

ZHENG HE

Email: zhhe@cs.ubc.ca

Homepage: <https://he-zh.github.io>

EDUCATION

University of British Columbia (UBC)

PhD track student in Computer Science

Sept. 2023 to May 2028 (Expected)

Department of Computer Science

- Advisor: Prof. Danica J. Sutherland

Beihang University (BUAA)

Master of Science in Control Science and Engineering

Sept. 2020 to Jan. 2023

School of Automation Science and Electrical Engineering

- Advisor: Prof. Zengchang Qin

- GPA: 86/100

- Coursework: Optimization Methods, Matrix Theory, Pattern Recognition and Machine Learning, Artificial Intelligence

Beihang University (BUAA)

Bachelor of Engineering in Safety Engineering

Sept. 2016 to June 2020

School of Reliability and System Engineering

- GPA: 3.64/4.0 (4th/24), Outstanding Graduate of Beihang University

- Coursework: Advanced Mathematics, Linear Algebra, Probability and Statistics, C Programming, Signal Processing

PUBLICATIONS

[1] Z. He, Z. Xie, Q. Zhu, Z. Qin. Sparse Double Descent: Where Network Pruning Aggravates Overfitting. ICML 2022.

[2] Y. Zhou, Z. He, T. Wan, Z. Qin. Random Neural Graph Generation with Structure Evolution. ICONIP 2021 (Oral).

RESEARCH EXPERIENCE

Smart Healthcare Group, Shanghai Artificial Intelligence Laboratory

July 2023 to Aug. 2023

- **Learning from multiple distributions.** Medical datasets are usually from various sources, which exhibit varying label distributions influenced by medical practices and diagnostic criteria. Addressed the imbalance problem among different data sources and positive-negative labels by reweighting and improved model performance.

Cognitive Computing Lab, Baidu Research

Nov. 2021 to Apr. 2023

- **Quantized label learning.** Real-world data often contain intrinsic ambiguity. Learning from ambiguous data with hard labels leads to poor generalization. We formulated this problem as *Quantized Label Learning* (QLL) and introduced a novel risk estimator, which surpassed popular label-noise-robust methods. This work led to one submission.

Intelligent Computing and Machine Learning Lab, BUAA

Sept. 2019 to Jan. 2023

- **Double descent in sparse neural networks.** Empirically demonstrated the existence of *sparse double descent* phenomenon in the context of network pruning. Analyzed this phenomenon from perspectives of loss landscape and generalization measures, where the distance from initialization is found to be highly correlated [1].
- **Neural network topology exploration.** Analysed the relationship between network topology and optimization performance of dynamically wired neural networks. Demonstrated the changing tendency of network topology during the early phase of training [2].

SKILLS

English Proficiency	TOEFL iBT 102, R29/L29/S21/W23 GRE 325, V155/Q170/AW3.0
Programming Languages	Python (proficient), MATLAB (familiar), C (familiar)
Machine Learning Tools	Pytorch, PaddlePaddle, TensorFlow, Scikit-Learn
Others	LaTeX, Git, Docker

HONORS AND AWARDS

- Academic Scholarship (Thrice), Beihang University 2020 to 2023
- First-class Scholarship (8%, Twice), Beihang University 2017 to 2019
- Weimin Yang Scholarship (6%, Twice), Beihang University 2017 to 2019
- Second Prize, the 10th National College Students Mathematics Competition (Beijing area) Nov. 2018
- Third Prize, the 34th College Physics Competition (Beijing area) Dec. 2017