

# Yuzhe Yang | 阳雨哲

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A senior CSE student with a keen interest in deep learning. Currently exploring GNN and LLM.

## Education

School of Data Science | The Chinese University of Hong Kong, Shenzhen  
B.Eng. in Computer Science and Engineering (*Artificial Intelligence Stream*)

Sep 2021 - May 2025

## Skills

Deep Learning Tools: PyTorch | PyTorch Geometric | Transformers

Languages: English (Fluent) | Mandarin (Native)

## Publication

**FAST-CA: Fusion-based Adaptive Spatio-Temporal Learning with Coupled Attention for Airport Network Delay Propagation Prediction, Information Fusion, 2024, 107:102326 [online]**

Jun 2023 - Nov 2023

Undergraduate Research Assistant, supervised by [Prof. Jianfeng Mao](#)

SDS, CUHK(SZ)

- Developed the GNN framework, integrating dynamic and adaptive graph learning with coupled attention mechanisms to address complex spatio-temporal dependencies in airport delay propagation
- Implemented periodicity feature extraction and multifaceted information fusion modules to enhance predictive accuracy
- State-of-the-art model for airport network delay propagation prediction
- Spatio-temporal data analysis and visualization

**Integrative Mean-Field Epidemic Model and Adaptive Graph Learning for Network-Wide Delay Propagation Dynamics Prediction (working paper, to be submitted to Transportation Research Part B: Methodological)**

Dec 2023 - Present

Undergraduate Research Assistant, supervised by [Prof. Jianfeng Mao](#)

SDS, CUHK(SZ)

- Improved the SIS epidemiological model to simulate airport epidemic transmission
- Enhanced the SIS model by converting network transmission parameters into time-varying functions using adaptive graph learning (AdapGL)
- Incorporated heterogeneity, dynamic, and negative recovery states into the SIS model and used adaptive graph learning to predict infection and recovery states
- Compared the improved SIS model with classical ODE methods, LSTM, and ASTGCN models, demonstrating the superior performance of adaptive graph learning (GAT+AdapGL) in predicting extended states at airports
- Conducted simulation experiments, including setting infection rates and transmission processes consistent with real-world scenarios, validating the theoretical guidance's accuracy

## Research Experiences

**Research in Multimodal LLM for Finance (working paper) [demo]**

May 2024 - Present

Research Assistant Internship

Shenzhen Research Institute of Big Data

Supervised by [Prof. Benyou Wang](#) and [Jinmin Huang](#) (CEO of FinAI)

- Developed a multimodal financial benchmark dataset for LLM training and evaluation
- Multimodal instruction finetuning for LLM, include text, image, audio, video, and numerics data
- Align multimodal LLM with financial data and real-world scenarios to improve model performance

**Quant-GPT: Money is All You Need (PhD Course Project) [online]**

Feb 2024 - May 2024

Undergraduate Research Assistant, supervised by [Prof. Benyou Wang](#)

SDS, CUHK(SZ)

- Developed a multi-agent optimized for A-share market investment decisions
- Fine-tune LLM and integrate with sentiment analysis and real-world market data
- Utilized RAG and multi-agents to dynamically access and synthesize relevant financial news, improving the model's ability to forecast market trends and returns
- Achieved superior performance metrics compared to existing open-source LLMs, with higher annualized return, lower maximum drawdown, and a better Sharpe ratio
- Demonstrated the potential of LLMs in financial applications, providing a robust framework for integrating natural language understanding with quantitative investment strategies

**Deep Learning Approach for Early Predicting and Controlling Network Flow in SDN**

Jan 2024 - Apr 2024

Research Assistant Internship, advised by [Prof. Kai Lei](#)

ICNLAB, PKU(SZ)

- Developed a novel network flow prediction method using a modified Informer architecture for Software-Defined Networks (SDN) to enhance traffic management and resource allocation
- Designed and implemented a proactive congestion management strategy based on the predictions, significantly reducing network delays and improving overall network performance
- Conducted extensive practical experiments in a simulated SDN environment to validate the effectiveness and scalability of the proposed method, achieving a notable increase in prediction accuracy and response times

## Projects Experiences

**Travel Insurance Recommendation AI System [online]**

Jan 2024 - May 2024

Distinguish Course Project of Advanced Artificial Intelligence and Business Applications

SME, CUHK(SZ)

Advised by [Prof. Yutong Guo](#)

- Predict flight delays and recommend personalized travel insurance, in order to improve customer satisfaction
- Fine-tuned the LLM using insurance corpus to improve domain-specific question-answering capabilities
- Utilized deep learning, LLM, and sentiment analysis for accurate delay predictions and customer sentiment assessment

**Flight Information System [online]**

Mar 2024 - Apr 2024

- Developed a relational database system to optimize airline operations, including passenger bookings and flight logistics
- Integrated LLM to enhance database architecture and query generation
- Delivered a functional database with a user-friendly web interface, replicating realistic airline management dynamics