Jialian Wu

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EDUCATION

Doctor of Philosophy, State University of New York at Buffalo, USA *Aug 2019 - June 2023*
Computer Science and Engineering
Advisor: Dr. Junsong Yuan
GPA: 3.89/4.0, Best Graduate Research Award, Best First Year Achiever Award

Graduate Study, Tianjin University, China *Sept 2018 - July 2019*
M.Eng. in Electronic Engineering
Left for University at Buffalo in Aug 2019 before finishing my degree

Bachelor of Engineering, Tianjin University, China *Sept 2014 - July 2018*
Electronic Engineering
GPA: 3.85/4.0 (90.94/100), Top 5%
Thesis: Multi-level Feature Fusion Network for Object Detection. (Outstanding Bachelor Thesis)

RESEARCH INTERESTS

Object understanding in videos and images including detection, segmentation, and tracking; Open-vocabulary/open-set object understanding with vision and language. I'm also interested in exploring other CV/VL/DL topics.

PUBLICATIONS

1. **Jialian Wu**, Jianfeng Wang, Zhengyuan Yang, Zhe Gan, Zicheng Liu, Junsong Yuan, and Lijuan Wang, "GRiT: A Generative Region-to-text Transformer for Object Understanding", *arXiv preprint*, 2022. [PDF] [Code] [Demo]

2. **Jialian Wu**, Sudhir Yarram, Hui Liang, Tian Lan, Junsong Yuan, Jayan Eledath, and Gerard Medioni, "Efficient Video Instance Segmentation via Tracklet Query and Proposal", in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2022. [Project Page] [PDF] [Demo]

3. **Jialian Wu**, Jiale Cao, Liangchen Song, Yu Wang, Ming Yang, and Junsong Yuan, "Track to Detect and Segment: An Online Multi-Object Tracker", in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2021. [Project Page] [PDF] [Code] [Demo] (500+ GitHub Stars)

4. **Jialian Wu**, Liangchen Song, Qian Zhang, Ming Yang, and Junsong Yuan, "ForestDet: Large-Vocabulary Long-Tailed Object Detection and Instance Segmentation", in *IEEE Transactions on Multimedia* (**TMM**), 2021. [PDF] [Code]

5. **Jialian Wu**, Chunluan Zhou, Ming Yang, Qian Zhang, Yuan Li, and Junsong Yuan, "Temporal-Context Enhanced Detection of Heavily Occluded Pedestrians", in *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2020. [PDF]

6. **Jialian Wu**, Liangchen Song, Tiancai Wang, Qian Zhang, and Junsong Yuan, "Forest R-CNN: Large-Vocabulary Long-Tailed Object Detection and Instance Segmentation", in *Proceedings of the ACM International Conference on Multimedia* (**ACM MM**), 2020. [PDF] [Code]

7. **Jialian Wu**, Chunluan Zhou, Qian Zhang, Ming Yang, and Junsong Yuan, "Self-Mimic Learning for Small-scale Pedestrian Detection", in *Proceedings of the ACM International Conference on Multimedia* (**ACM MM**), 2020. [PDF]

8. Sudhir Yarram, **Jialian Wu**, Pan Ji, Yi Xu, and Junsong Yuan, "Deformable VisTR: Spatio Temporal Deformable Attention for Video Instance Segmentation", in *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing* (**ICASSP**), 2022. [PDF]

9. Liangchen Song, **Jialian Wu**, Ming Yang, Qian Zhang, Yuan Li, and Junsong Yuan, "Stacked Homography Transformations for Multi-View Pedestrian Detection", in *Proceedings of the IEEE International Conference on Computer Vision* (**ICCV**), 2021. **(Oral)** [PDF]

10. Liangchen Song, **Jialian Wu**, Ming Yang, Qian Zhang, Yuan Li, and Junsong Yuan, "Handling Difficult Labels for Multi-label Image Classification via Uncertainty Distillation", in *Proceedings of the ACM International Conference on Multimedia* (**ACM MM**), 2021. [PDF]

11. Liangchen Song, **Jialian Wu**, Ming Yang, Qian Zhang, Yuan Li, and Junsong Yuan, "Robust Knowledge Transfer via Hybrid Forward on the Teacher-Student Model", in *Proceedings of the AAAI Conference on Artificial Intelligence* (**AAAI**), 2021. [PDF]

INDUSTRY RESEARCH EXPERIENCE

Applied Scientist Intern, Amazon — Aug 2022 - Oct 2022
Amazon Go Team, Mentors: Dr. Tian Lan, Dr. Hui Liang — *Seattle, WA, USA*

· *Project: Weakly Supervised Video Instance Segmentation*

Research Intern, Microsoft — May 2022 - Aug 2022
Microsoft Azure AI Team — *Redmond, WA, USA*

Mentors: Dr. Jianfeng Wang, Dr. Zhe Gan, Dr. Lijuan Wang, Dr. Zhengyuan Yang, Dr. Zicheng Liu
Project: Open-set and Descriptive Object Understanding with Vision and Language - **GRiT**([PDF][Demo]): 60.4 AP on COCO object detection; SOTA on VG dense captioning

Applied Scientist Intern, Amazon — May 2021 - Aug 2021
Amazon Go Team, Mentors: Dr. Tian Lan, Dr. Hui Liang — *Seattle, WA, USA*

· *Project: Video Instance Segmentation* - **EfficientVIS**([Project Page][Demo], CVPR 2022)

Research Intern, Horizon Robotics — May 2020 - Aug 2020
Autonomous Driving Perception Team, Mentor: Dr. Yu Wang — *Cupertino, CA, USA*

· *Project: Multi-Object Tracking* - **TraDeS**([Project Page][Demo], CVPR 2021): 500+ GitHub stars; SOTA on 4 tasks and 6 datasets.

Research Intern, Horizon Robotics — May 2018 - July 2019
Mentor: Dr. Qian Zhang — *Beijing, China*

· *Project: Occluded and Small Pedestrian Detection* - **TFAN**(CVPR 2020) [PDF], and **SML**(MM 2020) [PDF]

AWARDS & HONORS

1. CSE Best Graduate Research Award, State University of New York at Buffalo, 2022.
2. CSE Best First Year Achiever Award, State University of New York at Buffalo, 2020.
3. Outstanding Bachelor Thesis, Tianjin University, 2018.
4. Tianjin City Fellowship, 2016.
5. Merit Student Fellowship, Tianjin University, 2015/2016/2017

PROFESSIONAL SERVICES

Conference Reviewer: CVPR 2020/2021(outstanding reviewer)/2022, ICCV 2021, ECCV 2022, AAAI 2021/2022/2023, IJCAI 2021/2022, WACV 2021/2022, ICASSP 2021/2022, ACCV 2020, ICPR 2022

Journal Reviewer: IEEE Transactions on Image Processing, IEEE Transactions on Multimedia, IEEE Transactions on Circuits and Systems for Video Technology, Neurocomputing, Machine Vision and Applications, etc

Teaching Assistant:

- CSE573: Computer Vision and Image Processing, Fall 2019.
- CSE191: Discrete Structures, Spring 2020.