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Chang Ma

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Third year Ph.D student at The University of Hong Kong, focusing on the intersection of Agent decision making and AI4Science.
Areas of expertise: Natural Language Processing, Computational Biology, Large Language Model Agents, Generalization Theory

EDUCATION

PhD, Computer Science, The University of Hong Kong, co-advised by Lingpeng Kong and Tao Yu   **September 2022–**
Bachelor of Science, Machine Intelligence Major, Peking University, GPA: 3.58/4.0   **September 2018 — July 2022**

EXPERIENCE

Research Intern   **Jan 2024 — Sep 2024**
NLP Group   Shanghai AI Lab
• Work on LLM agent research and theoretical research for LLMs.

Research Intern   **April 2023 — December 2023**
Foundation Model Group   Microsoft Research AI for Science
• Work on AI drug discovery and biosequence multimodal LLM pretraining.

Research Assistant   **July 2019 — July 2022**
Sigma Lab, supervised by Zhihong Deng   Peking University

Research Intern   **January 2021 — October 2021**
DeepGraph Lab, supervised by Jian Tang   MILA - Quebec AI Institute

Research Collaboration   **June 2021 — October 2021**
NAIL Lab, supervised by Ahn Tuan Luu   Nanyang Technology University

Research Intern   **November 2021 — July 2022**
Bing Advertisement Group   Microsoft Beijing

PUBLICATIONS

Large Language Model Reasoning and Agents

• **Ma, Zhang, Zhu & Yang** et al, *AgentBoard: An Analytical Evaluation Board of Multi-turn LLM Agents.* **NeurIPS 2024 Oral**
• Zhao et al, *Empowering Large Language Model Agents through Action Learning.* **COLM 2024**
• **Ma** et al, *Non-myopic Generation of Language Models for Reasoning and Planning.* **Preprint**
• Sun et al, *A Survey of Neural Code Intelligence: Paradigms, Advances and Beyond.* **Preprint**

AI4Science Topics

• **Ma** et al, *Retrieved Sequence Augmentation for Protein Representation Learning.* **EMNLP 2024**
• Zhao et al, *GIMLET: A Unified Graph-Text Model for Instruction-Based Molecule Zero-Shot Learning.* **NeurIPS 2023**
• Xu et al, *PEER: A Comprehensive and Multi-Task Benchmark for Protein Sequence Understanding.* **NeurIPS 2022**
• Zhu et al, *TorchDrug: A Powerful and Flexible Machine Learning Platform for Drug Discovery.* **Preprint**
• Zhao et al, *Benchmarking and Enhancing Large Language Models for Biological Pathway Reasoning* **Preprint**

Generalization Theory

• **Wang & Ma** et al, *A Challenging Benchmark for Low-Resource Learning.* **ACL 2024 Findings**
• **Zhao, Ma & Dong** et al, *Certified Robustness Against Natural Language Attacks by Causal Intervention.* **ICML 2022**
• **Ma & Zhang** et al, *Switch-GPT: An Effective Method for Constrained Text Generation under Few-Shot Settings.* **AAAI 2022 Abstract**
• Yuan et al, *KS-Lottery: Finding Certified Lottery Tickets for Multilingual Language Models.* **Preprint**
• Zhao et al, *Domain Adaptation via Maximizing Surrogate Mutual Information.* **Long Presentation at IJCAI 2022**

SERVICE

2021   Teaching assistant for course "Introduction to Artificial Intelligence —— Natural Language Processing" at Peking University
2022   Teaching assistant for course "Introduction to Artificial Intelligence —— Natural Language Processing" at Peking University
2023   Teaching assistant for course "COMP 3314 Machine Learning" at The University of Hong Kong
2024   Teaching assistant for course "COMP 3314 Machine Learning" at The University of Hong Kong
2024   Review for ICML2022, NeurIPS 2022, ICLR 2023, NeurIPS 2023, ICLR 2024, ICML2024, AAAI2024, ICLR2025, AISTATS2025, ARR

AWARDS & HONORS

2019   First Prize (**National Mathematical Modeling Competition for College Students**)
2019   Honorable Mention (**Mathematical Contest In Modeling**)
2020   Peking University Learning Excellence Award