

Yuzhe (Toby) Yang

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Education

University of California, Santa Barbara
Visiting Student

Santa Barbara, CA, USA
Jun. 2025 – Present

The Chinese University of Hong Kong, Shenzhen
B.Eng. in Computer Science and Engineering

Shenzhen, China
Sep. 2021 – May 2025

Research Interests

Language Model: Human-Machine Interaction, Agent System, AI for Scientific Applications, Trustworthy NLP
Data Mining: Social Computing, Spatial-Temporal Modeling

Publications

TwinMarket: A Scalable Behavioral and Social Simulation for Financial Markets [online]
Yuzhe Yang*, Yifei Zhang*, Minghao Wu*, Kaidi Zhang, Yunmiao Zhang, Honghai Yu, Yan Hu, Benyou Wang
ICLR 2025 Workshop on Advances in Financial AI, Best Paper Award.
Under review at *NeurIPS 2025*.

UCFE: A User-Centric Financial Expertise Benchmark for Large Language Models [online]
Yuzhe Yang*, Yifei Zhang*, Yan Hu*, Yilin Guo, Ruoli Gan, Yueru He, Mingcong Lei, Xiao Zhang, Haining Wang, Qianqian Xie, Jimin Huang, Honghai Yu, Benyou Wang
In Findings of the Association for Computational Linguistics: NAACL 2025, pages 5429–5448.

FAST-CA: Fusion-based Adaptive Spatial-Temporal Learning with Coupled Attention for airport network delay propagation prediction [online]
Chi Li, Xixian Qi, Yuzhe Yang, Zhuo Zeng, Lianmin Zhang, Jianfeng Mao
Information Fusion 107 (2024): 102326.

Feature Extraction and Steering for Enhanced Chain-of-Thought Reasoning in Language Models [online]
Zihao Li, Xu Wang, Yuzhe Yang, Ziyu Yao, Haoyi Xiong, Mengnan Du
Under review at *EMNLP 2025*.

Open-FinLLMs: Open Multimodal Large Language Models for Financial Applications [online]
Jimin Huang, Mengxi Xiao, Dong Li, Zihao Jiang, Yuzhe Yang, Yifei Zhang, Lingfei Qian, Yan Wang, Xueqing Peng, et al.
arXiv preprint arXiv:2408.11878 (2024).

FedDTPT: Federated Discrete and Transferable Prompt Tuning for Black-Box Large Language Models [online]
Jiaqi Wu, Simin Chen, Yuzhe Yang, Yijiang Li, Shiyue Hou, Rui Jing, Zehua Wang, Wei Chen, Zijian Tian
arXiv preprint arXiv:2411.00985 (2024).

FDPT: Federated Discrete Prompt Tuning for Black-Box Visual-Language Models
Jiaqi Wu, Simin Chen, Jing Tang, Yuzhe Yang, Yiming Chen, Lixu Wang, Song Lin, Zehua Wang, Wei Chen, Zijian Tian
Under review at *ICCV 2025*.

(* Equal Contribution)

Research Experiences

Large-scale Social Simulation Agent Oct. 2024 – Jan. 2025
Advised by Prof. [Benyou Wang](#) & Prof. [Honghai Yu](#) CUHK-Shenzhen & Nanjing University

- Developed the TwinMarket framework where LLM agents simulate large-scale human investor behaviors to validate economic principles and market theories, leveraging the TwinMarket framework to model individual decision-making and social interactions.
- Built scalable simulations to evaluate how collective trading behavior impacts broader market outcomes, successfully replicating key market phenomena such as volatility clustering and fat-tailed return distributions.
- This work won the Best Paper Award at *ICLR Workshop 2025*

Financial Multimodal Large Language Model

Advised by Prof. [Benyou Wang](#) & [Jimin Huang](#)

May. 2024 – Oct. 2024
CUHK-Shenzhen & TheFinAI

- Leded the multimodal extension of LLM
- Developed a multimodal financial benchmark dataset for LLM training and evaluation
- Multimodal instruction finetuning for LLM, include text, image (chart & tabular) and numerics data
- Align multimodal LLM with financial data and real-world scenarios to improve model performance
- Released [FinLLaVA-8B](#): Achieved MMMU (Overall) score of 36.3 and MMMU (Business) score of 30.7
- Constructed a purely text-based multi-turn dialogue benchmark to evaluate the performance of LLMs in real-world financial applications using a user simulator; this work had accepted to *NAACL Findings 2025*; [#1 Paper of the day](#) on Hugging face

Flight Delay Propagation Modeling

Advised by Prof. [Jianfeng Mao](#)

Aug. 2023 – Sep. 2024
CUHK-Shenzhen

- Developed a GNN framework integrating dynamic and adaptive graph learning with coupled attention mechanisms to address complex spatial-temporal dependencies in airport delay propagation; this work had published in *Information Fusion*
- Enhanced the SIS epidemiological model by incorporating adaptive graph learning to simulate and predict epidemic transmission dynamics in airport networks; this work is in preparation, to be submitted to *Transportation Research Part B: Methodological*
- Leverages Neural ODE networks to improve flight delay prediction by developing a continuous graph model that enhances interpretability, reduces training time, and addresses challenges like irregular time sampling and missing data

Projects

Quant-GPT: Money is All You Need [\[online\]](#) | *PyTorch, Transformers, ChromaDB*

Mar. 2024 – Apr. 2024

- Final project for the PhD course [CSC6052](#), a multi-agent system for A-share market investment decisions
- Fine-tuned an LLM, integrating it with sentiment analysis and real-world market data.
- Utilized RAG and multi-agent systems to dynamically access and synthesize relevant financial news, enhancing the model's ability to forecast market trends and returns
- Results achieved: Sharpe Ratio: 0.40, Annualized Return: 7.26%, Max Drawdown: 13.61%

Travel Insurance Recommendation AI System [\[online\]](#) | *PyTorch, LangChain*

Jan. 2024 – Apr. 2024

- Developed an AI system to predict flight delays and recommend personalized travel insurance
- Fine-tuned the LLM using an insurance corpus to improve domain-specific question-answering capabilities, achieving an 83% accuracy in identifying user intent
- Utilized deep learning and LLM agents for accurate delay predictions and customer sentiment assessment

Flight Information System [\[online\]](#) | *Python, LangChain, SQL, Flask*

Mar. 2024 – Apr. 2024

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

Technical Skills

Languages: Python, C/C++

Developer Tools: Git, Docker, Linux, Slurm

Libraries: PyTorch, Transformers

Awards

Best Paper Award at Advances in Financial AI Workshop @ ICLR 2025	2025
Travel Grant Award at Advances in Financial AI Workshop @ ICLR 2025	2025
Kaggle Silver Medal in AI Mathematical Olympiad - Progress Prize 2	2025
Undergraduate Research Award in CUHK-Shenzhen	2024, 2025
Outstanding College Contribution Award in CUHK-Shenzhen	2022

Services

Reviewer: IJCAI 2025, ICLR 2025 Workshop, ACL 2025 SRW

[Latest Version](#)
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