

Lingjun Mao

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🌐 Lingjun Mao (website)

EDUCATION

Tongji University

Software Engineering

Shanghai, China

Sep 2020 – Present

- Cumulative GPA – 93.31/100 (top 5% of majors)

University of California, Berkeley

Berkeley Global Access Exchange Program

California, USA

Jan 2024 – Oct 2024

- Cumulative GPA – 4.0/4.0

INTERESTS AND DOMAINS

- **Artificial Intelligence Algorithm:** Graph Mining; Multi-modal Learning; Natural Language Processing; Machine Learning
- **AI for Science:** Vision Language Models for Health Care; Urban Simulation and City Science

PUBLICATIONS AND WORKING PAPERS

1. Yizhou Chi, **Lingjun Mao** Zineng Tang. AMONGAGENTS: Evaluating Large Language Models in the Interactive Text-Based Social Deduction Game. ACL Wordplay Workshop, 2024.
2. Zineng Tang, **Lingjun Mao** Alane Suhr. Grounding Language in Multi-Perspective Referential Communication. Submitted to ACL ARR, 2024.
3. Hejie Cui*, **Lingjun Mao***, Xin Liang, Carl Yang. Biomedical Visual Instruction Tuning with Clinician Preference Alignment. Submitted to Neurips, 2024
4. Junwei Su*, **Lingjun Mao*** Chuan Wu. BG-HGNN: Toward Scalable and Efficient Heterogeneous Graph Neural Network. Submitted to CIKM, 2024.
5. Kejiang Qian, **Lingjun Mao**, Xin Liang, Yimin Ding, Jin Gao, Xinran Wei, Ziyi Guo, Jiajie Li. AI Agent as Urban Planner: Steering Stakeholder Dynamics in Urban Planning via Consensus-based Multi-Agent Reinforcement Learning. Submitted to UAI, 2024.
6. **Lingjun Mao**, Jingning Xu, Zhen Gao. A Critic-Leading Generative Adversarial Net to Produce Adversarial Samples for Black-box Models. Submitted to ICME(Expected), 2024.

PROJECT EXPERIENCE

Large Medical Vision Language Model Aligned with Clinician Preferences

Train a Vision Language Model Expert in the Medical Field.

Sep 2023 – present

- Distill human preferences from a small number of annotations provided by doctors.
- Build a high quality instructions following dataset using GPT4-V.

Equivariant Neural Networks on Discrete Symmetry Groups

introduce an equivariant approach targeting specific discrete symmetry groups.

Jan 2024 – Jun 2024

- Propose a framework that restricts learned equivariant functions to the Hamiltonian's eigenbasis.
- Propose GNN for predicting crystal DoS and energy, designed for D4 and D4h symmetries.

Rethinking of Generalization in Dynamic Graph System

Develop new metrics for evaluating the performance of dynamic graph models.

Aug 2023 – Jan 2024

- Reassess existing dynamic graph network models by incorporating time into the metrics.

Steering Stakeholder Dynamics in Urban Planning via Consensus-based MARL

Propose a GNN-based multi-agent reinforcement learning model for land planning. Jan 2023 – Aug 2023

- Model land planning problems using GNN.
- Propose a Consensus-based multi-agent reinforcement learning model based on voting.

Distributed Neural Network Computation Acceleration Based on Meta-representation

Use table lookup operations to speed up matrix multiplication in neural networks May 2022 – May 2023

- Convert matrix multiplication to table lookup operations using deep learning.
- Use SIMD parallel instructions to improve the speed of algorithm operations.

INTERNSHIP EXPERIENCE

Berkeley NLP Group, Berkeley Artificial Intelligence Research (BAIR) Lab

Scientific Research Assistant

Feb 2024 – present

- Explore Multi-Perspective Communication Between Agents.
- Create proxies of human behavior in simulated environments.

Emory University

Scientific Research Assistant

Aug 2023 – present

- Evaluate performance of a large vision language model based on the health care dataset.

University of Hong Kong

Scientific Research Assistant

Mar 2023 – Jan 2024

- Research on heterogeneous graph learning and propose new framework.

MIT Media Lab's City Science Lab@Shanghai

2023 Research Internship

Sep 2022 – Dec 2023

<https://github.com/CityScienceLab-Shanghai/SoCity_{smart}Contract>

- Participate in the development of DApp in Society Dao and write smart contracts.
- Complete development and iteration of Green Commute with MIT media lab.

Tongji NAMI Lab

Scientific Research Assistant

May 2022 – Apr 2023

- Explore how to speed up neural networks from a matrix multiplication perspective.
- Explore the new paradigm of black box attacks without target model distillation.

CAMPUS EXPERIENCE

President of Tongji University Apple Club (TAC)

Help to connect with relevant business sectors outside the university.

May 2022 – present

Tongji University Student Union

Organize and host many student events and lectures.

Jun 2020 – Aug 2023

HONOR CERTIFICATE

- 2023 China Collegiate Computing Contest (CCCC) China Second Prize
- 2023 Shanghai Innovation and Entrepreneurship Project Award
- 2023 ETH Beijing Hackathon finalist
- 2022 National-level Innovation and Entrepreneurship Project Award
- 2022 Excellent backbone of Tongji University Student Union
- 2022 Outstanding Students of Tongji University (5%)
- 2022/2023 Third Prize of Asia Pacific Cup Mathematical Modeling
- 2021 Third Prize in Mathematical Modeling, Tongji University