Kai Ye, Ph.D.

Department of Electrical and Computer Engineering, University of Pittsburgh

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RESEARCH INTERESTS

Neuroimaging data analysis; AI for healthcare; machine learning; trustworthy AI.

EDUCATION

University of Pittsburgh Pittsburgh, PA, USA
Ph.D. in Electrical and Computer Engineering *Sep. 2022 – Apr. 2025*
Advisor: Dr. Liang Zhan

Wuhan University Wuhan, China
Master of Computer Science *Sep. 2019 – Jun. 2022*
Advisor: Dr. Xiaohui Cui

Wuhan University Wuhan, China
Bachelor of Electrical Engineering *Sep. 2015 – Jun. 2019*

SELECTED PUBLICATIONS

[**AAAI 2024 Oral**] Uncertainty Regularized Evidential Regression
Kai Ye, Tiejin Chen, Hua Wei, Liang Zhan
Association for the Advancement of Artificial Intelligence (AAAI), 2024

[**MICCAI 2023 Oral, STAR Award**] Bidirectional Mapping with Contrastive Learning on Multimodal Neuroimaging Data
Kai Ye, Haoteng Tang, Siyuan Dai, Lei Guo, Johnny Yuehan Liu, Yalin Wang, Alex Leow, Paul M. Thompson, Heng Huang, Liang Zhan
International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), 2023

[*Neural Networks 2024*] BPEN: Brain Posterior Evidential Network for Trustworthy Brain Imaging Analysis
Kai Ye, Siyuan Dai, Junyi Li, Igor Fortel, Haoteng Tang, Scott Mackin, Alex Leow, Paul M. Thompson, Heng Huang, Liang Zhan
Neural Networks, 2024

[**MICCAI 2024**] Interpretable Spatio-Temporal Embedding for Brain Structural-Effective Network with Ordinary Differential Equation
Haoteng Tang, Guodong Liu, Siyuan Dai, **Kai Ye**, Kun Zhao, Wenlu Wang, Carl Yang, Lifang He, Alex Leow, Paul M. Thompson, Heng Huang, Liang Zhan
International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), 2024

[*ICIBM 2024 Oral, NSF travel award*] SIN-Seg: A Joint Spatial-Spectral Information Fusion Model for Medical Image Segmentation
Siyuan Dai, **Kai Ye**, Charlie Zhan, Haoteng Tang, Liang Zhan

International Conference on Intelligent Biology and Medicine (ICIBM), 2024

[*ICANN 2021 Oral*] Graph Enhanced BERT for Stance-Aware Rumor Verification on Social Media
Kai Ye, Yangheran Piao, Kun Zhao, Xiaohui Cui
International Conference on Artificial Neural Networks (ICANN), 2021

A Novel GAN-based Regression Model for Predicting Frying Oil Deterioration
Kai Ye, Zhenyu Wang, Pengyuan Chen, Yangheran Piao, Kuan Zhang, Shu Wang, Xiaoming Jiang, Xiaohui Cui
Scientific Reports, 2022

RESEARCH EXPERIENCE

Research Assistant, University of Pittsburgh (with Dr. Liang Zhan)   Sep. 2022 – present

- Analyzed multimodal MRI data and explored clinical insights. Proposed a bidirectional mapping framework between functional brain signals and their structural counterparts using contrastive learning, aiming to assist clinical diagnosis and provide richer clinical insights.

- Conducted research on uncertainty estimation and the development of trustworthy AI systems. Identified the zero-gradient problem in evidential regression and proposed a regularization term to address this issue, validated by theoretical analysis and extensive experiments.

- Applied machine learning techniques to the medical domain for more reliable computer-assisted diagnosis, enhancing predictive reliability for neurodegenerative diseases.

Machine Learning Research Intern, Tencent   Oct. 2021 – Dec. 2021

- Proposed video-captioning and cross-modal retrieval models for internal applications.

Research Assistant, Wuhan University (with Dr. Xiaohui Cui)   Sep. 2019 – Jun. 2022

- Applied graph neural networks to natural language processing tasks on social media data.

TEACHING EXPERIENCE

Teaching Assistant, "Algorithmic Thinking," University of Pittsburgh   Fall 2024 and Spring 2025

- Graded assignments and held office hours.

Guest Lecturer, "Neural Signal Modeling & Analysis," University of Pittsburgh Fall 2023, Fall 2024

- Delivered four lectures on deep-learning-based brain-signal processing and mentored project teams.

TECHNICAL SKILLS & LANGUAGES

Python (PyTorch, NumPy, SciPy), MATLAB, Git; Chinese (native), English (fluent).

HONORS & AWARDS

MICCAI STAR Award (2023); Luoge Scholarship of Excellence, Wuhan University (2022, top 3%); First-Prize Scholarship, Wuhan University (2021); Outstanding Graduate Student, Wuhan University (2021).

SERVICE

Reviewer: MICCAI, AAAI, CVPR, *Neural Networks*, *Neurocomputing*, *Scientific Reports*.

PC Member: ICDM'25 Workshop