Wei Zhang

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Education

University of Miami — Miami, FL
PhD candidate in Biostatistics | Advisor: Chen, X. Steven — *08/2019-08/2024 (Expected)*
Dissertation: Integrative Multi-Omics Variable Selection and Clustering Analysis Using Multivariate Random Forest

The George Washington University — Washington, DC
MS in Statistics — *08/2017–05/2019*

State University of New York at Binghamton — Binghamton, NY
BS in Economics Analysis & Double Majors: Actuarial Math — *08/2014– 05/2017*

Research Interests

My main research interests include biomarker detection, subtype clustering, and association analysis of high-dimensional genomic data, with application to cancers and neurodegenerative diseases. My thesis topic focuses on multivariate random forest for dimension reduction and subtype clustering in the integrative analysis of multi-omics data.

Research Experience

Graduate Research Assistant — Miami, FL
Translational Statistical Bioinformatics Lab, University of Miami Miller School of Medicine — *05/2022–Present*

- Collaborated with a diverse team to research and analyze genomic data for association studies, biomarker discoveries, and disease predictions in late-onset Alzheimer's Disease, triple-negative breast cancer, and colorectal cancer
- Published multiple research papers contributing to the field of biomarker detection and disease prediction
- Demonstrated proficiency in R programming for comprehensive statistical analysis, handling diverse genomic data types, including RNA-seq, DNA methylation, and clinical data
- Supported in drafting and editing grant proposals, ensuring clarity and alignment with project objectives
- Developing an advanced R package for comprehensive DNA methylation data analysis

Graduate Coursework

- **Statistics:** Advanced Statistical Theory, Bayes Data Analysis, Theory of Survival Analysis, Design and Analysis of Clinical Trials, Generalized Linear Model, Longitudinal and Multilevel Data, Statistical Machine Learning
- **Math:** Stochastic Process, Optimization Methods, Numerical Multivariate Methods
- **Computer Science:** Design and Analysis of Algorithm, Neural Network and Deep Learning, Biomedical Data Science
- **Human Genomics:** Genomic Study and Design

Selected Publications and Preprints

Key: * Indicates corresponding authors.

- **Zhang W**, Young JI, Gomez L, Schmidt MA, Lukacsovich D, Varma A, Chen XS, Kunkle B, Martin ER, Wang L* (2024) Critical evaluation of the reliability of DNA methylation probes on the Illumina MethylationEPIC BeadChip microarrays *Epigenetics*, 19(1) (code)

- **Zhang W**, Wu, C, Huang H, Bleu P, Zambare W, Alvarez J, Wang L, Paty, PB, Romesser PB, Smith JJ*, Chen XS* (2024) Enhancing chemotherapy response prediction via matched colorectal tumor-organoid gene expression analysis and network-Based biomarker selection *Preprint*

- **Zhang W**, Young JI, Gomez L, Schmidt MA, Lukacsovich D, Varma A, Chen XS, Martin ER, Wang L* (2023) Distinct CSF biomarker-associated DNA methylation in Alzheimer's disease and cognitively normal subjects. *Alzheimer's Research & Therapy* 15: 78 (code)

- **Zhang W**, Li E, Wang L, Lehmann BD*, Chen XS* (2023) Transcriptome meta-analysis of triple-negative breast cancer response to neoadjuvant chemotherapy. *Cancers* 2023; 15(8):2194
- Lukacsovich D, Deirdre O'Shea, Huang H, **Zhang W**, Young JI, Chen XS, Dietrich ST, Kunkle B, Martin ER, Wang L* (2023) MIAMI-AD (Methylation in Aging and Methylation in AD): an integrative knowledgebase that facilitates explorations of DNA methylation across sex, aging, and Alzheimer's disease. *Manuscript in review* (database website)
- Silva TC, **Zhang W**, Young JI, Gomez L, Schmidt MA, Varma A, Chen XS, Martin ER, Wang L* (2022) Distinct sex-specific DNA methylation differences in Alzheimer's disease. *Alzheimer's Research & Therapy* 14: 133 (code)

Presentations

- Contributed Paper: "Unlocking the potential of multi-omics data integration using multivariate random forest approach", International Biometric Society Eastern North American Region (ENAR) Annual Meeting. Mar 2024. Baltimore, MD, USA.
- Poster: "Distinct CSF biomarker-associated DNA methylation in Alzheimer's disease and cognitively normal subjects", 2023 Alzheimer's Association International Conference, July 2023, Virtual Poster

Teaching Experience

Teaching Assistant

EPH705 Advanced Statistical Methods, Professor: Wang, Lily | University of Miami	Spring 2022-Present
STAT6201 Applied Linear Models, Professor: Barut, Emre | The George Washington University	Fall 2018

Honers & Awards

Student Competition Award, ASA Florida Chapter Meeting	*2023*
Travel Award, University of Miami	*2023*

Technical Skills

Proficient in R/Rstudio for package building, data analysis, and visualization
Comprehensive skills in SAS and Python for various statistical applications
Familiar with Linux system and command