

# Mingde "Harry" Zhao



Better humanity via the meaningful studies of artificial intelligence!

## BASICS

---

**Email:** [mingde.zhao@outlook.com](mailto:mingde.zhao@outlook.com)      **Address:** Montréal, Québec, Canada

**Home Page:** [mingde.world](http://mingde.world)      **Language:** 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](#) (Mila, DeepMind, McGill) & [Yoshua Bengio](#) (Mila, UdeM)

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

[Mila](#) / [McGill University](#), CGPA: 4.0 / 4.0

Advisors: [Doina Precup](#) & [Xiao-Wen Chang](#) (McGill)

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

[Dalian University of Technology](#), GPA: 90.0%+

## PAPERS (CONFERENCE)

---

- "[META-Learning State-based Eligibility Traces for More Sample-Efficient Policy Evaluation](#)" – **Mingde Zhao\***, Sitao Luan\*, Ian P. Porada\*, Xiao-Wen Chang and Doina Precup @ [AAMAS 2020](#). \*: Equal Contribution.
- "[Break the Ceiling: Stronger Multi-scale Deep Graph Convolutional Networks](#)" – Sitao Luan\*, **Mingde Zhao\***, Xiao-Wen Chang, Doina Precup @ [NeurIPS 2019](#). \*: Equal Contribution.
- "[Exploring Overall Contextual Information for Image Captioning in Human-Like Cognitive Style](#)" - Hongwei Ge, Zehang Yan, Kai Zhang, **Mingde Zhao** and Liang Sun @ [ICCV 2019](#).
- "[Two-stage Automatic Image Annotation Based on Latent Semantic Scene Classification](#)" – Hongwei Ge, Kai Zhang, Yaqing Hou, Chao Yu, **Mingde Zhao**, Zhen Wang, Liang Sun @ [IJCNN 2020](#).
- "[Strategy Selection in Complex Game Environments based on Transfer Reinforcement Learning](#)" – Hongwei Ge, **Mingde Zhao**, Kai Zhang and Liang Sun @ [IJCNN 2019](#).
- "[Multi-Grained Cascade AdaBoost Extreme Learning Machine for Feature Representation](#)" – Hongwei Ge, Weiting Sun, **Mingde Zhao**, Kai Zhang, Liang Sun and Chao Yu @ [IJCNN 2019](#).
- "[A Selective Ensemble Learning Framework for ECG-Based Heartbeat Classification with Imbalanced Data](#)" - Hongwei Ge, Keyi Sun, Liang Sun, **Mingde Zhao**, and Chunguo Wu @ [BIBM 2018](#).
- "[A Many Objective Evolutionary Algorithm with Fast Clustering and Reference Point Redistribution](#)" - **Mingde**

Zhao, Hongwei Ge, Hongyan Han and Liang Sun @ [CEC 2018](#).

## PAPERS (JOURNAL)

- ["A Two-Engine Interaction Driven Many-Objective Evolutionary Algorithm with Feasibility-Aware Adaptation"](#) – **Mingde Zhao**, Hongwei Ge, Kai Zhang and Yaqing Hou @ [Applied Soft Computing](#), 2019.
- ["Stacked Denoising Extreme Learning Machine Autoencoder based on Graph Embedding for Feature Representation"](#) - Hongwei Ge, Weiting Sun, **Mingde Zhao** and Yao Yao @ [IEEE Access](#), 2019.
- ["An Interactive Many Objective Evolutionary Algorithm with Cascade Clustering and Reference Point Incremental Learning"](#) - Hongwei Ge\*, **Mingde Zhao\***, Liang Sun, Zhen Wang, Guozhen Tan, Qiang Zhang and C. L. Philip Chen @ [IEEE Transactions on Evolutionary Computation](#), 2018. \*: Equal Contribution.

## PAPERS (NON-ARCHIVAL) & SOFTWARE TOOLS

- ["Training Matters: Unlocking Potentials of Deeper Graph Convolutional Neural Networks"](#) – Sitao Luan\*, **Mingde Zhao\***, Xiao-Wen Chang, Doina Precup @ [NeurIPS 2020](#), under review. \*: Equal Contribution.
- ["Complete the Missing Half: Augmenting Aggregation Filtering with Diversification for Graph Convolutional Networks"](#) – Sitao Luan\*, **Mingde Zhao\***, Chenqing Hua\*, Xiao-Wen Chang, Doina Precup, [NeurIPS 2020](#), under review. \*: Equal Contribution.
- ["Generalizable Meta-Heuristic based on Temporal Estimation of Rewards for Large Scale Blackbox Optimization"](#) - **Mingde Zhao\***, Hongwei Ge\*, Yi Lian and Kai Zhang @ arXiv. \*: Equal Contribution.
- ["SOOPLAT: An Experimental Platform for Single Objective Optimization"](#) - **Mingde Zhao** @ [GitHub](#), 2018.

## PATENTS

- ["Fast Dichotomic CNN for Hierarchical Traffic Sign Identification"](#) - Hongwei Ge, **Mingde Zhao**, Xin Yang @ [SIPO](#) (National Patent Office of China), Oct. 2018
- ["Peach Flesh Segmentation with Deep Reinforcement Learning"](#) - Hongwei Ge, **Mingde Zhao**, Jiaojiao Lin, Liang Sun @ [SIPO](#), Jun. 2018.

## BEYOND STUDYING & RESEACH

McGill University, Teaching Assistant (Numerical Computing, COMP 350)	2019, 2020
<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

### 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).