

Mingde "Harry" Zhao 赵明德 AI Research Scientist

BASICS

Email: mingde.zhao@mail.mcgill.ca Location: Toronto, Canada
Homepage: pwnerharry.github.io Languages: English (native), Mandarin Chinese (native), French (advanced)

TECHNICAL FOCUS

AI/ML: Reinforcement Learning (RL), RL post-training, reward modeling, world models, reasoning, generalization

Domains: embodied AI, autonomous driving, robotics, large models

PROFESSIONAL EXPERIENCE

Senior Applied Scientist, RL Post-Training Lead @ Wayve  2025–Present
Converting RL research into practice: designed & productionized flagship RL driving models used in Uber robotaxi and OEM productions for Nissan and Stellantis, etc.
Scientist in the core team: leading RL post-training for large end-to-end autonomous-driving models, translating research ideas in reward modeling, planning, and generalization into super-human driving.

Conference Paper Reviewer @ ICML, NeurIPS, RLC 2022, 2025

Visiting Student @ Brain and Mind Research Institute, uOttawa 2024 - 2025

Researcher @ RBC Borealis (previously Borealis AI, Montreal) 2024

Researcher @ Haiper (British-Canadian Startup)  2021 - 2023
Founding member & researcher: nerf-based 3D scanner app, image & video generation, large model training

Research Scientist Intern @ Microsoft Research  2022 - 2023

Teaching Assistant @ McGill University 2019 - 2021

EDUCATION

Doctor of Philosophy, Computer Science  2020 - 2025
McGill University / Mila (Quebec AI Institute), CGPA: 4.00/4.00
Co-Advisors: Doina Precup & Yoshua Bengio
Ph.D. Thesis: *Brain-Inspired Planning for Better Generalization in Reinforcement Learning*

- FRQNT Ph.D. Fellowship: I was honored to be chosen as the 1st-place recipient of this prestigious national scholarship for academic and research excellence among all applicants of 2020.

Master of Science, Computer Science  2018 - 2020
McGill / Mila, CGPA: 4.00/4.00; Co-Advisors: Doina & Xiaowen Chang
M.Sc. Thesis: *META-Learning Eligibility Traces for More Sample Efficient Temporal Difference Learning*

Bachelor of Engineering, Computer Science & Technology  2014 - 2018
Dalian University of Technology, GPA: 89.0%

- Academic Excellence Awards (2015 - 2018)
- Outstanding Bachelor Thesis (2018): I was honored to be chosen as the "star of academic and research achievements" of the year by the Dean of Faculty

SELECTED CONFERENCE PUBLICATIONS (1st or last author, check Google Scholar for complete list)

- *"Rejecting Hallucinated State Targets during Planning"* – **M. Zhao**, T. Sylvain, R. Laroché, D. Precup, Y. Bengio @ ICML 2025.
- *"Consciousness-Inspired Spatio-Temporal Abstractions for Better Generalization in Reinforcement Learning"* – **M. Zhao**, S. Alver, H. van Seijen, R. Laroché, D. Precup, Y. Bengio @ ICLR 2024.
- *"Training Matters: Unlocking Potentials of Deeper Graph Convolutional Neural Networks"* – S. Luan*, **M. Zhao***, X.W. Chang & D. Precup @ Complex Networks 2023, ORAL.
- *"A Consciousness-Inspired Planning Agent for Model-Based Reinforcement Learning"* – **M. Zhao***, Z. Liu*, S. Luan*, S. Zhang*, D. Precup, Y. Bengio @ NeurIPS 2021.
- *"META-Learning State-Based Eligibility Traces for More Sample-Efficient Policy Evaluation"* – **M. Zhao***, S. Luan*, I. Porada*, X.W. Chang & D. Precup @ AAMAS 2020.
- *"Break the Ceiling: Stronger Multi-Scale Deep Graph Convolutional Networks"* – S. Luan*, **M. Zhao***, X.W. Chang & D. Precup @ NeurIPS 2019.
- *"A Many Objective Evolutionary Algorithm with Fast Clustering & Reference Point Redistribution"* – **M. Zhao**, H. Ge, H. Han & L. Sun @ CEC 2018.

SELECTED JOURNAL PUBLICATIONS (*1st or last author, check [Google Scholar](#) for complete list*)

- *"Point Cloud Video Modeling with Progressive Prior Knowledge Guidance and Adaptive Neighboring Aggregation"* – J. Yan, H. Ge, M. Cui, C. Wu. & **M. Zhao** @ IEEE Transactions on Neural Networks and Learning Systems, 2026.
- *"A Virtual-Sensor Construction Network Based on Physical Imaging for Image Super-Resolution"* – G. Tang, H. Ge, L. Sun, Y. Hou & **M. Zhao** @ IEEE Transactions on Image Processing, 2024.
- *"Clothes-Changing Person Re-Identification via Universal Framework with Association and Forgetting Learning"* – Y. Liu, H. Ge, Z. Wang, Y. Hou & **M. Zhao** @ IEEE Transactions on Multimedia, 2023.
- *"Discriminative Identity-Feature Exploring and Differential Aware Learning for Unsupervised Person Re-Identification"* – Y. Liu, H. Ge, Z. Wang, Y. Hou & **M. Zhao** @ IEEE Transactions on Multimedia, 2023.
- *"An Interactive Many Objective Evolutionary Algorithm with Cascade Clustering & Reference Point Incremental Learning"* – H. Ge*, **M. Zhao***, L. Sun, Z. Wang, G. Tan, Q. Zhang & C.L.P. Chen @ IEEE Transactions on Evolutionary Computation, 2018.

SELECTED NON-ARCHIVAL WORKS (*check [GitHub](#) for more*)

- *"Complete the Missing Half: Augmenting Aggregation with Diversification for Graph Convolutional Networks"* – S. Luan*, **M. Zhao***, C. Hua*, X.W. Chang & D. Precup @ NeurIPS 2022, New Frontiers in Graph Learning Workshop, ORAL.
- *"Fast Dichotomic CNN for Traffic Sign Identification"* – H. Ge, **M. Zhao**, X. Yang @ SIPO (China Patent Office), 2018
- *"Peach Segmentation with Deep Reinforcement Learning"* – H. Ge, **M. Zhao**, J. Lin, L. Sun @ SIPO (China Patent Office), 2018.