HAOZHE MA

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EDUCATION

National University of Singapore **01/2022 - Now**
Ph.D. student major in Computer Science Advised by Prof. Tze-Yun Leong

National University of Singapore **08/2020 - 12/2021**
Master of Computing **GPA**: 4.83/5.0 Advised by Prof. Tze-Yun Leong

Xi'an Jiaotong University **08/2016 - 06/2020**
Bachelor of Computer Science (Qian Xuesen Top Class) **GPA**: 3.8/4.3 **Ranking**: top 6%

RESEARCH INTERESTS

Reinforcement Learning, Reward Modeling, AI Agent Decision Making, Large Language Models, Robotics

PUBLICATIONS

[1] **Haozhe Ma**, Fangling Li, Jing Yu Lim, Zhengding Luo, Thanh Vinh Vo, Tze-Yun Leong. Catching Two Birds with One Stone: Reward Shaping with Dual Random Networks for Balancing Exploration and Exploitation. *In Proceedings of the 42nd International Conference on Machine Learning,* PMLR. (**ICML 2025**)

[2] **Haozhe Ma**, Zhengding Luo, Thanh Vinh Vo, Kuankuan Sima, Tze-Yun Leong. 2025. Highly Efficient Self-Adaptive Reward Shaping for Reinforcement Learning. *In proceedings of the 13th International Conference on Learning Representations.* **(ICLR 2025)**

[3] **Haozhe Ma**, Kuankuan Sima, Thanh Vinh Vo, Di Fu, and Tze-Yun Leong. 2024. Reward Shaping for Reinforcement Learning with An Assistant Reward Agent. *In Proceedings of the 41st International Conference on Machine Learning*, PMLR, 33925–33939. **(ICML 2024)**

[4] **Haozhe Ma**, Thanh Vinh Vo, and Tze-Yun Leong. 2024. Mixed-Initiative Bayesian Sub-Goal Optimization in Hierarchical Reinforcement Learning. *In Proceedings of the 23rd International Conference on Autonomous Agents and Multiagent Systems*, 1328–1336. **(AAMAS 2024, oral)**

[5] Zhengding Luo*, **Haozhe Ma***, Dongyuan Shi, Woon-Seng Gan. 2024. GFANC-RL: Reinforcement Learning-based Generative Fixed-filter Active Noise Control. Neural Networks (2024). **(SCI, IF=6.0, co-first author)**

[6] **Haozhe Ma**, Thanh Vinh Vo, and Tze-Yun Leong. 2023. Hierarchical Reinforcement Learning with Human-AI Collaborative Sub-Goals Optimization. *In Proceedings of the 22nd International Conference on Autonomous Agents and Multiagent Systems*, 2310–2312. **(AAMAS 2023)**

[7] **Haozhe Ma**, Thanh Vinh Vo, and Tze-Yun Leong. 2023. Human-AI Collaborative Sub-Goal Optimization in Hierarchical Reinforcement Learning. *In Proceedings of the Association for the Advancement of Artificial Intelligence Symposium Series*, 86–89. **(AAAI 2023 workshop)**

[8] **Haozhe Ma**, Zhengding Luo, Kuankuan Sima, Thanh Vinh Vo, Tze-Yun Leong. Knowledge Sharing and Transfer via Centralized Reward Agent for Multi-Task Reinforcement Learning. *Preprint and under review.*

[9] **Haozhe Ma**, Guoji Fu, Jiele Wu, Tze-Yun Leong. Exploration by Random Reward Perturbations. *Preprint and under review.*

[10] Di Fu, Thanh Vinh Vo, **Haozhe Ma**, Tze-Yun Leong. 2024. Decoupled Prompt-Adapter Tuning for Continual Activity Recognition. *In Proceedings of the Conference on Lifelong Learning Agents*, PMLR. **(CoLLAs 2024)**

Research Projects

- **Academic Research Grant from the Ministry of Education in Singapore**, No. MOE-T2EP20121-0015. *MixREADY: A unifying framework for Mixed-initiative, REsponsible, DynAmic Decision making under uncertainty*, **project participant.**
- **National Research Foundation Singapore and DSO National Laboratories under the AI Singapore Programme** No. AISG2-RP-2020-016. *The "Other Me": Human-Centered AI Assistance In Situ*, **project participant**.

Awards

- PhD Research Achievement Award of National University of Singapore (AY2023-2024)
- Research Incentive Award of School of Computing of National University of Singapore (AY2022-2023)
- Research Scholarship from the Ministry of Education in Singapore (2022-2026)
- Scholarship of International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2024)
- Outstanding Student Scholarship of Xi'an Jiaotong University
- SiYuan Student Scholarship of Xi'an Jiaotong University

Academic Duty

- **Student Area Search Committee** for faculty recruitment for School of Computing, NUS. 01/2025 – Now
- **Reviewers** of top conferences: ICLR, ICML, NeurIPS, AAMAS, etc. 2023 – Now
- **Teaching Assistant** of the undergraduate course *Foundations of Artificial Intelligence*. 01/2023 – 12/2024
- **Teaching Assistant** of the graduate course *AI Planning and Decision Making*. 08/2021 – 12/2022

Open-Source Projects

- [ICLR 2025] Highly-Efficient Self-Adaptive Reward Shaping for Reinforcement Learning [GitHub]
- [ICML 2024] Reward Shaping for Reinforcement Learning with an Assistant Reward Agent [GitHub]
- Efficient Reinforcement Learning Algorithms and Environments by PyTorch [GitHub]
- Flat Reinforcement Learning Algorithms on StartCraft II Mini-Games [GitHub]
- Tutorial and Document: How to Use StarCraft II as Reinforcement Learning Environment [GitHub]
- Auto Text Recognition and Translation by Copying and Pasting Screenshots [GitHub]

Thesis

- Hierarchical Reinforcement Learning in StarCraft II with Human Expertise Integration 12/2021
  Master's thesis, advised by Prof. Tze-Yun Leong from the National University of Singapore.
- A Dynamic Decision Language for Adaptive Cognitive Robot Development 06/2020
  Undergraduate thesis, jointly advised by Prof. Tze-Yun Leong from the National University of Singapore and Prof. Jun Liu from Xi'an Jiaotong University.

Referees

- **Leong Tze-Yun**
  Professor of Computer Science at the School of Computing, National University of Singapore, Director of NUS AI Laboratory, Elected Fellow of the American College of Medical Informatics (ACMI) and a founding Fellow of the International Academy of Health Sciences Informatics (IAHSI). [homepage]
- **Liu Jun**
  Professor, Doctoral Supervisor of Xi'an Jiaotong University, Director of the Key Laboratory of Space and Earth Network Technology, Selected by the Ministry of Education of the People's Republic of China under the "New Century Outstanding Talents Support Program". [homepage]
- **Shi Dongyuan**
  Professor of Northwestern Polytechnical University, and former Research Assistant Professor at Nanyang Technological University. [homepage]