

XINZI CAO

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EDUCATION

Sun Yat-sen University & Pengcheng Laboratory

Sept. 2022 – Present

Ph.D. in Computer Science

Guangzhou & Shenzhen, China

Supervisor: Prof. Yutong Lu & Prof. Yonghong Tian (Peking University)

Sun Yat-sen University

Sept. 2020 – Jul. 2022

M.S. in Computer Science

Guangzhou, China

South China Normal University

Sept. 2016 – Jul. 2020

B.S. in Software Engineering (Rank: Top 1%)

Guangzhou, China

PROJECTS

1. Generalized Category Discovery in Open World

Sep. 2023 – Present

Type: Research Project

Contents: Focused on recognizing known classes while discovering novel ones in unlabeled data.

- Solved the **Catastrophic Forgetting** problem in GCD to balance stability and plasticity (CVPR'24).
- Proposed **AllGCD** to leverage all unlabeled data effectively for robust category discovery (ICCV'25).
- Developed a **Margin-Aware** framework to debias prototypes for better generalized recognition (TCSVT'25).

Achievement: Published 3 first-author papers in CVPR, ICCV, and IEEE TCSVT.

2. Ascend NPU Kernel Generation with LLMs

Jun. 2024 – Jan. 2025

Type: Research Project at Pengcheng Laboratory

Contents: Pioneered the application of LLMs for Huawei Ascend NPU kernel generation.

- Contributed the **first domain-specific dataset** for Ascend kernels.
- Implemented a robust training pipeline combining **Supervised Fine-Tuning (SFT)** and **Reinforcement Learning (RL)** to align the model for generating valid and efficient NPU code.

Achievement: One report and one paper under review by ACL 2026.

PUBLICATIONS

- [1] **Xinzi, Cao**, Jianyang Zhai, Pengfei Li, Zhiheng Hu, Cen Yan, Bingxu Mu, Guanghuan Fang, Bin She, Jiayu Li, Yihan Su, Dongyang Tao, Xiansong Huang, Fan Xu, Feidiao Yang, Yao Lu, Chang-Dong Wang, Yutong Lu, Weicheng Xue, Bin Zhou and Yonghong Tian. “AscendKernelGen: A Systematic Study of LLM-Based Kernel Generation for Neural Processing Units.” in *Arxiv*, 2026.
- [2] **Xinzi, Cao**, Feidiao Yang, Xiawu Zheng, Quanmin Liang, Yutong Lu*, Yonghong Tian. “Margin-Aware Prototype Debiasing for Generalized Category Discovery.” in *IEEE TCSVT*, 2025.
- [3] **Xinzi, Cao**, Ke Chen, Feidiao Yang, Xiawu Zheng, Yonghong Tian* and Yutong Lu*. “AllGCD: Leveraging All Unlabeled Data for Generalized Category Discovery.” in *ICCV*, pages 3293-3303, 2025.
- [4] **Xinzi, Cao**, Xiawu Zheng, Guan hong Wang, Weijiang Yu, Yunhang Shen, Ke Li, Yutong Lu* and Yonghong Tian*. “Solving the Catastrophic Forgetting Problem in Generalized Category Discovery.” in *CVPR*, pages 16880-16889, 2024.
- [5] **Xinzi, Cao**, Xiawu Zheng, Yunhang Shen, Ke Li, Jie Chen, Yutong Lu* and Yonghong Tian*. “LocLoc: Low-level Cues and Local-area Guides for Weakly Supervised Object Localization” in *ACMMM*, pages 5655-5664, 2023.

AWARDS & HONORS

SCHOLARSHIPS

- The National Scholarship

Oct. 2025