YIXIN ZHENG

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EDUCATION

Master of Science in Biostatistics, Theory and Methods Track *Advisor: Dr. Xin Ma* **Expected May 2026**
Columbia University, Mailman School of Public Health **New York, NY**

- GPA: 3.42/4.0
- Related courses: Probability, Data Science I, Principles of Epidemiology I, Biostatistical Methods I and II, Statistical Inference, Pharmaceutical Statistics, Relational Databases and SQL Programming, Graphical Model, Survival Analysis, Analysis of Longitudinal Data, Human Population Genetics

Bachelor of Arts in Statistics and Data Science **Jun 2024**
University of California, Santa Barbara **Santa Barbara, CA**

- GPA: 3.57/4.0 Major GPA: 3.87/4.0
- Related courses: Calculus with Applications, Linear Algebra with Applications, Vector Calculus, Probability and Statistics, Regression Analysis, General Chemistry, Molecular Genetics, Human Physiology, Programming in Bio

RESEARCH EXPERIENCE

Research Assistant **Jun. 2025 – Present**
Resting-State fMRI Functional Connectivity Analysis in Alzheimer's Disease **New York, United States**
Neuroimaging Working Group (LeeLab), Columbia University / NYSPI, Advisor: Prof. Seonjoo Lee

- Analyzed ADNI resting-state fMRI and clinical datasets to evaluate mediation and interaction effects between amyloid burden, within-network functional connectivity (SN, DMN, FPN), and neuropsychiatric symptoms (apathy, agitation).
- Applied mixed-effects models (lmer, glmer) for repeated-measures data, mediation analysis with quasi-Bayesian simulations (5,000 draws), and FDR-adjusted hypothesis testing.
- Designed reproducible R workflows for longitudinal neuroimaging–clinical data integration, including preprocessing, statistical modeling, and advanced visualization.
- Interpreted and summarized model results in formal analysis reports and research meetings, linking statistical findings to disease mechanisms.
- Collaborated in a multidisciplinary team spanning neuroscience, psychiatry, and biostatistics to contextualize statistical outputs within Alzheimer's disease pathology research.

Research Assistant **Jul. 2023 – Sep. 2023**
Meta-Analysis of Alzheimer's Disease Pathology Transcriptomic Data **Shanghai, China**
Center for Excellence in Brain Science and Intelligence Technology, CAS, Advisor: Prof. Jiulin Du

- Conducted comprehensive Meta-analysis on human brain transcriptomes (MAP, MSSM, Mayo) from 470 Alzheimer's Disease (AD) patients and 300 non-AD individuals, focusing on seven brain regions.
- Identified 2,350 upregulated and 2,120 downregulated transcripts using random-effects and fixed-effects Meta-analysis methods.
- Applied advanced co-expression analysis using MEGENA, WINA, Metanetwork, rWGCNA, and speakeasy algorithms, leading to the identification of 28 AD-related co-expression modules.
- Conducted cell type-specific analysis to confirm oligodendrocyte-associated features in identified modules.
- Reprocessed and curated RNA-seq data from 88 mouse studies relevant to AD and other neurodegenerative disorders, defining 239 sets of significant differentially expressed genes (DEGs) and analyzing their expression signatures using t-SNE plots.
- Evaluated cross-species similarities by comparing mouse expression signatures with 30 human AD-associated brain consensus co-expression modules, revealing 1,569 significant overlaps.
- Provided novel insights into sex-by-age interaction in AD progression through cross-species Meta-analyses, highlighting accelerated transcriptional changes in female mice compared to males.

Laboratory Assistant **Oct. 2020 –Feb. 2021**
The Food Science and Processing Research Center, Shenzhen University **Shenzhen, China**

- Improved soybean protein extraction protocol by grinding soybean into powder and using dithiothreitol for extraction instead of trichloroacetic acid/acetone method for extraction.
- Collected data for protein profiles of different soybean varieties using Ion Exchange High-Performance Liquid Chromatography (IEX-HPLC) for comparative analysis.
- Developed a database for a commercial project aimed at screening ideal soybean varieties with specific protein traits.

PROFESSIONAL EXPERIENCE

Industrial Intern **Jun. 2023 – Aug. 2023**
IQVIA **Shanghai, China**

- Conducted desk research about Alopecia Areata by collecting government policy briefs, secondary research reports, and company annual reports.
- Analyzed and interpreted the information to unearth key strategies, strengths, weaknesses, and milestones, comprehending or conjecturing the causes, and formulating recommendations.
- Forecasted market size, competition, and prospects for alopecia areata and its treatments, enhancing strategic planning efforts.

Industrial Intern **Mar. 2021 – Jun. 2021**
Xiamen Hengyifeng Industrial Co., LTD **Xiamen, China**

- Recorded daily invoices, generated comprehensive cheque reports to facilitate financial tracking and reporting processes.
- Collaborated in the audit of reimbursement documents, providing support in processing financial data and contributing to the development of financial models, ensuring accuracy and compliance with standards.
- Calculated quarterly payments, prepared profit and loss statements, and conducted budget comparisons.

CERTIFICATE & SKILLS

R, Python, SAS(base & advanced certificate), SPSS, Graphpad Prism, Origin, SQL