

Weijun Gao

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Education

Shandong University

B.Eng in Software Engineering

◦ GPA: 86.22/100

Sept 2022 – June 2026

Publications

TriAlign: Leveraging Channel-Aware Rectification for Robust OOD Detection

Weijun Gao, Rundong He, Bin Xu, Jieming Shi, Xiushan Nie, Yilong Yin, Yongshun Gong

Submitted to *NeurIPS 2025* (Under Review)

Deciphering Multimodal Time Series Forecasting: A Causal Lens on Meta-Environments and Sudden Events

Lehui Li[†], Sunxiang Gao[†], **Weijun Gao**, Yongshun Gong

Submitted to *NeurIPS 2025* (Under Review)

Semantic-Aware Graph Outlier Generation via Diffusion Models for Robust OOD Detection

Submitted to *NeurIPS 2025* (Under Review)

Research Experience

OOD Learning on Graph

Shandong University

Jinan, Shandong

Sep 2024 – Jan 2025

- Conducted in-depth analysis of existing OOD methods, identifying limitations in specific scenarios and proposing targeted improvements to enhance model robustness.
- Introduced a lightweight module approach to the implementation of OOD generalization methods, achieving comparable performance while significantly reducing training time.
- Explored new OOD scenarios and datasets, expanding the application scope of existing methods and identifying areas for further improvement.

Multimodal Time Series Forecasting

Shandong University

Jinan, Shandong

Sep 2024 – May 2025

- Designed an LLM-driven News Disentangler to decompose news into meta-environmental factors and sudden events, modeling their distinct causal impacts on time series forecasting.
- Developed a backdoor adjustment mechanism with learnable vector quantization to mitigate confounding bias from meta-environmental factors, enhancing model interpretability.
- Introduced a novel Counterfactual Reflection Agent combining counterfactual reasoning and self-reflection to filter spurious correlations in sudden events, improving forecasting robustness.

Test-Time Out-of-Distribution Detection

HK PolyU

Hong Kong

Jan 2025 – May 2025

- Introduced a discriminative score and importance-driven typical set rectification method. By estimating the discrimination score of each channel, we rectified the feature set to enhance OOD detection performance.
- Proposed a skewness-based rectification approach to rectify the actual channel distribution, making it more Gaussian-like and improving detection robustness.
- Conducted extensive experimental evaluations on the ImageNet-1K and CIFAR benchmarks, demonstrating that our method outperforms existing approaches and generalizes well across architectures and OOD scoring methods.

Projects

A Single-Agent Travel Recommendation System



- I developed a single-agent travel recommendation system using agent framework. By leveraging the DeepSeek R1 model, I designed an intelligent agent capable of generating personalized travel itineraries based on user preferences such as destinations, budgets, and interests. The agent processed natural language inputs, providing detailed suggestions for attractions, restaurants, and accommodations.

Technologies

Languages: Python, SQL, C++, Java, Swift.

Python Packages: Pandas, Matplotlib, Scipy, Numpy, PyTorch, Torchvision.

Technologies: PyCharm, Visual Studio Code, Xcode, IntelliJ IDEA.