th International Conference on Machine Learning (ICML)*.
 - **Top peer-reviewed machine learning conference (2023 acceptance rate 27.9%)**
- 12 Ge L, Wang J, Shi C, **Wu Z**, Song R (2023). A Reinforcement Learning Framework for Dynamic Mediation Analysis. ► *40th International Conference on Machine Learning (ICML)*. [[arXiv](#)]
 - **Top peer-reviewed machine learning conference (2023 acceptance rate 27.9%)**
 - **Winner, Student Paper Award, 2023 Applied Statistics Symposium, International Chinese Statistical Association (ICSA)**

- 13 Yoshida T, Fan TS, McCormick T, **Wu Z**, Li ZR (2023). Bayesian Active Questionnaire Design for Cause-of-Death Assignment Using Verbal Autopsies. ► *Proceedings of the Conference on Health, Inference, and Learning (CHIL)*, PMLR 209:37-49. [[publisher's version](#)]
 - **Selected as Oral Presentation (top 13%)**
- 14 Pennington BT, Colquhoun DA, Neuman MD, Politi MC, Janda A, Spino C, **Wu Z**, Thelen-Perry S, Kumar SS, Gregory SH, Avidan MS, Kheterpal S for the THRIVE research group (2023). Feasibility pilot trial for the Trajectories of Recovery after Intravenous propofol versus inhaled Volatile anesthesia (THRIVE) Pragmatic Randomized Controlled Trial. ► *BMJ Open*. 13(4):e070096. DOI:10.1136/bmjopen-2022-070096
- 15 Wang J, Fang Y, Frank E, Walton MA, Burmester M, Tewari A, Dempsey W, NeCamp T, Sen S, **Wu Z** (2023). Effectiveness of gamified competition in the context of mHealth intervention for medical interns: a micro-randomized trial. ► *npj Digital Medicine*. doi:10.1038/s41746-022-00715-5. [[publisher's version](#)][[R code](#)]
- 16 Liu CM, Aziz M, Park DE, **Wu Z**, Stegger M, Li M, Wang Y, Schmidlin K, Johnson TJ, Koch BJ, Hungate BA, Nordstrom L, Gauld L, Weaver B, Rolland D, Statham S, Hall B, Sariya S, Davis GS, Keim PS, Johnson JR, Price LB (2023). Using source-associated mobile genetic elements to identify zoonotic extraintestinal *E. coli* infections. ► *One Health*. DOI: 10.1016/j.onehlt.2023.100518.
 - **Selected Press Coverage:** [[Washington Post](#)][[USA Today](#)] [[CNN](#)][[NYTimes](#)][[The Guardian](#)]
- 17 Kayser J, Wang X, **Wu Z**, Dimoji A, Xiang X (2023). Layperson-Facilitated Internet-Delivered Cognitive Behavioral Therapy for Homebound Older Adults with Depression: Protocol for a Randomized Controlled Trial. ► *JMIR Research Protocols* 12:e44210. PMID: 36811937; DOI: 10.2196/44210.
- 18 Shi J, **Wu Z**, Dempsey W (2022). Assessing time-varying causal effects in the presence of cluster-level treatment effect heterogeneity. ► *Biometrika*. DOI:10.1093/biomet/asac065. [[publisher](#)][[arXiv](#)].
 - **Winner, Junior Researcher Travel Grant, American Causal Inference Conference (ACIC), Berkeley, CA, 2022**
- 19 Yao TH, **Wu Z**, Bharath K, Li J, and Baladandayuthapani V (2022). Probabilistic learning of treatment trees in cancer. ► *Annals of Applied Statistics* 17(3): 1884-1908. DOI: [[10.1214/22-AOAS1696](#)][[R code](#)]
 - **Winner, ISBA Travel Award, Montreal, Canada, 2022**
- 20 Moreno A, **Wu Z**, Nagesh S, Dempsey W, Rehg J (2022). Kernel Multimodal Continuous Attention. ► *NeurIPS: Thirty-sixth Conference on Neural Information Processing Systems*. [[arXiv](#)]
 - **Top peer-reviewed machine learning conference (2022 acceptance rate 25.6%)**
- 21 Chatha P, Wang Y, **Wu Z**, Regier J (2022). Dynamic Survival Transformers for Causal Inference with Electronic Health Records. ► *NeurIPS 2022, "Learning from Time Series for Health" Workshop*. [[ArXiv](#)]
 - **Selected as a Spotlight paper**
- 22 Cleary J[#], Fang Y[#], Sen S, **Wu Z** (2022). A caveat to using wearable sensor data for COVID-19 detection: the role of behavioral change after receipt of test results. ► *PLOS ONE*. 17(12):e0277350. doi:10.1371/journal.pone.0277350. [#]: co-first-authors.
- 23 Chung S, Kontar R, **Wu Z** (2022). Weakly-supervised multi-output regression via correlated Gaussian processes. ► *INFORMS Journal on Data Science*. In press. DOI: 10.1287/ijds.2022.0018.
 - **Best student paper finalist, Quality Control and Reliability Engineering (QCRE), IISE annual conference, 2020**
- 24 Horwitz A, Kentopp S, Cleary J, Ross K, **Wu Z**, Sen S, Czyz E (2022). Using machine learning with intensive longitudinal data to predict depression and suicidal ideation among medical interns over time. ► *Psychological Medicine*, 1-8. doi:10.1017/S0033291722003014

- 25 Carlozzi NE, Choi SW, **Wu Z**, Troost J, Lyden AK, Miner JA, Graves C, Wang J, Yan X, Sen S (2022). An App-Based Just-in-Time-Adaptive Self-Management Intervention for Care Partners: The CareQOL Feasibility Pilot Study. ► *Rehabilitation Psychology* 67(4): 497-512. DOI: 10.1037/rep0000472
- 26 Carlozzi NE, Sanders AM, Choi SW, **Wu Z**, Miner JA, Lyden AK, Graves C, Sen S (2022). Improving outcomes for care partners of persons with traumatic brain injury: Protocol for a randomized control trial of a just-in-time-adaptive self-management intervention. ► *PLoS ONE* 17(6):e0268726. PMID:35679283. PMCID:PMC9182304. DOI: 10.1371/journal.pone.0268726.
- 27 Wagner AL, Lu Y, Glover B, **Wu Z**, Prosser LA (2022). Preferences for STI and cancer vaccines in the US and in China. ► *Value in Health*. DOI: 10.1016/j.jval.2022.07.019.
- 28 Wagner AL, Porth J, **Wu Z**, Boulton ML, Finlay JM, and Kobayashi LC (2022). Vaccine hesitancy during the COVID-19 pandemic: A latent class analysis of middle-aged and older US adults. ► *Journal of Community Health*. In press. PMID:35079933. PMCID: PMC8788403. DOI:10.1007/s10900-022-01064-w.
- 29 **Wu Z** and **Chen I** (2021). Probabilistic cause-of-disease assignment using case-control diagnostic tests: a hierarchical Bayesian approach. ► *Statistics in Medicine* 40(4): 823-841. PMID: 33159360. doi: 10.1002/sim.8804.
- 30 Edupuganti S, **Li M**, **Wu Z**, Basu T, Barnes G, Carrier M, Sood SL, Griggs JJ, Schaefer JK (2021). Factors associated with inferior vena cava filter placement and retrieval for patients with cancer-associated thrombosis. ► *The American Journal of Medicine*. In press. doi: 10.1016/j.amjmed.2021.11.006.
- 31 Carlozzi NE, Choi SW, **Wu Z**, Miner JA, Lyden AK, Graves C, Sander AM, Wang J, Sen S (2021). An App-Based Just-in-Time Adaptive Self-management Intervention for Care Partners (CareQOL): Protocol for a Pilot Trial. ► *Journal of Medical Internet Research: Research Protocols* 10(12):e32842. doi: 10.2196/32842. PMID: 34889775.
- 32 Schaefer JK, **Li M**, **Wu Z**, Basu T, Barnes G, Carrier M, Griggs JJ and Sood SL (2021). Clinical and sociodemographic factors associated with anticoagulant use for cancer associated thrombosis. ► *Journal of Thrombosis and Thrombolysis*. PMID: 33544284. doi: 10.1007/s11239-021-02392-9.
- 33 Boss J, Rix A, Chen YH, Narisetty NN, **Wu Z**, Ferguson K, Meeker J, Mukherjee B (2021). A hierarchical integrative grouped lasso (HIGLASSO) framework for analyzing environmental mixtures. ► *Environmetrics* 32(8), e2698. doi: 10.1002/env.2698.
- 34 Nahum-Shani I, Potter L, Lam C, Yap J, Moreno A, Stoffel R, **Wu Z**, Wan N, Dempsey W, Kumar S, Murphy S, Regh J, Wetter D (2021). The mobile-assistance for regulating smoking (MARS) micro-randomized trial design protocol. ► *Contemporary Clinical Trials* 110: 106513. doi: 10.1016/j.cct.2021.106513.
- 35 **Wu Z**, Casciola-Rosen L, Rosen A, Zeger SL (2020). A Bayesian approach to restricted latent class models for scientifically-structured clustering of multivariate binary outcomes. ► *Biometrics* 77(4): 1431-1444. PMID: 33031597. PMCID:PMC10642691. doi: 10.1111/biom.13388.
- 36 **Moreno A**, **Wu Z**, Yap J, Wetter D, Kumar S, Lam C, Nahum-Shani I, Dempsey W, Regh J (2020). A robust functional EM algorithm for incomplete panel count data. ► *33rd Advances in Neural Information Processing Systems (NeurIPS 2020)*: 19828-19838. PMID: 34103881. PMCID: PMC8182728.
 - Top peer-reviewed machine learning conference (acceptance rate 20%).
- 37 Schaefer JK, **Li M**, **Wu Z**, Basu T, Dorsch M, Barnes GD, Carrier M, Griggs JJ and Sood SL (2020). Medication adher-

ence in cancer associated thrombosis: a comparison of LMWH to DOACs. ► *Journal of Thrombosis and Haemostasis* 19(1): 212-220. PMID: 33104289. doi:10.1111/jth.15153.

- 38 Xiang X, Xuan L, Halavanau A, Jia X, Sun Y, Lai P, **Wu Z** (2020). Modern senicide in the face of a pandemic: an examination of public discourse and sentiment about older adults and COVID-19 using machine learning. ► *The Journals of Gerontology: Series B*. PMID: 32785620 PMCID: PMC7454882. doi: 10.1093/geronb/gbaa128.
- 39 NeCamp T, Sen S, Frank E, Walton M, Ionides E, Fang Y, Tewari A, **Wu Z** (2020). Assessing real-time moderation for developing adaptive mobile health interventions for medical interns: micro-randomized trial. ► *Journal of Medical Internet Research (JMIR)* 22(3): e15033. doi: 10.2196/15033. PMID: 32229469. PMCID: PMC7157494. Trial Registration: 2018 Intern Health Study Micro-randomized Trial (IHS), [NCT03972293](https://clinicaltrials.gov/ct2/show/study/NCT03972293).
- 40 Zeger SL, **Wu Z**, Coley Y, Fojo AT, Carter B, O'Brien K, Zandi P, Cooke M, Carey V, Crainiceanu C, Muschelli J, Gherman A, Mekosh J (2020). Using a Bayesian approach to predict patients' health and response to treatment. ► *Patient-Centered Outcomes Research Institute (PCORI)*. doi: 10.25302/09.2020.ME.140820318.
- 41 Kuang H, **Wu Z**, Fujiwara H, Whitesall S, Zajac C, Choi SW, Reddy P, Tewari M (2019). Computational analysis of continuous body temperature provides early discrimination of graft-versus-host disease in mice undergoing hematopoietic cell transplantation. ► *Blood Advances* 3(23): 3977-3981. PMID: 31809535. PMCID: PMC6963236. doi: 10.1182/bloodadvances.2019000613.
- 42 **Wu Z**, Casciola-Rosen L, Shah AA, Rosen A, Zeger SL (2019). Estimating auto-antibody signatures to detect autoimmune disease patient subsets. ► *Biostatistics* 20(1): 30-47. PMID: 29140482. PMCID: PMC6657300. doi: 10.1093/biostatistics/kxx061.
- 43 O'Brien KL, ..., **Wu Z**, ..., Zaman SMA (2019). Causes of severe pneumonia requiring hospital admission in children without HIV infection from Africa and Asia: the PERCH multi-country case-control study. ► *The Lancet* 394(10200): 757-779. PMID: 31257127. PMCID: PMC6727070. doi: 10.1016/S0140-6736(19)30721-4. [[DataViz: http://perchresults.org](http://perchresults.org)][[Press Release](#)]
- 44 Fritsche L, Gruber SB, **Wu Z**, Schmidt E, Zawistowski M, Moser SE, Blanc VM, Brummet CM, Kheterpal S, Abecasis GR, Mukherjee B (2018). Association of polygenic risk scores for multiple cancers in a phenome-wide study: results from the Michigan Genomics Initiative. ► *American Journal of Human Genetics* 102(6): 1048-1061. PMID: 29779563. PMCID: PMC5992124. doi: 10.1016/j.ajhg.2018.04.001.
- 45 Xu G, **Wu Z** and Murphy SA (2018). Micro-randomized trial. In ► *Wiley StatsRef: Statistics Reference Online* (eds N. Balakrishnan, T. Colton, B. Everitt, W. Piegorisch, F. Ruggeri and J. L. Teugels). doi:10.1002/9781118445112.stat08050.
- 46 Deloria-Knoll M, Fu W, Shi Q, Prosperi C, **Wu Z**, Hammitt LL, Feikin DR, Baggett HC, Howie SRC, Scott JAG, Murdoch DR, Madhi SA, Thea DM, Brooks WA, Kotloff KL, Li M, Park DE, Lin W, Levine OS, O'Brien KL, Zeger SL (2017). Bayesian estimation of pneumonia etiology: epidemiologic considerations and applications to PERCH. ► *Clinical Infectious Diseases* 64(suppl 3): S213-S227. PMID: 28575370. PMCID: PMC5447849. doi: 10.1093/cid/cix144.
- 47 **Wu Z**, Deloria-Knoll M, and Zeger SL (2017). Nested partially-latent class models (npLCM) for dependent binary data; estimating disease etiology. ► *Biostatistics* 18(2): 200-213. PMID: 27549120. doi: 10.1093/biostatistics/kxw037.
- 48 **Wu Z** as part of the PERCH Study Group (2017). **16 articles** in ► *Clinical Infectious Diseases* 64(suppl 3). Link to the complete list: <https://goo.gl/3egRN1>.
- 49 Seyednasrollah F et al. - **Wu Z** in Prostate Cancer DREAM Challenge Community (2017). A DREAM challenge to

build prediction models for short-term discontinuation of docetaxel in metastatic castration-resistant prostate cancer. ► *JCO Clinical Cancer Informatics* 1: 1-15. PMID: 30657384. PMCID: PMC6874023. doi: 10.1200/CCI.17.00018.

- 50 Guinney J et al. - **Wu Z** in PCC DREAM Consortium (2017). Prediction of overall survival for patients with metastatic castration-resistant prostate cancer: development of a prognostic model through a crowdsourced challenge with open clinical trial data. ► *The Lancet Oncology* 18(1): 132-142. PMID: 27864015. PMCID: PMC5217180. doi: 10.1016/S1470-2045(16)30560-5.
- 51 **Wu Z**, Deloria-Knoll M, Hammitt LL, and Zeger SL, for the PERCH Core Team (2016). Partially latent class models (pLCM) for case-control studies of childhood pneumonia etiology. ► *Journal of the Royal Statistical Society: Series C (Applied Statistics)* 65(1): 97-114. PMID: 32327815. PMCID: PMC7169268. doi: 10.1111/rssc.12101.
- 52 Deng D, Du Y, Ji Z, Rao K, **Wu Z**, Zhu Y, Coley RY (2016). Predicting survival time for metastatic castration-resistant prostate cancer: an iterative imputation approach. ► *F1000Research* 2016, 5: 2672. PMID: 28299176. PMCID: PMC5321124. doi: 10.12688/f1000research.8628.1.
- 53 Frangakis CE, Qian T, **Wu Z**, Diaz I (2015). Deductive Derivation and Turing-computerization of semiparametric efficient estimation. ► *Biometrics* 71(4): 867-874. PMID: 26237182. PMCID: PMC4715631. doi:10.1111/biom.12362. Discussion paper.
- 54 Frangakis CE, Qian T, **Wu Z**, Diaz I (2015). Rejoinder: Deductive derivation and Turing-computerization of semi-parametric efficient Estimation. ► *Biometrics* 71(4): 881-883. PMID: 26229019. PMCID: PMC4715508. doi: 10.1111/biom.12365.
- 55 **Wu Z**, Frangakis CE, Louis TA, Scharfstein DO (2014). Estimating treatment effects in cluster randomized trials by calibrating covariate imbalances between clusters. ► *Biometrics* 70(4): 1014-1022. PMID: 25163648. PMCID: PMC4284983. doi: 10.1111/biom.12214.
- 56 Georgiades C, Geschwind J-F, Neil H, Hines-Peralta A, Liapi E, Hong K, **Wu Z**, Kamel I, Frangakis CE (2012). Lack of response after initial chemoembolization for hepatocellular carcinoma: does it predict failure of subsequent treatment? ► *Radiology* 265: 115-123. PMID: 22891361. PMCID: PMC4137783. doi: 10.1148/radiol.12112264.

SUBMITTED MANUSCRIPTS

- 57 Wang J, Du L, Zou C, **Wu Z** (2023+). Dynamic statistical inference in massive datastreams. ► *Statistica Sinica*. Major revision. [[arXiv](#)]
- 58 Li M[‡], Shi C[‡], **Wu Z**[†], Fryzlewicz P[†] (2023+). Testing stationarity and change point detection in reinforcement learning. (‡: co-first authors; †: co-senior authors). ► *Annals of Statistics*. Revise and resubmit. [[arXiv](#)][[Python code](#)]
- 59 Shi J, **Wu Z**, Dempsey W (2023+). Incorporating Auxiliary Variables to Improve the Efficiency of Time-Varying Treatment Effect Estimation Authors. [[arXiv](#)]. ► *Journal of American Statistical Association (Theory and Methods)*. Revise and resubmit.
- 60 Fang Y[‡], Yu M[‡], **Wu Z**, Sen S, Bohnert ASB (2023+). Physical activity and depression prevention: an emulated trial with genomic subgroup analyses. (‡: co-first author). In revision.
- 61 Li M, Stephenson BJK[†], **Wu Z**[†] (2023+). Tree-Regularized Bayesian Latent Class Analysis for Improving Weakly Separated Dietary Pattern Subtyping in Small-Sized Subpopulations. (†: co-senior authors). Submitted. [[arXiv](#)][[R package](#)][[shinyapp](#)]

- Distinguished Student Paper Award, International Biometric Society, Eastern North American Region, Baltimore, MD (2024) to ML
- Institute of Mathematical Statistics Hannan Graduate Student Travel Award 2023 to ML
- Winner of Research Poster Competition, ENAR 2023 to ML

- 62 Chen I, Shi Q, Zeger SL, **Wu Z** (2023+). baker: An R package for nested partially-latent class models. Submitted. [[arXiv](#)][[R package](#)]
- 63 Yu Y, Du J, Zhang M, **Wu Z**, Ryan AM, Mukherjee B (2023+). Outcome adaptive propensity score methods for handling censoring and high-dimensionality: Application to insurance claims. Submitted. [[arXiv](#)]
- 64 Hu L[#], Li M[#], Shi C, **Wu Z**[†], Fryzlewicz P[†] (2023+). Doubly Inhomogeneous Reinforcement Learning. ([#]: equal contribution and alphabetically-ordered; [†]: co-senior authors). Submitted.
- 65 Shi J, **Wu Z**, Dempsey W (2023+). Estimating Time-Varying Direct and Indirect Causal Excursion Effects for Longitudinal Binary Outcomes. Submitted. [[arXiv](#)]
- Travel Award for the 14th International Conference on Health Policy Statistics (ICHPS), Scottsdale, AZ, 2023
- 66 Chen I, **Wu Z**, Harlow SD, Karvonen-Gutierrez CA, Elliot MR (2023+). A joint modeling approach to study the association between subject-level longitudinal marker variabilities and repeated outcomes. Submitted.
- 67 Aziz M, Davis GS, Park DE, Idris AH, Sariya S, Wang Y, Zerbonne S, Nordstrom L, Weaver B, Statham S, Johnson TJ, Campos J, Castro-Nallar E, Crandall KA, **Wu Z**, Liu CM, DeBiasi RL, Price LB (2023+). Pediatric urinary tract infections caused by poultry-associated *Escherichia coli*. Submitted.
- 68 Li M, Wu B, Stephenson B, **Wu Z** (2023+). ddtlcm: An R package for overcoming weak separation in Bayesian latent class analysis via tree-regularization. submitted. [[manuscript link](#)][[R package](#)][[shinyapp](#)]
- 69 Yu M, **Wu Z**, Hicken M, Elliott M (2023+). A Bayesian Approach for Modeling Variance of Intensive Longitudinal Biomarker Data as a Predictor of Health Outcomes. Submitted.
- 70 Luo L[#], Shi C[#], Wang J[#], **Wu Z**, Li L (2023+). Multivariate Dynamic Mediation Analysis. ([#]: equal contributions). Submitted. [[arXiv](#)]
- 71 Loe A, Murray S, **Wu Z** (2023+). Random Forest for Dynamic Risk Prediction of Recurrent Events: A Pseudo-Observation Approach. Submitted. [[arXiv](#)]

TECHNICAL REPORTS

- 72 Bi Q, Hong C, Meng J, **Wu Z**, Zhou P, Ye C, Sun B, Kucirka LM, Azman AS, Wang T, Chen J, Wang Z, Liu L, Lessler J, Edwards JK, Ma T, Zhang G (2020). Characterization of clinical progression of COVID-19 patients in Shenzhen, China: an observational cohort study. [[medRxiv](#)]

SOFTWARE

baker: Bayesian Analysis Kit for Etiology Research - Fitting and visualizing Bayesian nested partially-latent class models for estimating disease etiology
 CRAN: <https://CRAN.R-project.org/package=baker>
 Development version: <https://github.com/zhenkewu/baker>
 February 2022: "Top 40" New CRAN Packages

mpcr:	Robust covariate-calibrated estimation of treatment effect in matched-pair cluster randomized trials. https://github.com/zhenkewu/mpcr
spotgear:	Subset Profiling and Organizing Tools for Gel Electrophoresis Autoradiography in R https://github.com/zhenkewu/spotgear
rewind:	Reconstructing Etiology with Binary Decomposition https://github.com/zhenkewu/rewind
slamR:	Structured Latent Attribute Models in R https://github.com/zhenkewu/slamR
lotR:	Latent class analysis for observations over leaves in a tree https://github.com/zhenkewu/lotR
doubletree:	Nested latent class models with double-tree shrinkage https://github.com/zhenkewu/doubletree
LCVA:	Nested latent class model for Verbal Autopsy (maintainer: Zehang Richard Li) https://github.com/richardli/LCVA
CUSUM-RL:	Reinforcement Learning in Possibly Nonstationary Environments (CUSUM-RL) (maintainer: M Li); in Python https://github.com/limengbinggz/CUSUM-RL
Double-CUSUM-RL:	A Robust Test for the Stationarity Assumption in Sequential Decision Making (maintainer: J Wang); in Python. Link to GitHub Repo
ddtlcm:	Tree-regularized Latent Class Analysis via Dirichlet-Diffusion Tree to Improve Latent Class Analysis with Weakly Separated Profiles in Small Sample Sizes (maintainer: Mengbing Li) [CRAN link] [Shinyapp link]

RESEARCH GRANT PARTICIPATION ◆ *indicates grants funded as a Principal or Co-Principal Investigator.*

- ◆ *Bayesian Hierarchical Models for Using Mobile Technology to Individualize Care in Mental Health (University of Michigan Precision Health Investigator Awards)*
Dates: 12/01/2018 – 12/01/2022.
Principal Investigator: Zhenke Wu
Responsibility: **Principal Investigator**
Total: \$300,000
- ◆ *Structured Latent Variable Methods for High-Dimensional EHR and Administrative Data (Propelling Original Data Science (PODS) Grants, Michigan Institute for Data Sciences)*
Dates: 06/10/2021 – 12/09/2022.
Principal Investigator: Zhenke Wu
Responsibility: **Principal Investigator**
Total: \$55,535
- ◆ *Transformers for Robust Causal Inference using Electronic Health Records and Claims Data (Joint Statistics and Biostatistics Research Award)*
Dates: 05/01/2021 – 8/31/2022.
Principal Investigators: Zhenke Wu and Jeffrey Regier
Responsibility: **Co-Principal Investigator**
Total: \$10,000
- ◆ *Developing Innovative Statistical Framework to Integrate Multiple Verbal Autopsy Datasets to Estimate Cause-specific Mortality (NIH R03HD110962)*

Dates: 12/01/2022 – 11/30/2024

Principal Investigator: Zehang Richard Li (UCSC)

Responsibility: **Principal Investigator on subcontract**

- *Improving Outcomes for Care Partners of Persons with Traumatic Brain Injury* (NIH 2R01NR013658)
Dates: 12/01/2019 – 11/31/2024
Principal Investigator: Noelle Carlozzi
Responsibility: Co-Investigator
- *Move and Snooze: Adding insomnia treatment to an exercise program to improve pain outcomes in older adults with knee osteoarthritis* (NIH 1R01AG081299)
Dates: 09/30/2023 – 06/30/2028
Principal Investigator: Daniel Whibley
Responsibility: Co-Investigator
- *Sinai-Emory Multi-institutional CIVIC (Collaborative Influenza Vaccine Innovation Centers)* (NIH NIAID)
Dates: 03/01/2020 – present
Principal Investigator: Aubree Gordon (UM site)
Responsibility: Co-Investigator
- *Mobile Technology to Identify Mechanisms Linking Genetic Variation and Depression* (NIH 2R01MH101459)
Dates: 07/01/2018 – 03/31/2023
Principal Investigator: Srijan Sen
Responsibility: Co-Investigator
- *You-M: Personalizing Student Performance at the University of Michigan* (UM Biosciences Initiative, BSI)
Dates: 01/01/2021 – 12/31/2022
Principal Investigators: Kenneth Kozloff, Margit Burmeister, Pete Bodary
Responsibility: Co-Investigator
Total: \$779,349
- *Novel Use of mHealth Data to Identify States of Vulnerability and Receptivity to JITAIs* (NIH U01CA229437)
Dates: 04/01/2018 – 03/31/2023
Principal Investigators: Inbal Nahum-Shani (University of Michigan) and David Wetter (University of Utah)
Responsibility: Co-Investigator
- *THRIVE: Trajectories of Recovery after Intravenous propofol vs inhaled Volatile Anesthesia (PCORI Phased Large Awards for Comparative Effectiveness Research (PLACER), Cycle 3, 2020)*
Web: <https://thrivetrials.com/>
Dates: 1/1/2022 – 06/30/2028
Principal Investigators: Sachin Kheterpal (UM), Michael Avidan (WUSTL)
Responsibility: Co-Investigator
Total Direct Cost: \$ 25 million
- *Opportunities to Optimize the Receipt of Preventive Services among Children with Sickle Cell Anemia: A Mixed Methods Approach* (NIH AHRQ R01HS027785-01A1)
Dates: 09/01/2021-08/31/2025
Principal Investigator: Sarah Reeves (UM)
Responsibility: Co-Investigator
Total Cost: \$ 1.6 million
- *UtiliZing health Information for Meaningful impact in East Africa through Data Science (UZIMA-DS)* (NIH U54 TW012089)
Dates: 09/15/2021 – 06/30/2026
Principal Investigator: Akbar K. Waljee (UM Subcontract from Aga Khan University (AKU), Kenya)
Responsibility: Co-Investigator
Total Cost: \$ 6.5 million
- *Variance as a Predictor of Health Outcomes* (NIH 1R56AG06669301A1)
Dates: 09/30/2021 – 08/31/2022
Principal Investigator: Michael Elliott (UM)
Responsibility: Co-Investigator

Total Cost: \$ 374,998.

- ◊ *The effects of bundled payment on acute cardiovascular outcomes among older adults* (NIH R01AG047932)
Dates: 06/01/2022 – 05/31/2027
Principal Investigator: Andrew M Ryan (Brown University)
Responsibility: Co-Investigator
Total Cost: \$ 3.64 million
- ◊ *Zoonotic Uropathogenic Escherichia coli in Northwest Ecuador: Incidence and Risk Factors* (NIH R01AI167989)
Dates: 07/06/2022 – 07/05/2027
Principal Investigator: Joseph NE Eisenberg (UM), Jay P Graham (UC Berkeley)
Responsibility: Co-Investigator
Total Cost: \$ 3.59 million
- ◊ *Low-burden Adaptive Mobile Interventions for Mood and Suicide Risk* (NIH K23MH13176101)
Dates: 09/07/2022 – 08/31/2026
Principal Investigator: Adam Horwitz (UM)
Responsibility: Consultant
- ◆ *Autoantibodies Define Scleroderma Subgroups with Distinct Relationships to Cancer* (NIH R01AR073208)
Dates: 04/01/2018 – 03/31/2023
Principal Investigators: Livia Casciola-Rosen and Ami Shah (Johns Hopkins)
Responsibility: **Subcontract Principal Investigator**
- ◆ *Personalized Diagnosis for Disease Etiology Studies and Cognitive Assessment* (UM MCubed 3.0)
Dates: 09/01/2018 – 12/31/2020
Principal Investigators: Zhenke Wu, Gongjun Xu, Yang Chen
Responsibility: **Co-Principal Investigator**
Total: \$60,000
- ◆ *Structured Latent Variable Models for Multivariate Binary Data Observed over Taxonomies* (Shark Tank for Research Ideas in Data Science and Statistics, STRIDES, UM)
Dates: 03/01/2019 – 03/01/2020
Principal Investigators: Zhenke Wu and Gongjun Xu
Responsibility: **Co-Principal Investigator**
Total: \$15,000
- ◆ *Bayesian Hierarchical Models for Design and Analysis of Studies to Individualize Healthcare* (Funding for Methodological Research, Patient-Centered Outcomes Research Institute)
Dates: 09/01/2016 – 08/31/2018
Principal Investigator: Scott L. Zeger (Johns Hopkins)
Responsibility: **Principal Investigator on subcontract**
Subcontract Total: \$73,773
- ◆ *Pneumonia Etiology Research for Child Health (PERCH)* (Gates Foundation 305215)
Dates: 09/01/2016 – 12/31/2017
Principal Investigator: Katherine O'Brien (Johns Hopkins at the time of award)
Responsibility: **Principal Investigator on subcontract**
Subcontract Total: \$66,696
- ◊ *Mobile Technology and Data Analytics to Identify Real-Time Predictors of Caregiver Well-Being* (Accelerating Synergy Award, UL1TR002240; Michigan Institute for Clinical Health Research (MICH) and Institute for Healthcare Policy Innovation (IHPI))
Dates: 03/01/2020 – 02/28/2021
Principal Investigator: Noelle Carlozzi
Responsibility: Co-Investigator
Total: \$100,000
- ◊ *Identifying Real-Time Data Predictors of Stress and Depression Using Mobile Technology* (Michigan Institute for Data Science; Funding for methodological research in the area of health sciences)
Dates: 03/01/2017 – 02/28/2019

Principal Investigators: Srijan Sen

Responsibility: Co-Investigator

Total: \$521,051

- ◊ Prostate Cancer DREAM Challenge Educational Program Award (Project Data Sphere, LLC (PDS) by AstraZeneca)

Dates: 10/01/2015 – 03/31/2016

Principal Investigator: Yates Coley

Responsibility: Co-Investigator

Total: \$2,307.69

PRESENTATIONS upcoming; keynote

SCIENTIFIC MEETINGS *invited, #posters

- 1 *May 15-17, 2024, 19th International Association of Official Statistics (IAOS) Conference and 4th Regional International Statistical Institute (ISI), Mexico City, Mexico.
- 2 *March 2024, ENAR, Baltimore, MD. “Methodological advances in and practical considerations for data originating from randomized trials”
- 3 *February 2024, Third Annual UZIMA (Utilize health Information for Meaningful impact in East Africa through Data Science) Meeting ([NIH Data Science in Africa Initiative](#)). Kilifi, Kenya.
- 4 *December 2023, CMStatistics 2023. Berlin, Germany.
- 5 *August 2023, Joint Statistical Meeting. Toronto, Canada.
- 6 *August 2023, EcoSta. Tokyo, Japan (virtual).
- 7 *July 2023, Joint Conference on Statistics and Data Science in China (JCSDS). Beijing, China.
- 8 *July 2023, The 12th ICSA International Conference, Chinese University of Hong Kong, Hong Kong.
- 9 *June 2023, Western North American Region (WNAR) Conference, International Biometric Society (IBS), Anchorage, Alaska.
- 10 *June 2023, International Chinese Statistical Association (ICSA) 2023 Applied Statistics Symposium. Ann Arbor, Michigan.
- 11 *December 2022, 15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2022). King’s College London, London, UK.
- 12 *August 2022, Joint Statistical Meetings, Washington DC
- 13 *June 2022, World Meeting of the International Society for Bayesian Analysis (ISBA), Montreal, Canada
- 14 *June 2022, International Chinese Statistical Association (ICSA) Applied Statistics Symposium, Gainesville, FL
- 15 *June 2022, EcoSta Conference, Kyoto, Japan (virtual)
- 16 *August 2021, Joint Statistical Meetings, Seattle WA (virtual)
- 17 *July 2021, World Meeting of the International Society for Bayesian Analysis (ISBA) (virtual)
- 18 *June 2021, 4th International Conference on Econometrics and Statistics (EcoSta 2021), HKUST, Hong Kong (virtual).
- 19 *December 2020, ICSA Applied Statistics Symposium, Houston, TX (virtual)
- 20 *August 2020, Joint Statistical Meeting. August 1-6. Philadelphia, PA (virtual)
- 21 *December 2019, International Indian Statistical Association Conference. IIT Bombay, Mumbai, India.
- 22 *December 2019, 11th International Chinese Statistical Association (ICSA) International Conference. Zhejiang University, Hangzhou, China.
- 23 *July 2019, Joint Statistical Meeting, Denver, Colorado.



- 24 *July 2019, International Chinese Statistical Association (ICSA) China Conference. Naikai University, Tianjin, China.
- 25 *June 2019, 3rd International Conference on Econometrics and Statistics (EcoStat 2019). National Chung Hsing University (NCHU), Taichung, Taiwan.
- 26 *June 2019, Applied International Chinese Statistical Association (ICSA) Statistics Symposium. Raleigh, North Carolina.
- 27 #October 2018, MIDAS Annual Symposium, University of Michigan, Ann Arbor, MI.
- 28 July 2018, Joint Statistical Meeting. Vancouver, Canada.
- 29 #July 2018, 25th Model-Based Clustering Workshop. Ann Arbor, MI.
- 30 *June 2018, 2nd International Conference on Econometrics and Statistics (EcoStat 2018). The City University of Hong Kong.
- 31 *June 2018, Applied Statistics Symposium. International Chinese Statistical Association (ICSA). New Brunswick, NJ, USA.
- 32 March 2018, Eastern North American Regional meeting of the International Biometric Society. Atlanta, GA.
- 33 *July 2017, International Biometric Society, Brazilian Regional Meeting. Federal University of Lavras (UFLA), Lavras, MG, Brazil. **Plenary Talk.**
- 34 March 2017, Eastern North American Regional meeting of the International Biometric Society. Washington, DC.
- 35 August 2016, Joint Statistical Meetings. Chicago, IL.
- 36 #July 2016, 18th Meeting of New Researcher Conference in Statistics and Probability. University of Wisconsin, Madison.
- 37 March 2016, Eastern North American Regional meeting of the International Biometric Society. Austin, TX.
- 38 March 2015, Eastern North American Regional meeting of the International Biometric Society. Miami, FL.
- 39 August 2014, Joint Statistical Meetings. Boston, MA.
- 40 March 2014, Eastern North American Regional meeting of the International Biometric Society. Baltimore, MD.
- 41 August 2013, Joint Statistical Meeting. Montreal, QC, Canada.
- 42 #March 2013, Eastern North American Regional meeting of the International Biometric Society. Orlando, FL.

INVITED SEMINARS & COLLOQUIUMS (EXTERNAL)

- 1 February 2024, Department of Biostatistics and Informatics, University of Colorado (CU), Aurora, CO.
- 2 November 2023, The Institute of Population Research at Peking University (IPRPKU) (virtual).
- 3 October 2023, Department of Statistics, University of Michigan, Ann Arbor, MI.
- 4 July 2023, Department of Statistics and Actuarial Sciences, The University of Hong Kong (HKU), Hong Kong.
- 5 July 2023, Department of Statistics, The Chinese University of Hong Kong (CUHK), Hong Kong.
- 6 April 2022, Department of Biostatistics and Bioinformatics, Duke University, Durham, NC (virtual)
- 7 March 2021, University of Illinois, Chicago, Section of Biostatistics, School of Public Health (virtual)
- 8 November 2020, Johns Hopkins Department of Biostatistics Seminar (virtual)
- 9 March 2020, Mental Health Data Science, Department of Psychiatry, Columbia University.
- 10 November 2019, Department of Statistics and Data Science (SDS), University of Texas, Austin, TX.
- 11 September 2019, Department of Statistics, Texas A&M University, College Station, TX.
- 12 February 2019, *Statistical Methods for Developing Personalized Mobile Health Interventions*, National University of Singapore.
- 13 December 2017, Statistical Reinforcement Learning Lab. Department of Statistics, Harvard University, Cambridge, MA.
- 14 February 2016, Department of Biostatistics, University of Michigan, Ann Arbor, MI.
- 15 February 2016, Department of Biostatistics, University of Massachusetts, Amherst. Amherst, MA.

- 16 February 2016, Biostatistics Research Branch, Division of Clinical Research, National Institute of Allergy and Infectious Diseases, NIH. Rockville, MD.
- 17 November 2015, Biostatistics Grand Rounds, Johns Hopkins Bloomberg School of Public Health. Baltimore, MD.
- 18 August 2015, CHICAS, Medical School, Lancaster University. Lancaster, England.
- 19 February 2015, Department of Biostatistics, Brown University. Providence, RI.

INVITED SEMINARS (INTERNAL)

- 1 March 2022, Propelling Original Data Science (PODS) Grants Showcase, Michigan Institute of Data Science.
- 2 October 2021, Brown Bag Seminar Series, Biostatistics, UMich.
- 3 January 2021, Michigan Biostat DEI Seminar (virtual)
- 4 November 2020, Brown Bag Seminar Series, Biostatistics, UMich. (virtual)
- 5 September 2020, Environmental Statistics Discussion. Integrated Health Science Core, Michigan Center on Lifestage Environmental Exposures and Disease (M-LEEaD). (virtual)
- 6 June 2020, Michigan Institute for Data Science (MIDAS) COVID-19 Special Seminar Series (with Veera Baladandayuthapani; virtual; [recording](#))
-  July 2019, **Plenary talk**, Symposium for Big Data Summer Institute, Big Data Summer Institute, University of Michigan, Ann Arbor, MI.
- 8 May 2018, Cancer Control and Population Sciences (CCPS), University of Michigan Cancer Center.
- 9 May 2018, Health Sciences Challenge Symposium. Michigan Institute for Data Sciences, University of Michigan.
-  April 2018, Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS) University of Michigan. Junior Faculty **Keynote Speaker**.

OTHER MEETINGS AND EVENTS **invited; #posters*

- 1 *December 13th, 2022, Research Forum “New Mathematical Approaches to Computational Psychiatry and Fatigue”, Cognitive Fatigue Multidisciplinary University Research Initiatives (MURI) Research Forum (Organized by Professor Daniel Forger, UMich).
- 2 *July 2017, Rheumatology Data Science Meeting. Johns Hopkins School of Medicine, Bayview Medical Center.
- 3 *November 2016, Interdisciplinary Group Seminar (IGS), Center for Statistical Genetics, University of Michigan. Ann Arbor, MI
- 4 *November 2016, Annual School of Public Health Excellence in Research Symposium, University of Michigan. Ann Arbor, MI.
- 5 *December 2014, Pneumonia Etiology Research for Child Health (PERCH) Executive Committee Meeting. London, England.
- 6 #February 2014, Delta Omega Scientific Poster Competition. Baltimore, MD.
- 7 *December 2013, Pneumonia Etiology Research for Child Health (PERCH) Executive Committee Meeting. London, England.
- 8 *November 2013, US Centers for Disease Control and Child Health Research Foundation: Aetiology of Neonatal Infection in South Asia (ANISA) Project Committee Meeting. San Diego, CA.
- 9 *December 2012, Department of Biostatistics. Johns Hopkins Biostatistics Causal Inference Working Group. Baltimore, MD.

PROFESSIONAL AFFILIATIONS

- American Statistical Association (ASA)
- Eastern North American Region (ENAR), International Biometric Society
- International Society for Bayesian Analysis (ISBA)
- International Chinese Statistical Association (ICSA)

SERVICE

INTERNAL

Department of Biostatistics, UMich

2023	Retreat Planning and 2030 Visioning
2023	Diversity, Equity and Inclusion
2017-18,2022-23	Faculty Search
2016-17,2022-23	Admissions
2018,2020-2023	Computing, Social Media and Website Reform (Chair for 2022-2023)
2017-2020	Seminars/Brown Bag (Chair)
2019-2021	Student Awards
2018	Rod Little Distinguished Lectureship Organizing Committee
2018	Faculty Speaker on Prospective Student Day, November 10
2017-18	Qualifying Exam Modernization Proposal

School of Public Health, UMich

2019-present	Junior Faculty Advisory Board (J-FAB)
2018	Health Informatics

Michigan Institute of Data Science, UMich

2019, 2020	Program Committee, Annual MIDAS Symposium, November
2016	Poster Competition Judge, Michigan Institute of Data Science Symposium, November 15

University of Michigan, Ann Arbor

2023-present	Launch Committee for Junior Faculty (Professor Meng Wang - DCMB)
2022-present	Faculty Search Committee, Eisenberg Family Depression Center

PROFESSIONAL AT LARGE

Co-Chair	Local Committee, International Chinese Statistical Association (ICSA) Applied Statistics Symposium (Ann Arbor, MI; June 2023)
Executive Committee	2024 JSM Program Chair, Biometrics Section, American Statistical Association
Advisory Board	openVA (https://openva.net/): The openVA team develops and maintains various tools, algorithms, and software related to Verbal Autopsy.
Member	Scientific Advisory Committee (SAC), Reference Death Archive, World Health Organization (WHO)
Program Committee	<ol style="list-style-type: none"> 7th International Conference on Econometrics and Statistics (EcoSta 2024), Beijing Normal University, Beijing, China. July 17-19, 2024 <i>AI for Behavior Change, The AAAI-21 Workshop on AI For Behavior Change</i>, Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21) (February 8-9, 2021; Virtual)
Committee Member	International Conference on Health Policy Statistics (ICHPS) <ol style="list-style-type: none"> Student Committee (2023) Eastern North American Regional (ENAR) Meeting of the International Biometric Society <ol style="list-style-type: none"> Paper Award Committee (2019-2021) Regional Advisory Board (2018-2020) Educational Advisory Committee (2018; Atlanta, GA)

American Statistical Association

1. Student paper competition committee, Section on Bayesian Statistical Science (SBSS; 2024)
2. Student Paper Award Committee, Statistical Learning and Data Science (SLDS; 2020, 2022)
3. Young Investigator Award (YIA) Committee, Statistics in Epidemiology (2022, 2023, 2024)
4. David P. Byar Early Career Award Committee, Biometrics Section (2020)
5. Paper Award Committee, Section on Bayesian Statistical Science (2020)
6. Paper Award Committee, Health Policy Statistics Section (2020)

International Chinese Statistical Association (ICSA)

1. Student paper competition (2021)

Session Organizer

1. Reaping the Benefits of Digital Health Data for Improving Public Health and Biomedical Studies, JSM (August 5-10, 2023; Toronto, Canada)
2. Modern Tree-integrative Statistical Methods for Biomedical and Public Health Studies, ENAR (March 27-30, 2022; Houston, TX)
3. Recent Advances in Latent Variable Modeling for Modern Scientific Studies, 12th International Conference of International Chinese Statistical Association (December 18-22, 2022)
4. Statistical Methods for Improving Inferences and Decision-Making in Population Health, Joint Statistical Meeting (July 27 - August 1, 2019; Denver, CO)

Session Chair

1. Success stories, challenges, and opportunities in use of observational health data for generating clinical evidence, ENAR, International Biometric Society (IBS) (Mar 10-13, 2024, Baltimore, MD)
2. Topo-geometric data analysis, Joint Statistical Meetings (August 8, Toronto, Canada)
3. Showcase of the Power of Statistics in Observational Studies for Precision Health, 12th International Conference of International Chinese Statistical Association (July 7, 2023, Hong Kong)
4. Panel on Careers in Data Science, Applied Statistics Symposium, ICSA (June 12, 2023, Ann Arbor)
5. Keynote of Workshop “Modern Statistical and Machine Learning Methods for Big Data”, October 22nd, 2022, Ann Arbor
6. Statistical Methods for Discovering Latent Structures in High-Dimensional and Complex Data, 2022 JSM (August)
7. Recent Statistical Advances for Mobile Health, 2021 JSM (August 11th; Virtual)
8. Modern Graphical Modeling of Complex Biomedical Systems, 2020 JSM (August 6; Virtual)
9. New Weighting Methods for Causal Inference, 2020 ENAR (March 24; Virtual)
10. Keynote “Computational Ecology and AI for Conservation” by Tanya Berger-Wolf, Michigan Institute for Data Science Annual Symposium, November 15, 2019. Ann Arbor, MI
11. Towards a Learning-Health System: Methods and Strategies for Data-Driven Healthcare, Joint Statistical Meetings (July 29 - August 3, 2017; Baltimore, MD)

Discussant

1. Recent Advances in Nonparametric and Semiparametric Methods for Complex Data, Invited Papers by Journal of Nonparametric Statistics, 2022 JSM (August)

Poster Judge

1. Statistical Learning and Data Science (SLDS), Joint Statistical Meeting (July 30, 2019, Denver, CO)
2. International Indian Statistical Association (IISA) Conference, 2019, Mumbai, India.

Hosted Attendee

1. [Use of Wearable and Implantable Devices in Health Research](#), BIRS Workshop, Banff, AB, Canada. Feb 23-28, 2020
2. U-M Ideas Lab: Predicting Human Performance. Biosciences Initiative, University of Michigan. Oct 13-15, 2019
3. [Statistical Methods for Developing Personalized Mobile Health Interventions](#), National University of Singapore, Feb 4 - March 1, 2019
4. [Program on Statistical, Mathematical, and Computational Methods for Precision Medicine \(PMED\)](#), SAMSI, Raleigh, Durham, NC. August 13-17, 2018
5. Methods Summit. PCORI Annual Meeting: Building a Patient-Centered Research Community. Arlington VA. October 6-8, 2015

Panelist

1. Foundations of Data Science. Fifth Bayesian, Fiducial and Frequentist Conference (BFF5) (May 6-9, 2018; Ann Arbor, MI)
2. Studio Consultation, [Johns Hopkins Institute for Clinical and Transnational Research \(ICTR\)](#) (2015)

Referee *The numbers in parentheses indicate the number of manuscripts reviewed or currently reviewing, excluding revisions.*

Journals: (alphabetically ordered)

Annals of Applied Statistics (5)
 Annals of Statistics (1)
 Bayesian Analysis (1)
 Biometrics (15)
 Biostatistics (4)
 Educational and Psychological Measurements (1)
 Electronic Journal of Statistics (1)
 Journal of Business and Economic Statistics (1)
 Statistics in Medicine (12)
 Computational Statistics and Data Analysis (2)
 Epidemiology (1)
 Pharmaceutical Statistics (1)
 PLOS ONE (1)
 Proceedings of National Academy of Sciences (PNAS) (2)
 Statistical Science (1)
 Sankhya (The Indian Journal of Statistics) (1)
 Technometrics (1)
 Nature (1)
 Nature Partner Journal (npj) Digital Medicine (1)
 International Journal of Epidemiology (1)
 Journal of American Statistical Association A&CS (2)
 Journal of Educational and Behavioral Statistics (1)
 Journal of Royal Statistical Society, Series A (1)
 Journal of Statistical Planning and Inference (1)
 Ophthalmic Epidemiology (1)
 Psychiatric Services (1)

Conferences: *International Conference on Machine Learning 2022 (2), NeurIPS 2023*

Workshops: *AI for Behavior Change, AAAI Workshop, 2021(2), 2022(2)*

Final Reports: Patient-Centered Outcomes Research Institute (PCORI) (1)

Grants:

1. 2023, Italy–Singapore Science and Technology Cooperation Call for Joint Research Proposals, Agency for Science, Technology and Research (A*STAR), Ministry of Trade and Industry, Singapore
2. 2022, 2023 MIDAS PODS Grant
3. 2021, 2022 Michigan Medicine - Peking University Health Science Center Joint Institute for Translational Clinical Research
4. 2019, 2021 UM Precision Health Investigator Awards
5. 2019 MIDAS Propelling Original Data Science (PODS) Grants
6. 2017, 2018 Michigan Institute for Clinical and Health Research (MICHR) Pilot Grant
7. 2016 Johns Hopkins Individualized Health Initiative Request for Proposal (RFP)
8. 2016 Methodology Research Grant, Medical Research Council, United Kingdom

Co-Founder [Chinese Public Health Forum \(CPHF\) at Johns Hopkins](#), 2010-12

TEACHING AND MENTORING

DOCTORAL DISSERTATION ADVISEES (Chair or Co-chair)

**expected graduation*

- 2025* Jitao Wang (Chair)
Thesis Title: *Causal Inference Methods for Micro-randomized Trials with Dynamic Networks*
 - **Outstanding First Year Masters Student**
- 2024* Mengbing Li (Chair)
Thesis Title: *Structured Latent Variable Models for Individualizing Healthcare*
 - **Distinguished Student Paper Award**, International Biometric Society, Eastern North American Region, Baltimore, MD, 2024
 - **Outstanding Biostatistics Graduate Student Instructor Award**, 2023
 - **Institute of Mathematical Statistics Hannan Graduate Student Travel Award**, 2023
 - **Winner of Research Poster Competition**, International Biometric Society, Eastern North American Region, 2023
 - **Best Doctoral Qualifying Exam Award**, 2019
 - **Outstanding Biostatistics Graduate Student Instructor Award**, 2018

Graduated: (total: 5)

- 2018- Irena Chen (Co-Chair: Michael Elliott)
2023 **Thesis Title:** *Joint Modeling Methods for Individual-level Variances as Predictors of Health Outcomes*
First Position After Graduation/Current Position: Postdoctoral Fellow, Department of Digital and Computational Demography, Max Planck Institute, Germany
 - **Poster Competition Award**, “Most Likely to Make an Impact in the Field”, MIDAS Annual Data Science Symposium, November 15, 2019
- 2019- Tsung-Hung Yao (Co-Chair: Veera Baladandayuthapani)
2023 **Thesis Title:** *Bayesian Learning of Structured Covariances with Applications to Cancer Data*
First Position After Graduation/Current Position: Postdoctoral Fellow, Department of Biostatistics, MD Anderson Cancer Center
 - **ISBA Travel Award**, Montreal, Canada, 2022
 - **Outstanding Biostatistics Graduate Student Instructor Award**, 2019
- 2020- Jieru (Hera) Shi (Co-Chair: Walter Dempsey)
2023 **Thesis Title:** *Statistical Methods for Assessing Time-Varying Causal Effects: Novel Estimands and Inference*
First Position After Graduation/Current Position: Postdoctoral Fellow, Department of Pure Mathematics and Mathematical Statistics (DPMMS), University of Cambridge, UK
 - **Travel Award** for the 14th International Conference on Health Policy Statistics (ICHPS), Scottsdale, AZ, 2023
 - **Winner, Junior Researcher Travel Grant**, American Causal Inference Conference (ACIC), Berkeley, CA, 2022
- 2020- Nicole Wakim (Co-Chair: Thomas Braun)
2023 **Thesis Title:** *Missing Data Methods for Correlating Digital Biomarkers and Longitudinal Outcomes*
First Position After Graduation/Current Position: Research Assistant Professor at OHSU
 - **Departmental Citizenship Outreach Award, Honorable Mention**, 2021

2017- [Tim NeCamp](#), PhD (Co-Chair: Edward Ionides).

2019 **Thesis Title:** *Design and Analysis of Sequential Randomized Trials with Applications to Mental Health and Online Education.*

First Position After Graduation/Current Position: Co-Founder of [Data Bloom](#)

- **NSF Graduate Student Fellowship**
- **2018 Rackham Outstanding Graduate Student Instructor Award**
- **Best Speed Oral Presentation at MSSISS 2018:** “Predicting mood using multivariate mobile sensor data streams for medical interns”

CLASSROOM INSTRUCTION (Principal Instructor)

University of Michigan, Ann Arbor

- BIOSTAT 653 Theory and Application of Longitudinal Analysis (2023 Fall; 46 Master/Doctoral Students).
- BIOSTAT 653 Theory and Application of Longitudinal Analysis (2022 Fall). 50 Master/Doctoral Students.
- BIOSTAT 522 Biostatistical Analysis for Health-Related Studies (2022 Winter). 158 Master/MPH/Medical Non-Biostat Students (Epidemiology, Nutrition, Medicine).
- BIOSTAT 653 Theory and Application of Longitudinal Analysis (2021 Fall). 40 Master/Doctoral Students.
- BIOSTAT 653 Theory and Application of Longitudinal Analysis (2020 Fall). 50 Master/Doctoral Students.
- BIOSTAT 653 Applied Stats III: Longitudinal Analysis (2019 Fall). 67 Master/Doctoral Biostat Students
- BIOSTAT 653 Applied Stats III: Longitudinal Analysis (2018 Fall). 47 Master/Doctoral Biostat Students
- BIOSTAT 523 Statistical Methods in Epidemiology (2017 Fall). 84 Master/Doctoral Epidemiology Students
- BIOSTAT 830 Advanced Topics in Biostatistics: [Statistical and Computational Methods for Learning through Graphical Models](#) (2016 Fall). 11 Doctoral Students

CLASSROOM INSTRUCTION (Invited Guest Lecturer)

University of Michigan, Ann Arbor

- Causal Inference. Big Data Summer Institute, Department of Biostatistics (June 2018, 2019)
- Network. Big Data Summer Institute, Department of Biostatistics (June 22, 2017)
- Cancer Biostatistics Seminar Course (BIOSTAT 803), Department of Biostatistics, (Instructor: Jeremy M G Taylor; October 28, 2016)

Johns Hopkins Bloomberg School of Public Health

- Data Visualization for Individualized Health via `ggplot2`. Public Health Studies, Undergraduate Seminar Course (Instructor: Yates Coley; March 1, 2016)
- 140.653 Methods in Biostatistics (Master-level) (Instructor: Scott Zeger; February 11, 2016)

OTHER TEACHING

Short Courses

- Statistical Methods for Individualizing Health (co-taught with Scott Zeger), Mayo Clinic, Department of Health Sciences Research, Rochester, MN (November 17, 2014)

Workshop

- [Big Data Summer Institute](#), NIH BD2K R25 (PI: Mukherjee). Undergraduate Projects on Statistical Methods for **Electronic Health Records** (data: Michigan Genomics Initiative). Department of Biostatistics, University of Michigan. (2017 Summer)

TEACHING ASSISTANT

- 140.656 Multilevel Statistical Models, Graduate, Elizabeth Colantuoni (2014)
- 140.655, Analysis of Longitudinal Data, Graduate, Elizabeth Colantuoni (2014)
- 280.346 Biostatistics in Public Health, Undergraduate, Scott Zeger (2013)
- Case-based Introduction to Biostatistics, [www.coursera.org](#), Scott Zeger, ~ 23,000 global enrollments (2013)
- 140.762 Bayesian Methods II, Graduate, Gary Rosner (2013)

- ◊ 140.763 Bayesian Methods I, Graduate, Gary Rosner (2013)
- ◊ 280.346 Biostatistics in Public Health, Undergraduate, Scott Zeger (2012)
- ◊ 550.621 Advanced Probability Theory II, Graduate, James Fill (2012)
- ◊ 550.620 Advanced Probability Theory I, Graduate, James Fill (2011)
- ◊ 140.646-649 Essentials of Probability and Statistical Inference (I, II, III, IV), Graduate, Michael Rosenblum and Charles Rohde (2010-2011)

GRADUATE STUDENT RESEARCH ASSISTANTSHIP (GSRA)

Funded and Supervised

Abigail Loe (2022 January - 2022 December)	Chen Chen (2021 November - 2022 August)
Jitao Wang (2020 September - present)	Mengbing Li (2018 January - present)
Irena Chen (2019 January - 2022 August)	Tian Xie (2020 January - 2022 August)
Nicole Wakim (2021 May - 2021 August)	Jieru (Hera) Shi (2020 May - 2020 August)
Zhongyuan Lyu (2018 May - 2018 August)	Ze zhi Zhang (2017 May - 2017 August)

Supervised

Mingyan Yu (2022 May - present)

DOCTORAL DISSERTATION COMMITTEE (Non-Chair Role)

2023-present	Chang Wang (Biostat)
2023-present	Haneen BouGhanem (Nutritional Sciences)
2023-present	Ariana Haidari (Environmental Health Sciences)
2023-present	Toshiya Yoshida (Statistics, U of California, Santa Cruz)
2023-present	Yuliang Xu (Biostat)
2022-present	Greg Hoy (Epidemiology)
2022-present	Hyeon Joo (Learning Health Sciences/Scientific Computing)
2022-2023	Moyan Li (IOE)
2022-2023	Jennifer Cleary (Psychology)
2022-present	Madeline Abbott (Biostat)
2022	Chenchen Ma (Stat)
2022-present	Wade Sanders (Epidemiology)
2021-present	Charlotte Mann (Stat)
2021-present	Andrea Sosa Moreno (Epidemiology)
2021-2023	Aaron Frutos (Epidemiology)
2021-2023	Yizhuo Wang (Biostat)
2020-2022	Youfei Yu (Biostat)
2020-2021	Yi wang Zhou (Biostat)
2020-2022	Kuan-Han Wu (Bioinformatics)
2020-2022	Chengcheng Li (Stat)
2020	Xubo Yue (IOE)
2020-2023	Seokhyun Chung (IOE)
2021	Edward Wu (Stat)
2020	Nina Zhou (Biostat)
2020	Brook Luers (Stat)
2020	Aritra Guha (Stat)
2018-2020	April Cho (Stat)
2018-2020	Yuqi Gu (Stat)
2019-2020	Yingchao Zhong (Biostat)
2019-2020	Lan Luo (Biostat)
2019-2020	Yingchao Zhong (Biostat)

2019 Ruofei Zhao (Stat)
2018 Jun Guo (Stat)

DOCTORAL PRELIMINARY EXAM COMMITTEE

2022-2023 Prayag Chatha (Stat)

MASTER'S DISSERTATION COMMITTEE (Non-Chair Role)

2022-present Xiaochun Gai (Nutritional Sciences), Zhichun (Irene) Xu (Nutritional Sciences)

PARTICIPATION IN RESEARCH

2023 Winter - present Xingran Chen (MS, Biostat; **Outstanding First-Year Master Student**)
2023 Summer Bolin Wu (Undergrad, Computer Science)
2020 Fall Ting Gong (MS, Data Science)
2020 Winter Jiayuan Dong (Accelerated MS, Applied Statistics)
2018 Fall Jing Chu (MS, Applied Statistics)
2018 Summer Jitao Wang (MA, Biostat)

GENERAL ACADEMIC ADVISOR

2023 Zihan Wang (MS), Yiren Hou (MS)
2021-2022 Runye Shi (MS)
2020-2021 Yajing Li (MS), Qiyuan Shi (MS), Jitao Wang (MS), Tian Xie (MS), Yuliang Xu (PhD)
2019-2020 Yajing Li (MS), Ruohan Liao (MS), Tian Xie (MS), Zheng Xu (PhD)

GRADUATE STUDENT INSTRUCTOR (GSI)

BIOSTAT653, Fall 2023 Yao Song, Tzu-Hsuan Lin
BIOSTAT653, Fall 2022 Mengbing Li (**2023 Departmental Outstanding GSI Award**)
BIOSTAT522, Winter 2022 Jenna Bedrava (**2022 Departmental Outstanding GSI Award**), Karen Angulo Diaz (**2022 Honorable Mention for Outstanding GSI Award**), Andre Guerra, Sabir Meah
BIOSTAT653, Fall 2021 Qingzhi Liu
BIOSTAT653, Fall 2020 Yuliang Xu
BIOSTAT653, Fall 2019 Zheng Xu
BIOSTAT653, Fall 2018 Nina Zhou
BIOSTAT523, Fall 2017 Pedro Orozco del Pino (**2018 Departmental Outstanding GSI Award**), Chen Liang