Zangwei Zheng

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Education

National University of Singapore Aug. 2021 – Jun. 2025 (expected)
Ph.D. in Computer Science, supervised by Prof. Yang You *Singapore*

Nanjing University Sep. 2017 – Jun. 2021
B.S. in Computer Science and Technology, National Elite Program of Computer Science *Jiangsu, China*

- **GPA:** 4.61/5.00 (92.2/100, top 2%)

Research Interest

Efficient Machine Learning: computation-efficient training (accelerated optimizer, large batch training, incremental training), memory-efficient training, efficient inference.
Large-scale Deep Learning Optimization: optimizer design (faster, robust, memory-efficient, etc.), optimizer explanation, data-model-algorithm connections.

Academic Research Experience

National University of Singapore (HPC-AI Lab) May 2019 – Present
Ph.D. student, supervised by Prof. Yang You *Singapore*

- Large language model inference acceleration by predicting response length and sequence scheduling.
- Continual learning of vision-language model to prevent zero-shot performance degradation.
- Acceleration of recommendation system training by large batch training.
- Introduce prompt learning for domain generalization with vision transformer.

University of California, Berkeley (iCyPhy, DOP Center) Apr. 2020 – May 2021
Research intern, supervised by Prof. Alberto Sangiovanni-Vincentelli & Dr. Xiangyu Yue *(remote) CA, US*

- Few-shot Domain Adaptation via Self-supervised Learning with Clustering
- Proposed scene-aware learning with better backbones and data augmentations for radar object detection.

Industry Research Experience

ByteDance Jun. 2021 – Jun. 2022
Research intern, in charge of large batch training for click-through rate prediction model *Singapore*

- Transformed the asynchronous CTR training model into the large-scale synchronous training framework.
- Deployed CowClip algorithm with batch size 512k and improved the AUC of CTR prediction (**AAAI 2023**).

Publications

* denotes equal contribution.

1. **Response Length Perception and Sequence Scheduling: An LLM-Empowered LLM Inference Pipeline** Zangwei Zheng, Xiaozhe Ren, Fuzhao Xue, Yang Luo, Xin Jiang, Yang You **Neurips 2023**
2. **To Repeat or Not To Repeat: Insights from Scaling LLM under Token-Crisis**
   Fuzhao Xue, Yao Fu, Wangchunshu Zhou, Zangwei Zheng, Yang You **Neurips 2023**
3. **Preventing Zero-Shot Transfer Degradation in Continual Learning of Vision-Language Models**
   Zangwei Zheng, Mingyuan Ma, Kai Wang, Ziheng Qin, Xiangyu Yue, Yang You **ICCV 2023**
4. **A Study on Transformer Configuration and Training Objective**
   Fuzhao Xue, Jianghai Chen, Aixin Sun, Xiaozhe Ren, Zangwei Zheng, Xiaoxin He, Yongming Chen, Xin Jiang, Yang You **ICML 2023**
5. **CAME: Confidence-guided Adaptive Memory Efficient Optimization** Yang Luo, Xiaozhe Ren, Zangwei Zheng, Xin Jiang, Zhuo Jiang, Yang You **Distinguished Paper Award (0.8%), ACL 2023**
6. **CowClip: Reducing CTR Prediction Model Training Time from 12 hours to 10 minutes on 1 GPU** Zangwei Zheng, Pengtai Xu, Xuan Zou, Da Tang, Zhen Li, Chenguang Xi, Peng Wu, Leqi Zou, Yijie Zhu, Ming Chen, Xiangzhuo Ding, Fuzhao Xue, Ziheng Qing, Youlong Cheng, Yang You **Distinguished Paper Award (0.1%), AAAI 2023**

7. **Prototypical Cross-domain Self-supervised Learning for Few-shot Unsupervised Domain Adaptation** Xiangyu Yue*, Zangwei Zheng*, Shanghang Zhang, Yang Gao, Trevor Darrell, Kurt Keutzer, Alberto Sangiovanni-Vincentelli **CVPR 2021**
8. **Scene-aware Learning Network for Radar Object Detection** Zangwei Zheng, Xiangyu Yue, Kurt Keutzer, Alberto Sangiovanni Vincentelli **ICMR-W 2021**

PREPRINTS

1. **InfoBatch: Lossless Training Speed Up by Unbiased Dynamic Data Pruning** Ziheng Qin, Kai Wang, **Zangwei Zheng**, Jianyang Gu, Xiangyu Peng, Daquan Zhou, Yang You **arXiv:2303.04947**
2. **Prompt vision transformer for domain generalization** **Zangwei Zheng**, Xiangyu Yue, Kai Wang, Yang You **arXiv:2208.08914**
3. **Sparse-MLP: A Fully-MLP Architecture with Conditional Computation** Yuxuan Lou, Fuzhao Xue, **Zangwei Zheng**, Yang You **arXiv:2109.02008**
4. **Multi-source Few-shot Domain Adaptation** Xiangyu Yue, **Zangwei Zheng**, Hari Prasanna Das, Kurt Keutzer, Alberto Sangiovanni Vincentelli **arXiv:2109.12391**

SKILLS

Languages Python, C, C++, LaTeX
Frameworks PyTorch, TensorFlow, Huggingface, OpenCV, Scikit-learn, NumPy