## Ziyu Jiang


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RESEARCH INTERESTS
Self Supervised Learning, Semantic Segmentation, Adversarial Robustness, Efficient Training, Indoor Scene Occlusion Reasoning

EDUCATION

**Texas A&M University**, TX, USA

**Ph.D. in Computer Science**, Jan 2019 - June 2023
- Advisor: Zhangyang Wang

**M.S. in Computer Science**, Aug 2017 - Dec 2018
- Advisor: Zhangyang Wang

**Harbin Institute of Technology**, Harbin, China

**B.E. in Electronic and Communication Engineering**, Sep 2013 - July 2017
- Thesis: Automatic License Plate Recognition System

PUBLICATIONS

**Ziyu Jiang**, Tianlong Chen, Bobak Mortazavi, Zhangyang Wang. Self-Damaging Contrastive Learning. International conference on machine learning (ICML). 2021. Acceptance ratio: 21%.

**Ziyu Jiang**, Zhenhua He, Xueqin Huang, Zibin Yang, Pearl Tan. CE-PeopleSeg: Real-time people segmentation with 10% CPU usage for video conference. 2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW). IEEE, 2021.

**Ziyu Jiang**, Tianlong Chen, Ting Chen, Zhangyang Wang. Robust Pre-Training by Adversarial Contrastive Learning. Advances in Neural Information Processing Systems (Neurips). 2020. Acceptance ratio: 20.1%.


**Ziyu Jiang**, Tianlong Chen, Ting Chen, Zhangyang Wang. Robust Pre-Training by Adversarial Contrastive Learning. Advances in Neural Information Processing Systems (Neurips). 2020. Acceptance ratio: 20.1%.


**Ziyu Jiang**, Buyu Liu, Samuel Schulter, Zhangyang Wang, Manmohan Chandraker. Peek-a-Boo: Occlusion Reasoning in Indoor Scenes With Plane Representations. Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2020 (**ORAL**). Acceptance ratio: 22%.

**Ziyu Jiang***, Yue Wang*, Xiaohan Chen*, Pengfei Xu, Yang Zhao, Yingyan Lin, Zhangyang Wang. $E^2$-Train: Training State-of-the-art CNNs with Over 80% Less Energy. Advances in Neural Information Processing Systems (Neurips) 2019. Acceptance ratio: 21.2%.

**Ziyu Jiang***, Wuyang Chen*, Zhangyang Wang, Kexin Cui, Xiaoning Qian. Collaborative Global-Local Networks for Memory-Efficient Segmentation of Ultra-High Resolution Images. Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2019 (**ORAL**). Acceptance ratio: 25%.

**Ziyu Jiang**, Kate Von Ness, Julie Loisel, Zhangyang Wang. ArcticNet: A Deep Learning Solution to Classify Arctic Wetlands. 2019 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW). IEEE, 2019.

**Ziyu Jiang***, Randy Ardywibowo*, Aven Samereh, Heather Evans, Bill Lober, Xiangyu Chang, Xiaoning Qian, Zhangyang Wang, Shuai Huang. A Roadmap for Automatic Surgical Site Infection (SSI) Detection and Evaluation using User-Generated Wound Images. Surgical infections (2019).

EXPERIENCE

**Research Intern Bytedance, Mountain View, CA** June 2020 - Nov 2020
Position: Research Assistant with Dr Linjie Yang

*Efficient semi-supervised video object segmentation*

- Explore efficient semi-supervised video object segmentation algorithm with SoTA performance

**Research Intern NEC laboratories america inc, San Jose, CA** June 2019 - August 2019
Position: Research Assistant with Dr Buyu Liu
*Peek-a-boo: Occlusion Reasoning in Indoor Scenes with Plane Representations*

- Extend Plane-RCNN to predict the occluded part of planes in indoor scenes with plane representation.
- Design a novel network architecture (DualRPN) and training objective (plane-warp) specifically designed for the task of occlusion reasoning.
- Generate ground truth of semantics and geometry in occluded areas automatically from the ScanNet dataset.
- Propose an evaluation metric for analyzing the prediction quality of occlusions.

**Texas A&M University, College Station, TX** Sep 2018 - Apr 2019
Position: Graduate Research Assistant with Dr Zhangyang Wang
*Collaborative Global-Local Networks for Memory-Efficient Segmentation of Ultra-High Resolution Images*

- Improving high resolution image segmentation performance by utilizing the high-resolution information in local image and the context information in global image.
- Achieving memory-efficient segmentation on high resolution image by processing local crop image with global resize image.
- Improving the performance of high imbalance image through a novel coarse-to-fine recognition method.

*ArcticNet: A Deep Learning Solution to Classify Arctic Wetlands*

- Improving the accuracy from 82.11% to 93.12% by fusing the RGB data with corresponding NIR/DEM/NDVI data.
- Proposed a novel augmentation method to solve the class imbalance problem.

**RoboMasters Competition** Sep 2016 - Aug 2017
*Leader of computer vision team*

- Developing an embedded vision program on robot. This program could recognize target automatically through the camera on the robot and calculate the spatial coordinate of the target to help the robot aim at it.
- Result: Our team was ranked $4^{th}$ in this competition which contains 234 competing teams and 7000 players from worldwide universities