Ziyu Zhou（周子渔）

Email · Affiliation · Homepage · GitHub

Education

M.Phil. Data Science and Analytics, HKUST(GZ) 2024.09 - Present

Data Science and Analytics Thrust, Information Hub, HKUST(GZ) Guangzhou, China

- Expected Graduation: 2026.7.
- Present Cumulative GPA: 4.12/4.3.
- Prime Supervisor: Prof. Yuxuan Liang. Co-supervisor: Prof. James T. Kwok.

B.Eng. Computer Science, Beijing University of Technology 2020.9 - 2024.7

School of Computer Science, Beijing University of Technology Beijing, China

- Cumulative GPA: 3.58/4.0, 86.1/100.
- Supervisor: Prof. Gengyu Lyu and Prof. Yin Liang.
- With honor: Bachelor in Computer Science with **Honours Degrees**, **Scholarship of the School of Computer Science**, **Outstanding Graduates** (*Top 5%*) and **Outstanding Graduate Thesis** (*Top 0.7%*) in Beijing.

Minor in Finance, Beijing University of Technology 2022.9 - 2024.6

College of Economics and Management, Beijing University of Technology Beijing, China

Research Interests

My research centers on data-driven deep learning, especially leveraging AI techniques for **spatiotemporal data mining** (e.g., urban, transportation, climate), with a current focus on general **multivariate time series (MTS)** representation learning, including **regular** and **irregular** MTS. The goal of my research is to develop **computationally efficient** methods to capture both **temporal (intra-series)** and **spatial (inter-series)** dependencies for large-scale, long-horizon **forecasting** and precise **anomaly detection**. A central theme of my work is leveraging **time–frequency transformations** to bridge time- and frequency-domain structure under irregular sampling, missingness, and extended horizons. Beyond core MTS modeling, I am exploring **LLM-empowered spatiotemporal modeling**, using LLMs (especially their reasoning capability) to encode priors, fuse heterogeneous signals, and enhance interpretability and deployment in real-world systems. I am currently working on AI for climate modeling.

Conference Proceedings, Journal Articles and Preprints

Revitalizing Canonical Pre-Alignment for Irregular Multivariate Time Series Forecasting

Ziyu Zhou, Yiming Huang, Yanyun Wang, Yuankai Wu, James Kwok#, Yuxuan Liang#

Annual AAAI Conference on Artificial Intelligence (AAAI), 2026 [Paper][Code] (Poster)

SDformer: Transformer with Spectral Filter and Dynamic Attention for Multivariate Time Series Long-term Forecasting

Ziyu Zhou, Gengyu Lyu#, Yiming Huang, Zihao Wang, Ziyu Jia, Zhen Yang

International Joint Conference on Artificial Intelligence (IJCAI), 2024 [Paper] [Code] (Long Oral)

STFM: Enhancing Autism Spectrum Disorder Classification through Ensemble Learning-Based Fusion of Temporal and Spatial fMRI Patterns

Ziyu Zhou*, Yiming Huang*, Yining Wang*, Yin Liang#

The Pacific Rim International Conference on Artificial Intelligence (PRICAI), 2023 [Paper] (Oral)

Multi-Order Wavelet Derivative Transform for Deep Time Series Forecasting

Ziyu Zhou, Jiaxi Hu, Qingsong Wen, James T. Kwok, Yuxuan Liang#

Under review at ICLR'26 [arXiv]

* Equal Contribution, # Corresponding Author

Mind the Gaps: Toward Natural and Efficient Modeling of Irregular Web Telemetry Time Series

Ziyu Zhou, Shiyu Wang, Weilin Ruan, Yuchen Fang, James Kwok, Yuxuan Liang#
Under review at WWW'26 [Paper]

TimesNet-PM2.5: A Explainable and Powerful Version of TimesNet for Disentangling Intraperiod and Interperiod Patterns in PM2.5 Prediction

Yiming Huang*, **Ziyu Zhou***, Zihao Wang*, Xiaoying Zhi, Xiliang Liu#
Atmosphere, 2023 [Paper]

How to Train Your Mamba for Time Series Forecasting

Jiaxi Hu, Disen Lan, **Ziyu Zhou**, Gefeng Luo, Qingsong Wen, Yuxuan Liang#
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2026 [arXiv]

Retrieval Augmented Spatio-Temporal Framework for Traffic Prediction

Weilin Ruan, Xilin Dang, **Ziyu Zhou**, Sisuo Lyu, Yuxuan Liang#
The AAAI Conference on Artificial Intelligence (AAAI), 2026 [Paper] (Poster)

MSV-PCT: Multi-Sparse-View Enhanced Transformer Framework for Salient Object Detection in Point Clouds

Zihao Wang, Yiming Huang, Gengyu Lyu, Yucheng Zhao, **Ziyu Zhou**, Bochen Xie, Zhen Yang, Yongjian Deng#
The AAAI Conference on Artificial Intelligence (AAAI), 2025 [Paper] (Poster)

Internship and Research Assistant Experience

Research Intern at Bytedance 2025.09 – Present

- Developing interpretable and efficient time series forecasting models for supply chain decision-making.
- Conducting large-scale spatiotemporal forecasting research on climate datasets.

Software Intern at Beijing Founder Electronics Co., Ltd. 2023.7 - 2023.9

- Gained hands-on experience with SVN, with basic concepts of version control in software development.
- Implemented PostgreSQL backup and restore functionalities, producing development documentation.

Academic Services (Reviewer & PC Member)

- International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2025
- European Conference on Artificial Intelligence (ECAI) 2025
- International Joint Conference on Neural Networks (IJCNN) 2025
- Frontiers of Computer Science (FCS) 2024
- Neurocomputing 2024

Selected Awards

- **Honours Degrees** of Bachelor in Computer Science and Technology (Top 5%) 2024.6
- **Outstanding Graduate Thesis** in Beijing (Top 0.7%) 2024.6
- **Outstanding Graduate Thesis** in Beijing University of Technology (Top 6%) 2024.6
- **Outstanding Graduates** in Beijing (Top 5%) 2024.6
- **Outstanding Graduates** in Beijing University of Technology (Top 10%) 2024.6
- **Third Prize** in the 2022 National College Data Analysis Competition 2023.1
- **Junior Registered Data Analyst** of the Chinese Financial Analysis Association 2023.1
- **Excellence Award** in the 2023 First College Student Algorithm Contest 2023.4
- Project leader of the **Key Project** of the Beijing University of Technology's *Xinghuo Fund* 2022.6
- **Special Prize** in the American College Student Mathematical Modeling Contest 2023.2
- **Scholarship** from the School of Computer Science in Beijing University of Technology 2021.1