YANG CAO

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EDUCATION

The Hong Kong University of Science and Technology *2022.02 - present, PhD student*
Computer Science;   Superviser: Prof. Dan Xu.
Nankai University *2017.09 - 2020.07, Master*
Computer Science;   Superviser: Prof. Ming-Ming Cheng.
Xidian University   Telecommunication Engineering   *2013.09 - 2017.7, Bachelor*
Graduated as the outstanding graduate

PERSONAL STATEMENT

PhD student specializing in *Multi-Modal Learning, 3D Vision and Open-Vocabulary Perception*. Passionate about researching topics that are interesting and have real-world application potential.

PUBLICATIONS

Google Scholar Page with 3K+ citations

1.   3DGS-DET: Empower 3D Gaussian Splatting with Boundary Guidance and Box-Focused Sampling for 3D Object Detection, **Yang Cao**, Yuanliang Ju, Dan Xu. *Under review.*

The first work to introduce 3D Gaussian Splatting into 3D Object Detection, achieving improvements of **+6.6** on mAP@0.25 and **+8.1** on mAP@0.5 for the ScanNet dataset, and impressive **+31.5** on mAP@0.25 for the ARKITScenes dataset

2.   DreamOV3Det: Multi-modal Data Generation and Integration for Open-Vocabulary 3D Object Detection, **Yang Cao**, Yihan Zeng, Hang Xu, Dan Xu. *Under review.*

The first work to demonstrate the potential of incorporating multi-modal generation in the OV-3DDet task, significantly outperforms state-of-the-art approaches, achieving an AP_{Novel} of 13.39 vs. 9.17 on SUN-RGBD and 25.75 vs. 22.72 on ScanNet compared to the best existing competitor.

3.   CoDAv2: Collaborative Novel Object Discovery and Box-Guided Cross-Modal Alignment for Open-Vocabulary 3D Object Detection, **Yang Cao**, Yihan Zeng, Hang Xu, Dan Xu. *Under review.*

4.   CoDA: Collaborative Novel Box Discovery and Cross-modal Alignment for Open-vocabulary 3D Object Detection, **Yang Cao**, Yihan Zeng, Hang Xu, Dan Xu. *NeurIPS 2023.*

5.   Contrast Prior and Fluid Pyramid Integration for RGBD Salient Object Detection, Jia-Xing Zhao, **Yang Cao**, Deng-Ping Fan, Ming-Ming Cheng, Xuan-Yi Li, Le Zhang. *CVPR 2019.* (**Joint first author**)

6.   FakeMix Augmentation Improves Transparent Object Detection, **Yang Cao**, Zhengqiang Zhang, Enze Xie, Qibin Hou, Kai Zhao, Xiangui Luo, Jian Tuo. **Preprint**

7.   UNIT: Unifying Image and Text Recognition in One Vision Encoder, Yi Zhu, Yanpeng Zhou, Chunwei Wang, **Yang Cao**, Jianhua Han, Lu Hou, Hang Xu. *CVPR 2024.*

8.   Traffic Scene Parsing through the TSP6K Dataset, Peng-Tao Jiang, Yuqi Yang, **Yang Cao**, Qibin Hou, Ming-Ming Cheng, Chunhua Shen. *CVPR 2024.*

9.   Integral Object Mining via Online Attention Accumulation, Peng-Tao Jiang, Qi-Bin Hou, **Yang Cao**, Ming-Ming Cheng, Yun-Chao Wei, Hong-Kai Xiong. *ICCV 2019.*

10. EGNet: Edge Guidance Network for Salient Object Detection, Jia-Xing Zhao, Jiang-Jiang Liu, Deng-Ping Fan,**Yang Cao**, Ju-Feng Yang, Ming-Ming Cheng. *ICCV 2019.*

11. E-measure: Enhanced-alignment Measure for Binary Foreground Map Evaluation, Deng-Ping Fan, Cheng Gong, **Yang Cao**, Bo Ren, Ming-Ming Cheng, Ali Borji. *IJCAI 2018.*

RESEARCH/WORK EXPERIENCE

Huya Information Technology Co.,Ltd *2020.07 - 2022.2, Multimedia Technology Engineer-AI*
1. Research: Complete a paper for Transparent Object Detection task.
2. Project: Image Super-Resolution. Develop SR models for popular game lives. Provide a live streaming experience in 4K resolution.
3. Project: Model Compression. Compress the SR models to save half of cost.
4. Project: The first SDR2HDR model for LOL game live, applied at the League of Legends 2021 World Championship. Over 4.5 million users utilized my algorithm during the game finals.

Megvii Institute (also known as Face++) *2019.04 - 2019.07, Research intern*

Keypoint-based object detection.

HONOURS AND AWARDS

Huawei PhD Fellowship, Huawei Noah's Ark Lab

National scholarship, National encouragement scholarship, Ministry of Education of the People's Republic of China(**top 1%**)

The best freshman award, The S-level award, Huya Information Technoloy(**top 5%**)

Freshman Scholarship, Gongneng first-class scholarship, Nankai University

The first prize in the 14th Xidian Huawei Cup ACM/ICPC competition, Huawei Technology

The first prize of the 6th national college students mathematics preliminary competition, Chinese Mathematical Society(**top 5%**)

Excellent student, Excellent graduate, Xidian University(**top 5%**)

ACADEMIC SERVICE

Programme Committee for AAAI.
Reviewer for TPAMI, TIP, CVPR(2020-2024), ICCV 2023, ECCV 2024, ICRA(2023-2024), NeurIPS 2023, ICLR 2024, ICML 2024, MM 2024

TEACHING

Advanced Artificial Intelligence, Teaching Assistant - Fall 2023

Computer Vision, Teaching Assistant - Spring 2023