

# Kai Ye, Ph.D.

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## RESEARCH INTERESTS

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

## EDUCATION

### University of Pittsburgh

Ph.D. in Electrical and Computer Engineering

*Advisor:* Dr. Liang Zhan

Pittsburgh, PA, USA

Sep. 2022 – Apr. 2025

### Wuhan University

Master of Computer Science

*Advisor:* Dr. Xiaohui Cui

Wuhan, China

Sep. 2019 – Jun. 2022

### Wuhan University

Bachelor of Electrical Engineering

Wuhan, China

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 Multi-modal 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

[*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

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- 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

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**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

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

## HONORS & AWARDS

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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

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

PC Member: ICDM'25 Workshop