Weilin RUAN

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RWLinno • Google Scholar

Education

Hong Kong University of Science and Technology (Guangzhou) **Sep 2024-Jun 2026**
MPhil, Data Science and Analytics of the Information Hub *GPA: 3.44(4.0)*

Jinan University (Project 211) **Sep 2020-Jun 2024**
Bachelor, Network Engineering of Computer Science and Technology *GPA: 3.7(5.0) or 87(100)*
outstanding graduate of the Information Science Technology / Cyberspace Security Department

Publications

I am a second-year MPhil student majoring in Data Science and Analytics at HKUST(GZ), supervised by Prof. **Yuxuan Liang**. My research focuses on Multi-modal Learning/Spatio-temporal Data Mining/Time Series Forecasting, and currently includes **6 CCF-A**, **2 CCF-B** publications, with other submissions under review. Here are some selected works.

1. **RAST: A Retrieval Augmented Spatio-Temporal Framework for Traffic Prediction** 1st author
   [AAAI26] [ST, RAG] Integrates retrieval-augmented mechanisms with spatio-temporal modeling for traffic prediction.
2. **OccamVTS: Distilling Vision Models to 1% Parameters for Time Series Forecasting** 3st author
   [AAAI26] [TS, Vision] a knowledge distillation framework that extracts only 1% of predictive information from LVMs.
3. **Efficient Multi-modal Spatio-Temporal Forecasting via Vision Transformation and Cross-modal Fusion** 1st author
   [ST, MM] A multi-modal framework that transforms spatio-temporal data into visual space for forecasting.
4. **Vision-Enhanced Time Series Forecasting via Latent Diffusion Models** 1st author
   [TS, Diffusion] Integrates vision capabilities with diffusion models for enhanced time series forecasting.
5. **Time-VLM: Exploring Multimodal Vision-Language Models for Augmented Time Series Forecasting** 2nd author
   [ICML25] [TS, MM, LLM] Leverages Vision-Language Models to improve time series forecasting with multimodal information.
6. **Fine-grained Urban Heat Island Effect Forecasting** 2nd author
   [KDD25] [ST, GL] Context-aware framework for high-resolution urban heat island prediction.
7. **Low-rank Adaptation for Spatio-Temporal Forecasting** 1st author
   [ECML25] [ST, TF] Efficient low-rank adaptation techniques for spatio-temporal forecasting models.
8. **Cross Space and Time: A Spatio-Temporal Unitized Model for Traffic Flow** 1st author
   [T-ITS] [ST, TF] Unified approach capturing spatial-temporal interactions for traffic prediction.
9. **Towards Multi-Scenario Forecasting of Building Electricity Loads with Multimodal Data** 4st author
   [MM25] [Diffusion] Cross-modal framework leveraging scenario-conditional diffusion for building electricity load prediction.
10. **A Game-Theoretic Spatio-Temporal RL Framework for Public Resource Allocation** 6th author
    [ST, RL] Game-theory and RL integration for optimal public resource allocation across space and time.
11. **[ICCV 2025 Workshop]** VQualA 2025 Challenge on Face Image Quality Assessment: Methods and Results.

Competition Experience

2020-2022: **3 Bronze Medals**: The ICPC International Collegiate Programming Contest (**ACM-ICPC**) 45-47th
Spring 2022: **1 Silver Medal & 2 Bronze Medals**: China Collegiate Programming Contest (**ACM-CCPC**)
Spring 2023: **Honorable Mentions**: The Mathematical/Interdisciplinary Contest in Modeling (**MCM/ICM Top 25%**)
2021-2023: **2 National Second Prize & 2 Provincial First Prize**: Professional Software Engineering LanQiao Cup Final Contest
2021-2023: **1 Solo Champion & 2 Second Prize**: Jinan University ACM Programming Contest
2022: **1 Gold Medal & 1 Silver Medal**: National University Student Algorithm Design and Programming Challenge(**Top 5%**)
2024: **Third Prize**: Huawei Software Elite Challenge (**Top 64**)
2023: **Third Prize**: International English Vocabulary Challenge for College Students (IEVCCS)

Academic Awards

Fall 2024: Outstanding Graduate(**TOP 1%**)
Fall 2023: Golden Arowana Scholarship(**TOP 1%**)
Fall 2023: Excellent Student Cadre Title of Jinan University.(**TOP 5%**)
Fall 2022: Excellent Student Cadre Title of Jinan University.(**TOP 5%**)
Fall 2022: Outstanding students of Jinan University **First-class** scholarship.(**Top 10%**)
Fall 2021: Outstanding students of Jinan University **Second-class** scholarship.(**Top 20%**)

Internship Experience

Knowin Co. , Ltd., Shenzhen **Fall 2025 - Now**
Algorithm Research *in the* Foundational Model Department

Engineered data processing pipelines leveraging large-scale Vision-Language Models (VLMs), optimizing system throughput by enhancing request handling and concurrent inference efficiency; concurrently conducting research on retrieval-augmented generation (RAG) techniques to improve embodied AI agents' trajectory prediction and Visual-Language Navigation capabilities.

Bytedance Co. , Ltd., Shenzhen **Spring 2025 - Fall 2025**
Algorithm Engineer *in the* Data-AML

Maintaining Forge, a training platform for large SRA models; Leading the design and optimization of OnCallAgent, a multi-modal Agent Assistant with MCP; Providing technical support for KA including Xiaomi, Huawei, Honor, Vivo, and OPPO.

Hong Kong University of Science and Technology(GZ) **Fall 2023 - Fall 2024**
Research intern *in the* CityMind *group led by Prof. Yuxuan Liang*

Conducted research on spatio-temporal data mining and time series forecasting; Implemented and enhanced graph-based models for urban traffic prediction; Developed novel accessory modules that consistently improved model performance on benchmark datasets; Contributed to conference paper submissions.

Sun Yat-Sen University **Spring 2023**
Research intern *in* GEAR (Graph IEARmning) group led by Prof. Liang Chen

Explored graph learning and deep learning approaches for addressing long-tail and out-of-distribution problems; Reproduced the related GNN model and tried to improve the model structure and graph sampling method; Designed subgraph encoding pre-training and tree-graph transformation architecture to improve graph sampling methods.

Sesame Coding Education Technology Co., Ltd., Guangzhou **Fall 2021**
Algorithm Engineer

Created programming contest problems; Generated test data using Cyaron library; Produced Educational resources for algorithm competition training; Contributed to the development and maintenance of an Online Judge platform.

Earlier Research Experience

For the latest updates, see Github and Google Scholar. ^_^

ARIMA-LSTM-XGBoost Combined Forecasting Model of Wheat Price **Winter 2020-Spring 2023**
Jinan University

- **Province-level project finished**: College Students' Innovative Entrepreneurial Training Plan Program
- Build a multivariate forecast combination model based on the core's three models of ARIMA, LSTM, and XGBoost.

ViT Model-based Medical Image Assisted Diagnostic System **Spring 2023-Spring 2024**
Jinan University

- **University-level third prize**: "Challenge Cup" National College Student Business Plan Competition
- Contribution: Project manager (first author)
- Apply the Vision-Transformer(ViT) model to the medical field to process different types of medical images.

Intelligent complementary diagnosis of degenerative OA following TCM thinking **Spring 2023-Fall 2024**
Jinan University

- School-level project: Leader
- The pulse diagnosis and tongue color of Chinese medicine can better reflect the characteristics of some bone and joint diseases, which has great analytical value and potential for exploration.

Interpretable Multimodal Sentiment Analysis Models for SMARTHOME **Fall 2023**
Hong Kong University of Science and Technology(GZ)

- Participated in the RBCC offline held in HKUST(GZ) and achieved outstanding camper.
- Feature extraction, feature fusion to train a multimodal sentiment analysis model for processing and predicting sensing data provided by smart home devices and providing proactive care.

Campus Experience

Class President **2020-2024**
The 20th Network Engineering Class Committee of Jinan University

Minister of Propaganda Department **2020-2022**
Jinan University student dormitory building association

Club Membership **2020-2024**
Jinan University Computer Geek Association

- Mastered the technical skills required to develop games using the Unity engine; and has released **4** RPG indie games; Served as publisher for the work **"Orphan of the Petal"**, on Steam, where it received predominantly positive reviews.

Club Membership **2020-2023**

The ACM Programming Team of Jinan University

- Passing the varsity team selection to winning the ACM Programming Contest, awarded 1762 points **(max. 1961) in Codeforces**. And I was also the first freshman to win a bronze medal in the history of the varsity team and an AK in the school competition.

Others

Committee Service: Reviewer for **ICLR, AAAI,** ICASSP, IJCNN, WebST conferences.

Programming:: Proficient in Python, C++ and Java; strong foundation in algorithm design, data structures, and optimization techniques for deep learning systems.

Foundation Models:: Extensive experience with large-scale Vision-Language Models (VLMs), including post-training optimization on Qwen3-VL-235B for VQA tasks, concurrent inference testing, and data processing pipeline engineering.

Agent Development:: Hands-on experience building multi-agent systems and AI applications with tool usage and retrieval-augmented generation (RAG) techniques.

Data Engineering: Expertise in time series data processing and VQA dataset curation; experience with web scraping, data preprocessing, and quality filtering for model training.

Tech Blog:: Maintain technical blog on CSDN with 3000+ followers, sharing research insights and programming tutorials; maintain GitHub Repo with 100+ stars.

Certificates: ~~NCRE-2, NCRE-3, CET-4, PAT,~~ CET-6, IELTS: 6.5