CURRICULUM VITAE
The Johns Hopkins University School of Medicine

(Signature) _____ 11/05/2022
(Typed Name) Yuxin (Daisy) Zhu, PhD (Date of this version)

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointments

2021-present Assistant Professor, Johns Hopkins Armstrong Institute for Patient Safety and Quality, Baltimore, MD
2021-present Assistant Professor, Department of Neurology, Johns Hopkins School of Medicine, Baltimore, MD
2022-present Assistant Professor (joint), Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD

Personal Data

Johns Hopkins Armstrong Institute for Patient Safety and Quality
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Baltimore, Maryland, 21202

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Education and Training

Undergraduate
2009-2013 B.S., Mathematics, Nanjing University, Nanjing, Jiangsu, China
Doctoral/graduate
2013-2018 Ph.D., Biostatistics, Johns Hopkins University, Baltimore, MD
Postdoctoral
2018-2021 Postdoctoral fellow, Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health (advisor: Mei-Cheng Wang), and Division of Biostatistics and Bioinformatics, Department of Oncology, Johns Hopkins School of Medicine (advisor: Zheyu Wang).

PUBLICATIONS

Original Research [OR].

Statistical methodology

1. Deng D, Du Y, Ji Z, Rao K, Wu Z, ***Zhu Y**, and Coley RY. Predicting survival time for metastatic castration resistant prostate cancer: An iterative imputation approach. F1000Research. 2016; 5; *alphabetically ordered authorship except for the last author. https://doi.org/10.12688/f1000research.8628.1
2. Wang Z, Tang Z, **Zhu Y**, Pettigrew C, Soldan A, Gross A, and Albert M. AD risk score for the early phases of disease based on unsupervised machine learning. Alzheimer's & Dementia. 2020; 16(11), 1524-1533; contributor in methodology. https://doi.org/10.1002/alz.12140
3. **Zhu Y**, Wang Z, Liberman AL, Chang TP, Newman-Toker D. Statistical insights for crude-rate-based operational measures of misdiagnosis-related harms. Statistics in Medicine. 2021 Sep 10;40(20):4430-41. https://doi.org/10.1002/sim.9039
4. **Zhu Y**, Wang MC. Obtaining optimal cutoff values for tree classifiers using multiple biomarkers. Biometrics. 2022 Mar;78(1):128-40. https://doi.org/10.1111/biom.13409
5. Wang MC, **Zhu Y**. Bias correction via outcome reassignment for cross-sectional data with binary disease outcome. Lifetime Data Analysis. 2022 Jun 24:1-6. https://doi-org.proxy1.library.jhu.edu/10.1007/s10985-022-09559-3

6. **Zhu Y**, Wang Z, Newman-Toker DE. Misdiagnosis-Related Harm Quantification Through Mixture Models and Harm Measures. Biometrics. https://doi-org.proxy1.library.jhu.edu/10.1111/biom.13759

Collaborative work

7. Pettigrew C, Soldan A, **Zhu Y**, Wang MC, Moghekar A, Brown T, Miller M, Albert M, and BIOCARD Research Team. Cortical thickness in relation to clinical symptom onset in preclinical AD. NeuroImage: Clinical. 2016; 12, 116-122; primary statistician. https://doi.org/10.1016/j.nicl.2016.06.010
8. Guinney, Justin, et al. (Authorship as part of the Prostate Cancer Challenge DREAM Community) "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 (2017): 132-142. https://doi-org.proxy1.library.jhu.edu/10.1016/S1470-2045(16)30560-5
9. Pettigrew C, Soldan A, **Zhu Y**, Wang MC, Brown T, Miller M, Albert M, and BIOCARD Research Team. Cognitive reserve and cortical thickness in preclinical Alzheimer's disease. Brain imaging and behavior. 2017; 11(2), 357-367; primary statistician. https://doi.org/10.1007/s11682-016-9581-y
10. Albert M, **Zhu Y**, Moghekar A, Mori S, Miller MI, Soldan A, Pettigrew C, Selnes O, Li S, and Wang MC. Predicting progression from normal cognition to mild cognitive impairment for individuals at 5 years. Brain. 2018; 141(3), 877-887; primary statistician. https://doi.org/10.1093/brain/awx365
11. Newman-Toker DE, Schaffer AC, Yu-Moe CW, Nassery N, Tehrani ASS, Clemens GD, Wang Z, **Zhu Y**, Fanai M, and Siegal D. Serious misdiagnosis-related harms in malpractice claims: the "Big Three"–vascular events, infections, and cancers. Diagnosis. 2019; 6(3), 227-240; secondary statistician. https://doi.org/10.1515/dx-2019-0019
12. Pettigrew C, Shao Y, **Zhu Y**, Grega M, Brichko R, Wang MC, Carlson MC, Albert M, and Soldan A. Self-reported lifestyle activities in relation to longitudinal cognitive trajectories. Alzheimer Disease & Associated Disorders. 2019; 33(1), 21-28; primary statistician. https://doi.org/10.1097/WAD.0000000000000281
13. Soldan A, Pettigrew C, **Zhu Y**, Wang MC, Gottesman RF, DeCarli C, Albert M, and BIOCARD Research Team. Cognitive reserve and midlife vascular risk: Cognitive and clinical outcomes. Annals of clinical and translational neurology. 2020; 7(8), 1307-1317; primary statistician. https://doi.org/10.1002/acn3.51120
14. Pettigrew C, Soldan A, **Zhu Y**, Cai Q, Wang MC, Moghekar A, Miller MI, Singh B, Martinez O, Fletcher E, and DeCarli C. Cognitive reserve and rate of change in Alzheimer's and cerebrovascular disease biomarkers among cognitively normal individuals. Neurobiology of aging. 2020; 88, 33-41; primary statistician. https://doi.org/10.1016/j.neurobiolaging.2019.12.003
15. Soldan A, Pettigrew C, **Zhu Y**, Wang MC, Moghekar A, Gottesman RF, Martinez O, Fletcher E, DeCarli C, and Albert M. White matter hyperintensities and CSF Alzheimer disease biomarkers in preclinical Alzheimer disease. Neurology. 2020; 94(9), e950-e960; primary statistician. https://doi.org/10.1212/WNL.0000000000008864
16. Newman-Toker DE, Wang Z, **Zhu Y**, Nassery N, Tehrani ASS., Schaffer AC, Yu-Moe CW, Clemens GD, Fanai M, and Siegal D. Rate of diagnostic errors and serious misdiagnosis-related harms for major vascular events, infections, and cancers: toward a national incidence estimate using the "Big Three". Diagnosis 8.1 (2021): 67-84; secondary statistician. https://doi.org/10.1515/dx-2019-0104
17. Newman-Toker DE, Schaffer AC, Yu-Moe CW, Nassery N, Tehrani ASS, Clemens GD, Wang Z, **Zhu Y**, Fanai M and Siegal D. Corrigendum to: Serious misdiagnosis-related harms in malpractice claims: The "Big Three"–vascular events, infections, and cancers. Diagnosis. 2021; 8(1), pp.127-128; secondary statistician. https://doi.org/10.1515/dx-2020-0034
18. Chen L, Soldan A, Oishi K, Faria A, **Zhu Y**, Albert M, van Zijl PC, and Li X. Quantitative susceptibility mapping of brain iron and β-amyloid in MRI and PET relating to cognitive performance in cognitively normal older adults. Radiology. 2021; 298, no. 2: 353-362; contributing statistician. https://doi.org/10.1148/radiol.2020201603
19. Sharp AL, Baecker A, Nassery N, Park S, Hassoon A, Lee MS, Peterson S, Pitts S, Wang Z, **Zhu Y**, and Newman-Toker DE. Missed acute myocardial infarction in the emergency department–standardizing measurement of misdiagnosis-related harms using the SPADE method. Diagnosis. 2021; 8(2), pp.177-186; secondary statistician. https://doi.org/10.1515/dx-2020-0049

20. Soldan A, Pettigrew C, **Zhu Y**, Wang MC, Bilgel M, Hou X, Lu H, Miller MI, Albert M and BIOCARD Research Team. Association of Lifestyle Activities with Functional Brain Connectivity and Relationship to Cognitive Decline among Older Adults. Cerebral Cortex. 2021; primary statistician. https://doi.org/10.1093/cercor/bhab187
21. Liberman AL, Hassoon A, Fanai M, Badihian S, Rupani H, Peterson SM, Sebestyen K, Wang Z, **Zhu Y**, Lipton RB, Newman-Toker DE. Cerebrovascular Disease Hospitalizations following Emergency Department Headache Visits: A Nested Case-Control Study. Academic Emergency Medicine. 2021 Jul 26; statistician. https://doi.org/10.1111/acem.14353
22. Pettigrew C, Soldan A, Brichko R, **Zhu Y**, Wang MC, Kutten K, Bilgel M, Mori S, Miller MI, Albert M. Computerized paired associate learning performance and imaging biomarkers in older adults without dementia. Brain imaging and behavior. 2021 Oct 23:1-9. https://doi.org/10.1007/s11682-021-00583-9
23. Pettigrew C, Soldan A, Alm KH, Bakker A, **Zhu Y**, Wang MC, Kutten K, Bilgel M, Miller MI, Faria A, Mori S. White matter tract integrity, but not amyloid burden, is related to cognition in cognitively normal older adults. Alzheimer's & Dementia. 2021 Dec;17:e055675. https://doi.org/10.1002/alz.055675
24. Sharp AL, Pallegadda R, Baecker A, Park S, Nassery N, Hassoon A, Peterson S, Pitts SI, Wang Z, **Zhu Y**, Newman-Toker DE. Are Mental Health and Substance Use Disorders Risk Factors for Missed Acute Myocardial Infarction Diagnoses Among Chest Pain or Dyspnea Encounters in the Emergency Department?. Annals of Emergency Medicine. 2022 Feb 1;79(2):93-101. Statistician. https://doi.org/10.1016/j.annemergmed.2021.08.016
25. Chan CK, Pettigrew C, Soldan A, **Zhu Y**, Wang MC, Albert M, Rosenberg PB, BIOCARD Research Team. Association Between Late-Life Neuropsychiatric Symptoms and Cognitive Decline in Relation to White Matter Hyperintensities and Amyloid Burden. Journal of Alzheimer's Disease. 2022 Feb 21(Preprint):1-2. Primary statistician. https://doi.org/10.3233/JAD-215267
26. Lin Z, Lim C, Jiang D, Soldan A, Pettigrew C, Oishi K, Zhu Y, Moghekar A, Liu P, Albert M, Lu H. Longitudinal changes in brain oxygen extraction fraction (OEF) in older adults: Relationship to markers of vascular and Alzheimer's pathology. Alzheimer's & Dementia. 2022 Jul 6. https://doi.org/10.1002/alz.12727

Book Chapters, Monographs [BC]

1. Scharfstein D, **Zhu Y**, and Tsiatis A. Handbook of Statistical Methods for Randomized Controlled Trials. (1st Edition.) Part II.4. Time to event subject to censoring: logrank test, Kaplan-Meier estimation and Cox proportional hazards regression models. CRC press. 2021.

FUNDING

EXTRAMURAL Funding

Current

09/01/2019-05/31/2024
Biomarkers of Cognitive Decline Among Normal Individuals: The BIOCARD Cohort
U19 AG033655
NIH/NIA
$3,179,047 (2021)
PI: Marilyn Albert
35%

09/15/2020 – 05/31/2024
Statistical Models of Alzheimer's Disease Pathological Cascade
5R01AG068002
NIH/NIA
$409,375 (2021)
PI: Zheyu Wang

20%

06/01/2020 – 05/31/2024
Towards a National Diagnostic Excellence Dashboard—Partnering with Stakeholders to Construct Evidence-Based Operational Measures of Misdiagnosis-Related Harms
R01 HS027614
AHRQ
$372,122 (2021)
PI: David Newman-Toker
35%

Past

05/15/2018-04/30/2021
National diagnostic performance dashboard to measure and track diagnostic error using big data
#5756
Gordon and Betty Moore Foundation
$2,355,438
PI: David Newman-Toker
Statistician, 50%.

07/01/2009-03/31/2019
Biomarkers of Cognitive Decline among Normal Individuals: the BIOCARD Cohort
U19 AG033655
NIH/NIA
PI: Marilyn Albert
~$3,000,000 yearly
Statistician, 100% from 09/2014 to 06/2018, 50% from 06/2018 to 03/2019.

EDUCATIONAL ACTIVITIES

Educational Focus

I have experience teaching in statistical curriculum courses, special topics, and statistical courses for non-statistics students at undergraduate and graduate levels. I teach to help students succeed and inspire interest in meaningful research and application.

Teaching Role, learner level, course title, venue; any explanatory notes

Classroom instruction

2014
Teaching Assistant and Lab instructor, Ph.D. curriculum core course, "Probability Theory I-IV", Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health.

2015
Teaching Assistant, undergraduate-level, "Undergraduate course in public health statistics", Johns Hopkins University.

2016
Teaching Assistant, graduate-level, "Statistics for Lab Scientists", Johns Hopkins Bloomberg School of Public Health.

2016, 2017, and 2018
Teaching Assistant, graduate-level, "Statistical Methods in Public Health", Johns Hopkins Bloomberg School of Public Health.

2017
Teaching Assistant and Lab instructor, graduate-level, "Survival Analysis" and "Advanced Survival Analysis", Johns Hopkins Bloomberg School of Public Health.

2022	Primary instructor, graduate-level, "140.607.79 Multilevel Models", Johns Hopkins Bloomberg School of Public Health, Biostatistics and Epi Summer Institute, 19 students.
2022	Primary instructor, graduate-level, "140.641.01 Survival Analysis", Johns Hopkins Bloomberg School of Public Health, Department of Biostatistics, 31 students.

Mentoring

Educational Program Building / Leadership

2016-2017	Coordinator, Journal Club, Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health.
2022 June-August	Internship program in collaboration with Eli Lilly; co-advising with Yu Du (Sr. Advisor | Statistics Group); mentee: Dongliang Zhang

Preliminary Schoolwide Oral Exam Committee

2022	Ruzhang Zhao, Department of Biostatistics (PhD, alternate), Johns Hopkins Bloomberg School of Public Health; Advisor: Hongkai Ji
2022	Wei Jin, Department of Applied Mathematics and Statistics (PhD, alternate), Johns Hopkins Whiting School of Engineering; Advisor: Yanxun Xu
2022	KunboWang, Department of Applied Mathematics and Statistics (PhD, alternate), Johns Hopkins Whiting School of Engineering; Advisor: Yanxun Xu

RESEARCH ACTIVITIES

Research Focus

My research focuses on developing statistical methods for biomarkers and electronic medical records. I work on methods that combine biomarkers to predict cognitive decline related to preclinical Alzheimer's Disease among normal individuals. I also develop methods to evaluate misdiagnosis-related harm at institution or medical system levels using electronic medical records. Methodologically, I work on tree-based models, latent variable models, survival analysis, and recurrent event analysis. My general interest is in interpretable and robust statistical methodology that advances biomedical understanding and informs practices.

ORGANIZATIONAL ACTIVITIES

Journal peer review activities

2019-present	Biostatistics & Epidemiology
2021-present	Journal of the American Statistical Association
2021-present	Alzheimer's & Dementia
2022-present	HealthScienceReport
2022-present	Quality Management in Healthcare
2022-present	JAMA Pediatrics
2022-present	Journal of Alzheimer's Disease
2022-present	Biometrics

Professional Societies

2020-present	Member, American Statistical Association
2020-present	Member, Eastern North American Region of the International Biometric Society

Session Chair

08/12/2021	Joint Statistical Meetings

RECOGNITION

Invited Talks

National

2020 "Obtaining Optimal Rule for a Prefixed Tree Classifier", Michigan Statistics for Individualized-healthcare Lab (MiSIL), Department of Biostatistics, University of Michigan. Virtual.

OTHER PROFESSIONAL ACCOMPLISHMENTS

Oral/Podium Presentations

2016 "Optimal Decision Rule for Multiple Biomarkers Combined as Tree-based Classifiers", Joint Statistical Meetings, Chicago, IL.

2017 "Adaptive Estimation of High Dimensional Partially Linear Model with Some Provable Gains", Joint Statistical Meetings, Baltimore, MD, and Conference on Frontiers of Big Data Statistical Sciences (organized by ICSA Canada Chapter), Vancouver, BC, Canada.

2020 "Joint Rate Regression Models for Bivariate Recurrent Events with Frailty Processes", Joint Statistical Meetings. Virtual.