

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), post-training, reward modeling, world models, reasoning, generalization

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

PROFESSIONAL EXPERIENCE

Senior Applied Scientist, Driving Model Post-Training Tech 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.
Workstream Lead in the Core team: responsible for long-term algorithmic breakthroughs of 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)  Haiper 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.