Mingde "Harry" Zhao

Better humanity via the meaningful studies of artificial intelligence!

BASICS

Contact: mingde.zhao@mail.mcgill.ca **Address**: Montréal, Québec, Canada

Home Page: mingde.world **Languages**: English (native), Mandarin (母语), French (élémentaire)

RESEARCH INTERESTS

Essence of Learning	Reinforcement Learning, Meta-Learning, System 2 (Consciousness)
Theory	Geometry, Optimization, Theories of Machine Learning, Linear Algebra, Estimation Theory
Techniques	Numerical Optimization, Evolutionary Strategies, Deep Learning

EDUCATION

Doctor of Philosophy, Computer Science **2020 – Present**

Mila (L'institut québécois d'intelligence artificielle) / McGill University

Advisors: Doina Precup (DeepMind, McGill, Mila) & Yoshua Bengio (UdeM, Mila)

Master of Science, Computer Science **2018 – 2020**

Mila / McGill University, CGPA: 4.0/4.0

Advisors: Doina Precup & Xiaowen Chang (McGill)

Bachelor of Engineering (Honors), Computer Science & Technology **2014 - 2018**

Dalian University of Technology, GPA: 90.0%+

Advisor: Hongwei Ge

PAPERS (CONFERENCE)

- "META-Learning State-based Eligibility Traces for More Sample-Efficient Policy Evaluation" – **M.Z.***, S. Luan*, I. Porada*, X.W. Chang & D. Precup @ AAMAS 2020.
- "Break the Ceiling: Stronger Multi-scale Deep Graph Convolutional Networks" – S. Luan*, **M.Z.***, X.W. Chang & D. Precup @ NeurIPS 2019.
- "Exploring Overall Contextual Information for Image Captioning in Human-Like Cognitive Style" – H. Ge, Z. Yan, K. Zhang, **M.Z.** & L. Sun @ ICCV 2019.
- "Two-stage Automatic Image Annotation Based on Latent Semantic Scene Classification" – H. Ge, K. Zhang, Y. Hou, C. Yu, **M.Z.**, Z. Wang & L. Sun @ IJCNN 2020.
- "Strategy Selection in Complex Game Environments based on Transfer Reinforcement Learning" – H. Ge, **MZ**, K. Zhang & L. Sun @ IJCNN 2019.
- "Multi-Grained Cascade AdaBoost Extreme Learning Machine for Feature Representation" – H. Ge, W. Sun, **M.Z.**, K. Zhang, L. Sun & C. Yu @ IJCNN 2019.

---

* Equal Contributions

- "A Selective Ensemble Learning Framework for ECG-Based Heartbeat Classification with Imbalanced Data" – H. Ge, K. Sun, L. Sun, **M.Z.** & C. Wu @ BIBM 2018.
- "A Many Objective Evolutionary Algorithm with Fast Clustering & Reference Point Redistribution" – **M.Z.**, H. Ge, H. Han & L. Sun @ CEC 2018.

PAPERS (JOURNAL)

- "Bi-space Interactive Cooperative Coevolutionary Algorithm for Large Scale Blackbox Optimization" – H. Ge, **M.Z.**, Y. Hou, K. Zhang, L. Sun, G. Tan, Q. Zhang & C.L.P. Chen @ Applied Soft Computing, 2020.
- "A Two-Engine Interaction Driven Many-Objective Evolutionary Algorithm with Feasibility-Aware Adaptation" – H. Ge, **M.Z.**, K. Zhang & Y. Hou @ Applied Soft Computing, 2019.
- "Stacked Denoising Extreme Learning Machine Autoencoder based on Graph Embedding for Feature Representation" – H. Ge, W. Sun, **M.Z.** & Y. Yao @ IEEE Access, 2019.
- "An Interactive Many Objective Evolutionary Algorithm with Cascade Clustering & Reference Point Incremental Learning" – H. Ge*, **M.Z.***, L. Sun, Z. Wang, G. Tan, Q. Zhang & C.L.P. Chen @ IEEE Transactions on Evolutionary Computation, 2018.

PAPERS (NON-ARCHIVAL) & SOFTWARE TOOLS

- "Training Matters: Unlocking Potentials of Deeper Graph Convolutional Neural Networks" – S. Luan*, **M.Z.***, X.W. Chang & D. Precup @ ArXiv.
- "Complete the Missing Half: Augmenting Aggregation with Diversification for Graph Convolutional Networks" – S. Luan*, **M.Z.***, C. Hua*, X.W. Chang & D. Precup @ AAAI 2021, under review.
- "Generalizable Meta-Heuristic based on Temporal Estimation of Rewards for Large Scale Blackbox Optimization" – **M.Z.***, H. Ge*, Y. Lian & K. Zhang @ ArXiv.
- "SOOPLAT: An Experimental Platform for Single Objective Optimization" **– M.Z.** @ GitHub, 2018.

PATENTS

- "Fast Dichotomic CNN for Hierarchical Traffic Sign Identification" – H. Ge, **M.Z.**, X. Yang @ SIPO, 2018
- "Peach Flesh Segmentation with Deep Reinforcement Learning" – H. Ge, **M.Z.**, J. Lin, L. Sun @ SIPO, 2018.

BEYOND RESEACH

McGill University, Teaching Assistant (Numerical Computing, COMP 350)	2019, 2020
CIFAR Deep Learning & Reinforcement Learning Summer School	2019, 2020
Neusoft Dalian, Research Engineer Intern	2016, 2017

HONORS & AWARDS

Master:

DeepMind Graduate Award (2019).

Graduate Mobility Award (2019).

Undergraduate:

Scholarships for Academic Excellence for each undergraduate school year (2015 - 2018).

Outstanding Bachelor Thesis (2018).

Outstanding Student Researcher of the Year (2018).