Kanhao (Alex) Zhao

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Education

08/2021-06/2025	**Lehigh University** PhD of Bioengineering
01/2019-06/2020	**State University of New York at Buffalo** Master of Science in Biomedical engineering
06/2014-05/2018	**Henan University** Bachelor of Science in Bioscience

Research Interests

AI computing	Developing new machine learning, deep learning models for health problems.
Neuroimaging and bioinformatic analysis	Simple statistical modeling like ANOVA for fMRI, dMRI, EEG, PET, SNP, mRNA sequences.
Cognitive neuroscience	Heterogeneous phenotype of brain disorders, treatment prediction or recommendation.

Research Experience

07/2025-	**Postdoc researcher, Medicine department of University of California, Los Angeles** * Multi-omic analysis integrating fMRI, metagenomics, and metabolomics to explore brain–gut interactions in the context of cognitive and affective dysfunction. * Language model–based foundation modeling of diet records to uncover its associations with various mental health and biomarkers.

Publications

First author

Kanhao, Zhao, et al. “Individualized fMRI connectivity defines signatures of antidepressant and placebo responses in major depression.” *Molecular Psychiatry* (2023): 1-10. (IF 13.4, 2023)

Kanhao, Zhao, et al. “A dynamic graph convolutional neural network framework reveals new insights into connectome dysfunctions in ADHD.” *NeuroImage* 246 (2022): 118774. (IF 7.4, 2022)

Kanhao, Zhao, et al. “Discriminative Functional Connectivity Signature of Cocaine Use Disorder Links to rTMS Treatment Response.” *Nature Mental Health* (2024): 2 (4), 388-400. (IF 8.7, 2024)

Kanhao, Zhao, et al. “Dementia Subtypes Defined Through Neuropsychiatric Symptom-Associated Brain Connectivity Patterns.” *JAMA Network Open* (2024): 7 (7), e2420479-e2420479. (IF 10.5, 2024)

Kanhao, Zhao, et al. “Elucidating the neuropathological and molecular heterogeneity of amyloid-beta and tau in Alzheimer's disease through machine learning and transcriptomic integration.” Preprint online, (2025)
Kanhao, Zhao, et al. “Functional Connectome of Superagers Reveals Early Markers of Resilience and Vulnerability to Alzheimer’s Disease." bioRxiv (2025): 2025-07, appealing for Science Advances (IF 12.5, 2025)
Kanhao, Zhao, et al. “Brain-Gut Crosstalk Shapes Early Brain Aging in Young and Mid-Life Adults: A Multicohort Cross-section Study. Available at SSRN: https://ssrn.com/abstract=6201852, appealing for The Lancet Healthy Longevity (IF 14.6)

Cooperated

Xiaoyu Tong, **Kanhao, Zhao**, et al. “Symptom dimensions of resting-state electroencephalographic functional connectivity in autism” *Nature Mental Health* 2 (3), 287-298
Xuetong Wang, **Kanhao, Zhao**, et al. “Normative modeling via conditional variational autoencoder and adversarial learning to identify brain dysfunction in alzheimer’s disease” *2023 IEEE 20th International Symposium on Biomedical Imaging (ISBI)*, 1-4. (Well-regarded conference in medical imaging)
Xinxu, Wei, **Kanhao, Zhao**, et al. "Multi-modal cross-domain self-supervised pre-training for fMRI and EEG fusion." *Neural Networks* 184 (2025): 107066. (IF 6.3, 2025)
Xiaoyu, Tong, **Kanhao, Zhao**, et al. "Generalizable structure–function covariation predictive of antidepressant response revealed by target-oriented multimodal fusion." *Nature Mental Health* (2025): 1-17.
Xinxu, Wei, **Kanhao, Zhao,** et al. "Pre-Training Graph Contrastive Masked Autoencoders are Strong Distillers for EEG." *Forty-second International Conference on Machine Learning (ICML)*. (Top AI conference)
Xinxu, Wei, **Kanhao, Zhao,** et al. "A Brain Graph Foundation Model: Pre-Training and Prompt-Tuning for Any Atlas and Disorder." *The Fourteenth International Conference on Learning Representations (ICLR)*. (Top AI conference)

Academic Services

Peer review

Nature mental health, Medical imaging analysis, IEEE Transactions on Medical Imaging, Neuroimage, Pattern recognition, Communication biology, Neuropsychopharmacology, etc.

Teaching Experience

06/2018-10/2018	**Teacher of a primary school** * Prepare class of English, Math teaching. Grading and managing student daily life. * Assist school administrative affairs like financial reporting.