Guowei Zhang

+86 138 1176 2159 | zgw21@mails.tsinghua.edu.cn | GitHub | Beijing, China

Education

Tsinghua University **Sep. 2021 - Present**

Undergraduate at School of Software

- **Overall GPA:** 3.90/4.0
- **Selected Courses:** Advanced Topics in Linear Algebra (A^+), Introduction to Artificial Intelligence (A), Computer Organization Principle (A), Practice of Programming (A), Web Front-end Technology (A), Data Structure (A), Fundamentals of Digital Electronics (A), Physics (A), Introduction to Complex Analysis (A)

University of California, San Diego **Jun. 2024 - Sep. 2024**

Visiting Student at Department of Cognitive Science

Publications

(* *indicates equal contribution.*)

[1] Haowen Wang*, **Guowei Zhang***, Xiang Zhang, Zeyuan Chen, Haiyang Xu, Dou Hoon Kwark, Zhuowen Tu. Mousterian: Exploring the Equivalence of Generative and Real Data Augmentation in Classification. Submitted to *International Conference on Learning Representations*, 2025.

[2] Yuanchen Ju*, Kaizhe Hu*, **Guowei Zhang,** Gu Zhang, Mingrun Jiang, Huazhe Xu. Robo-ABC: Affordance Generalization Beyond Categories via Semantic Correspondence for Robot Manipulation. *European Conference on Computer Vision*, 2024.

Research Experiences

Effectiveness of Generative Data Augmentation **Jun. 2024 - Oct. 2024**

Advisor: Zhuowen Tu *Department of Cognitive Science, UCSD*

- With the increasing representational power of generative models, it is time to reconsider a key question in machine learning: How effectively can generative data augmentation enhance image classification performance?
- We investigated generative data augmentation in image classification by examining models trained solely on the internal dataset. Next, we provided quantifiable guidance regarding the size of generative data augmentation by internal and external data. Both areas have been under-explored in the past.
- We conducted extensive experiments on CIFAR-10 and ImageNet, alongside various curated synthetic datasets, to validate our conclusions.

Affordance Generalization for Robot Manipulation **Sep. 2023 - Jan. 2024**

Advisor: Huazhe Xu *IIIS, Tsinghua University*

- Enabling robotic manipulation that generalizes to out-of-distribution scenes is a crucial step toward open-world embodied intelligence.
- We proposed Robo-ABC, a novel framework to extract object interaction experience from human videos and transfer it to novel objects in a zero-shot manner.
- We designed a versatile pipeline that naturally enjoys the benefit of the increasing ability of foundation models, both in retrieving similar objects and capturing semantic correspondence.
- I experimented with various retriever encoders to identify the one capable of finding the most similar image in the affordance memory, and evaluated the performance of different baselines on our collected dataset.

Internship

Beijing YJK Building Software Co.,Ltd **Aug. 2023 - Sep. 2023**

Intern, Graphics Platform Department

- Participated in designing and developing a Qt-based architectural software.

Honors & Awards

[1] Science and Innovation Scholarship, Tsinghua University **Sep. 2024**

[2] Academic Excellence Scholarship, Tsinghua University **Sep. 2023**

[3] Comprehensive Excellence Scholarship, Tsinghua University **Sep. 2022**

Skills

Language: Chinese (native), English (TOEFL 109 [R29/L28/S24/W28], GRE 333 [V163/Q170/W3.5]).

Programming Skills: C/C++, Python, HTML+CSS, LaTeX, Assembly Language, Verilog.