Haohang Li

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205 Hudson St, Hoboken, New Jersey | 201-234-7809

Research Interest: Language Model, Intersection between Cognative Science & NLP, LLM Agent System

Education

Stevens Institute of Technology — Hoboken, NJ
Ph.D. in Data Science — 08/2022 – Present

- **GPA: 3.9/4.0**
- **Advisors: Jordan W. Suchow & Zining Zhu**
- **Fellowships Funded by Jefferies Financial Group (2022)**
- **Provost Fellowship Fund Recipient (08/2022 - 05/2026)**
- Selected Courses: Optimization for Data Science, Algorithms, Big Data Technologies, Computer Vision

Stevens Institute of Technology — Hoboken, NJ
M.S. in Financial Engineering — 09/2019 – 12/2021

- **GPA: 4.0/4.0**
- **Outstanding Academic Achievement Award Recipient, Graduate Admission Scholarship Recipient**
- Master Thesis: Impact of False Information from Spoofing Strategies: An ABM Model of Market Dynamics (Advised by Prof. Steve Yang)
- Selected Courses: Machine Learning, Statistical Learning, Stochastic Calculus, Simulation and Computation Methods

Publications

- Yu, Y., Li, H., et al. FinCon: A Synthesized LLM Multi-Agent System with Conceptual Verbal Reinforcement for Enhanced Financial Decision Making, Arxiv

  Accpted by NeurIPS 2024

- Qian, X., Li, H. et al. The FinBen: An Holistic Financial Benchmark for Large Language Models, Arxiv

  Accpted by NeurIPS 2024

- Li, H., et. al. FinMem: A Performance-Enhanced Large Language Model Trading Agent with Layered Memory and Character Design, Arxiv

  Accpted by LLM Agents@ ICLR 2024

  (Minor revision) IEEE Transactions on Big Data Special Issue on LLMs and Cross-Modal Generative AI.

- Li, H. & Yang, S. Impact of False Information from Spoofing Strategies: An ABM Model of Market Dynamics

  Accpted by IEEE CIFEr 2022

- Qian, X., Li, H. et al. Open-FinLLMs: Open Multimodal Large Language Models for Financial Applications, Arxiv

  Under reivew KDD 2025

Academic Activities:

- FinMem: A Performance-Enhanced Large Language Model Trading Agent with Layered Memory and Character Design

  Presented at AAAI Symposium on Human-Like Learning and LLM Agents@ ICLR 2024

- IJCAI-Joint-Workshop of the 8th Financial Technology and Natural Language Processing and the 1st Agent AI for Scenario Planning (FinNLP-AgentScen@IJCAI2024) — Organizer

- INFORMS-2024 INFORMS Workshop on Data Science — Program Committee member

- COLING-The Joint Workshop of the 9th Financial Technology and Natural Language Processing (FinNLP), the 6th Financial Narrative Processing (FNP), and the 1st Workshop on Large Language Models for Finance and Legal (LLMFinLegal)

  Program Committee member

- Reviewer: NeurIPS, ICLR, ICIS, ECML, FM4Science@NeurIPS, MINT@NeurIPS, ALVR@ACL, FM-Wild@ICML.

Work Experience

Stevens Institute of Technology Hoboken, NJ
Research Assistant 06/2023 - Present

- The current research focuses on mechanistic explainable methods for the safety mechanism of language models and understanding language model behavior/bias from a cognitive perspective.

Jefferies Financial Group New York, NY
Data Scientist Research Intern 04/2022 - 06/2023

- Conducted research on improving the client interests recommendation model based on an imbalanced dataset.
- Developed deep tensor factorization model that leverages the features extracted from client historical trading information, holding equities performance, and other traits.
- Applied the explainable machine learning method, integrated gradient, to explain the model prediction results, which potentially could be further explored by the sales team.

EAS Innovation Consulting, Inc. Higganum, CT
Intern Transferred to Analyst 09/2021 – 04/2022

- Established and maintained the database for small capitalized stocks and cryptocurrency historical data.
- Designed and built a web application for strategy backtesting, streamlined the process of filtering the investment candidates, and generating performance reports of strategies.
- Designed and implemented the backtesting engine for cryptocurrency strategy candidates and generated performance reports of strategies.
- Participated in strategy design and conducted strategies' sensitivity analysis.

Stevens Institute of Technology Hoboken, NJ
Teaching Assistant (Graduate Student Assistant) 09/2021 – 12/2021

- Teaching Assistant for BIA 667: Introduction to Deep Learning and Business Applications

Research Assistant, Summer Research Fellowship Program 05/2021 – 08/2021

- Built few-shot and meta-learning baseline models for multi-label classification.
- Implemented and tuned the prototypical network and model-agnostic meta-learning model (MAML) in PyTorch for medical literature multi-label classification based on small training datasets.

Academic Projects

Autonomous LLM Agent with Layered Memory and Risk Persona Design 08/2023 – Present

- Accomplished two papers: FinMem (ArXiv, Minor Revision IEEE TBD) [Single Agent], FinCon (ArXiv, Accepted NeurIPS 2024) [Multi Agent]
- Designed an LLM-based trading agent with a layered memory cognitive module to leverage rich textual data.
- Developed and implemented the memory module that emulates the human cognitive system to enable the agent to extract important information with market feedback and consider the timeliness of the information.
- Constructed a cooperative multi-agent framework with a dynamic risk persona/profile.
- Achieved state-of-the-art performance with the frameworks compared to counterparts using DRL and LLM.
- Contributed to evaluation tasks for LLM benchmark in finance and pre-trained LLM adapted to finance data (FinMA 3.0) in mass collaboration with other research teams outside Stevens Institute of Technology.

Explainable Methods for Language Models 10/2024 – Present

- Using explainable methods to provide mechanistic interpretation and identify certain model structures that are responsible for the safety/trustworthiness of the language model.

Agent-Based Model with its Application in Simulating Spoofing Market Condition 02/2021 – 12/2021

- Simulated spoofing market conditions in a multi-agent framework, where malicious participants manipulate supply and demand by submitting large volumes of non-trade orders.
- Implemented a multi-agent simulation framework aligned with stylized facts and spoofing conditions.
- Analyzed environment dynamics under spoofing and its impact on market participants.