

CURRICULUM VITAE  
The Johns Hopkins University School of Medicine

(Signature) \_\_\_\_\_  
(Typed Name) Yuxin (Daisy) Zhu, PhD

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(Date of this version)

## DEMOGRAPHIC AND PERSONAL INFORMATION

### Current Appointments

2021-present Assistant Professor, Johns Hopkins Armstrong Institute, Baltimore, MD  
2021-present Assistant Professor, Department of Neurology, Johns Hopkins University, Baltimore, MD

### Personal Data

Department of Biostatistics  
Johns Hopkins Bloomberg School of Public Health  
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Baltimore, Maryland, 21205

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### Education and Training

Undergraduate  
2009-2013 B.S., Mathematics, Nanjing University, Nanjing  
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).

### Professional Experience

2014-present Research Assistant, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD  
2018-present Biostatistician, Armstrong Institute Center for Diagnostic Excellence, Baltimore, MD

## PUBLICATIONS

### Original Research [OR].

1. 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>
2. 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>
3. 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>
4. 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>
5. 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>
6. 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>
  7. 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>
  8. 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>
  9. 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.00000000000008864>
  10. 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>
  11. **Zhu Y** and Wang MC. Obtaining optimal cutoff values for tree classifiers using multiple biomarkers. *Biometrics*. 2020; in press. <https://doi.org/10.1111/biom.13409>
  12. 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>
  13. 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>
  14. 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  $\beta$ -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>
  15. 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*, 8(2), pp.177-186; secondary statistician. <https://doi.org/10.1515/dx-2020-0049>
  16. **Zhu Y**, Wang Z, Liberman AL, Chang TP, and Newman-Toker DE. Statistical Insights for Crude-Rate Based Operational Measures of Misdiagnosis-Related Harms. *Statistics in Medicine*. 2021. <https://doi.org/10.1002/sim.9039>
  17. 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>

#### Book Chapters, Monographs [BC]

1. Scharfstein D, **Zhu Y**, and Tsiatis A. Handbook of Statistical Methods for Randomized Controlled Trials. (1<sup>st</sup> 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

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%.
09/01/2019-05/31/2024	Biomarkers of Cognitive Decline Among Normal Individuals: The BIOCARD Cohort U19 AG033655 NIH/NIA \$3,179,047 PI: Marilyn Albert Statistician, 50%; To identify biomarkers that predict progression from normal cognitive status to mild impairment or dementia.

## 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

#### 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.

### Mentoring

#### Educational Program Building / Leadership

2016-2017	Coordinator, Journal Club, Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health.
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## 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

### 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
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## 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.