

# Yuzhe (Toby) Yang

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## Research Interest

I have published several papers at top-tier conferences including *NeurIPS*, *EMNLP*, *NAACL*, *ICCV*, and received the Best Paper Award at *ICLR workshop*. My research focuses on building reliable and trustworthy AI systems that bridge the gap between machines and the real world. I am particularly interested in **Human-AI Interaction** [C2, P1], **Trustworthy NLP** [C3] and **Socially Aware NLP** [C1]. My vision is to enhance the social intelligence of (vision) language models, empowering them to not only understand the principles of the physical world but also to gain insight into complex social environments, enabling reliable and meaningful interactions with humans.

## Education

The Chinese University of Hong Kong, Shenzhen  
B.Eng. (Hons) in Computer Science & Engineering

Sep. 2021 – May 2025  
Shenzhen, China

## Publications

(\* indicates equal contribution)

### Conference & Workshop Papers

- [C1] **Yuzhe Yang\***, Yifei Zhang\*, Minghao Wu\*, Kaidi Zhang, Yunmiao Zhang, Honghai Yu, Yan Hu, and Benyou Wang. **“TwinMarket: A Scalable Behavioral and Social Simulation for Financial Markets”**. In: *Annual Conference on Neural Information Processing Systems (NeurIPS)*. 2025.  
**Best Paper Award, Travel Grant Award** (ICLR 2025 Workshop on Advances in Financial AI).
- [C2] **Yuzhe Yang\***, Yifei Zhang\*, Yan Hu\*, Yilin Guo, Ruoli Gan, et al. **“UCFE: A User-Centric Financial Expertise Benchmark for Large Language Models”**. In: *Findings of the Association for Computational Linguistics: NAACL 2025 (Findings of NAACL)*. 2025, pp. 5429–5448.
- [C3] Zihao Li\*, Xu Wang\*, **Yuzhe Yang**, Ziyu Yao, Haoyi Xiong, and Mengnan Du. **“Feature Extraction and Steering for Enhanced Chain-of-Thought Reasoning in Language Models”**. In: *Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. 2025.
- [C4] Jiaqi Wu, Simin Chen, Jing Tang, **Yuzhe Yang**, Yiming Chen, Lixu Wang, Song Lin, Zehua Wang, Wei Chen, and Zijian Tian. **“FDPT: Federated Discrete Prompt Tuning for Black-Box Visual-Language Models”**. In: *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV)*. 2025.

### Journal Papers

- [J1] Chi Li, Xixian Qi, **Yuzhe Yang**, Zhuo Zeng, Lianmin Zhang, and Jianfeng Mao. **“FAST-CA: Fusion-based Adaptive Spatial–Temporal Learning with Coupled Attention for airport network delay propagation prediction”**. In: *Information Fusion* 107.1 (2024), p. 102326.

### Preprints & Technical Reports

- [P1] Chengzhi Liu\*, **Yuzhe Yang\***, Kaiwen Zhou, Zhen Zhang, Yue Fan, Yanan Xie, Peng Qi, and Xin Eric Wang. **“Presenting a Paper is an Art: Self-Improvement Aesthetic Agents for Academic Presentations”**. 2025.  
Under Review at *ICLR 2026*.
- [P2] Jingxuan Wu, Zhenglin Wan, Xingrui Yu, **Yuzhe Yang**, Bo An, and Ivor Tsang. **“OSCAR: Orthogonal Stochastic Control for Alignment-Respecting Diversity in Flow Matching”**. 2025.  
Under Review at *ICLR 2026*.

- [P3] Jimin Huang, Mengxi Xiao, Dong Li, Zihao Jiang, **Yuzhe Yang** (lead multimodal training), et al. **“Open-FinLLMs: Open Multimodal Large Language Models for Financial Applications”**. 2025.
- [P4] Chi Li, Mingcong Lei, Jingxuan Wu, **Yuzhe Yang**, Zibin Pan, Xiongwen Qian, and Jianfeng Mao. **“Integrative Mean-Field Epidemic Model and Adaptive Graph Learning for Network-wide Delay Propagation Dynamics Prediction”**. 2024.  
In Preparation for *Transportation Research Part B*.
- [P5] Jiaqi Wu, Simin Chen, **Yuzhe Yang**, Yijiang Li, Shiyue Hou, Rui Jing, Zehua Wang, Wei Chen, and Zijian Tian. **“FedDTPT: Federated Discrete and Transferable Prompt Tuning for Black-Box Large Language Models”**. 2024.

## Research Experience

### UCSB ERIC Lab, UCSB NLP Group

Visiting Student (Advisor: [Prof. Xin Eric Wang](#))

Topic: Agent [P1], Trustworthy NLP

Jul. 2025 – Present  
Santa Barbara, CA, USA

### CUHK-Shenzhen NLP Group

Research Assistant (Advisors: [Prof. Benyou Wang](#), [Prof. Honghai Yu](#), Dr. Yan Hu)

Jun. 2024 – Present  
Shenzhen, China

- **Socially Aware NLP** [C1, *NeurIPS 25'*]: Developed a scalable multi-agent framework to simulate financial market. It successfully replicated real-world social emergent phenomena, such as financial bubbles and volatility clustering, by modeling the interaction of hundreds of LLM-powered investors.
- **Human-AI Interaction** [C2, *NAACL 25'*]: Evaluating LLMs on complex, real-world financial tasks by designing a user-centric framework with dynamic, multi-turn interactions.
- **Trustworthy NLP** [C3, *EMNLP 25'*]: Pioneered a feature steering framework to extract pure reasoning features from LLMs by separating verbal and symbolic processes, and developed a "SAE-free" algorithm to enhance mathematical reasoning capabilities without external data and training.

### TheFinAI

Researcher (Advisor: Jimin Huang)

Jun. 2024 – Oct. 2024  
Remote

- **Financial (Vision) Language Model** [P3]: Enhanced a Llama-3-8B model for financial applications by conducting continued pre-training (Fin-Llama) on a massive financial corpus and developing its multi-modal extension ([Fin-Llava](#)) for advanced tabular understanding and chart reasoning.

### School of Data Science, CUHK-Shenzhen

Research Assistant (Advisor: [Prof. Jianfeng Mao](#))

Aug. 2023 – Jun. 2024  
Shenzhen, China

- **Spatial-Temporal Modeling** [J1, *Information Fussion 24'*]: Designed a GNN model, which integrates adaptive graph learning, coupled attention, and periodicity feature extraction to provide a comprehensive analysis of the interplay between departure/arrival delays and spatial-temporal correlations in airport networks.
- **Continuous Graph Modeling** [P4]: Developed an enhanced SIS epidemiological model integrating adaptive graph learning and Neural ODE networks for airport delay propagation prediction. Created a continuous graph model that improves interpretability, handles irregular time sampling, and reduces training time.

## Awards

Best Paper Award, ICLR 2025 Workshop on Advances in Financial AI	2025
Travel Grant Award, ICLR 2025 Workshop on Advances in Financial AI	2025
Kaggle Silver Medal, AI Mathematical Olympiad - Progress Prize 2	2025
Undergraduate Research Award, CUHK-Shenzhen	2024, 2025
Outstanding College Contribution Award, CUHK-Shenzhen	2021, 2022

## Presentations

### TwinMarket: A Scalable Behavioral and Social Simulation for Financial Markets

- Guest lecture for CSC6052, Spring 2025, CUHK-Shenzhen Apr. 2025
- Contributed talk at the ICLR 2025 Workshop, Singapore Apr. 2025
- Invited talk at the Wisemodel Open-source Series (Virtual) May 2025

## Projects

### Parallel MNIST Digit Recognition | C++, OpenACC

Nov. 2024

*Accelerated MNIST handwritten digit recognition using OpenACC for GPU parallelization.*

- Utilized OpenACC directives to parallelize neural network computations for the MNIST dataset on GPUs
- Optimized matrix multiplication (GEMM) kernels, achieving an 8.5x speedup over sequential execution
- Minimized host-device data transfer overhead by fusing kernels and managing data presence on the GPU

### Quant-GPT: Money is All You Need | PyTorch, Transformers, ChromaDB

May 2024

🌀 *Multi-Agent system for A-share market investment decisions.*

- Fine-tuned LLM with sentiment analysis and real-world market data integration
- Implemented RAG and multi-agent systems for dynamic financial news synthesis
- Achieved Sharpe Ratio: 0.40, Annualized Return: 7.26%, Max Drawdown: 13.61%

### Travel Insurance Recommendation AI System | PyTorch, LangChain

Apr. 2024

🌀 *Spatial-Temporal model for flight delay prediction and personalized travel insurance recommendation.*

- Fine-tuned LLM using insurance corpus for domain-specific question-answering
- Achieved 83% accuracy in identifying user intent for insurance recommendations
- Integrated GNN-based deep learning and LLM agents for delay prediction and sentiment assessment

## Work Experience

### Shenzhen Branch of China Telecom

Jan. 2024 – Apr. 2024

Part-time Internship

Shenzhen, China

- Time Series Analysis, Data Visualization
- GIS Data Analysis, Data Mining

## Skills

**Programming Languages:** Python, C/C++, HTML/CSS,  $\text{\LaTeX}$

**Developer Tools:** Pytorch, Transformers, LangChain, Faiss, Git, Slurm

## Services

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

**Organizer:** Reading Seminar at CUHK-Shenzhen

References available upon request.