

# Mingde "Harry" Zhao



Better humanity via the meaningful studies of artificial intelligence!

## BASICS

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Address: Montréal, Québec, Canada

Home Page: [mingde.world](http://mingde.world)

Languages: English (native), Mandarin (母语), French (élémentaire)

## RESEARCH INTERESTS

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Essence of Learning Cognition, System 2 (Consciousness), Reinforcement Learning, Meta-Learning

Techniques Geometry, Optimization, Theories of Machine Learning, Linear Algebra

## EDUCATION

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Doctor of Philosophy, Computer Science 2020 – Now

[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](#), CGPA: 4.0/4.0; Advisors: [Doina Precup](#) & [Xiaowen Chang](#) (McGill)

Bachelor of Engineering, Computer Science & Technology 2014 – 2018

[Dalian University of Technology](#), GPA: 90.0%+; Advisor: Hongwei Ge

## PAPERS (CONFERENCE)

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- "[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, M.Z., 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](#).
- "[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](#).

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\* Equal Contributions

## PAPERS (JOURNAL)

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- *"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

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- *"A Consciousness-Inspired Planning Agent for Model-Based Reinforcement Learning"* - **M.Z.\***, Z. Liu\*, S. Luan\*, S. Zhang\*, D. Precup, Y. Bengio @ [NeurIPS 2021](#), submitted for review. Also on arXiv.
- *"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 @ arXiv.
- *"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

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- *"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


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McGill University, Teaching Assistant (COMP 350, COMP 424)	2019, 2020, 2021
<a href="#">CIFAR Deep Learning &amp; Reinforcement Learning Summer School</a>	2019, 2020
<a href="#">Neusoft Dalian</a> , Research Engineer Intern	2016, 2017

## HONORS & AWARDS

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### Ph.D.:

[FRQNT](#) Ph.D. Fellowship (*ranked 1st among all applicants, 2021*) [Québec](#) 

### 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).