

# Jialian Wu

CSE Department, State University of New York at Buffalo, Buffalo, NY, USA

Email: [jialianw@buffalo.edu](mailto:jialianw@buffalo.edu) Homepage: <https://jialianwu.com> Google Scholar: [shorturl.at/gITV1](https://scholar.google.com/citations?user=shorturl.at/gITV1)

## EDUCATION

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**Doctor of Philosophy, State University of New York at Buffalo, USA** *Aug 2019 - Summer 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

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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

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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**, Chunlun 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**, Chunlun 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

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| <p><b>Applied Scientist Intern, Amazon</b><br/> <i>Amazon Go Team</i>, Mentors: Dr. Tian Lan, Dr. Hui Liang</p> <p>· <i>Project: Weakly Supervised Video Instance Segmentation</i></p> <p><b>Research Intern, Microsoft</b><br/> <i>Microsoft Azure AI Team</i></p> <p>Mentors: Dr. Jianfeng Wang, Dr. Zhe Gan, Dr. Lijuan Wang, Dr. Zhengyuan Yang, Dr. Zicheng Liu<br/> <i>Project: Open-set and Descriptive Object Understanding with Vision and Language - GRiT</i>(<a href="#">[PDF]</a><a href="#">[Demo]</a>): 60.4 AP on COCO object detection; SOTA on VG dense captioning</p> <p><b>Applied Scientist Intern, Amazon</b><br/> <i>Amazon Go Team</i>, Mentors: Dr. Tian Lan, Dr. Hui Liang</p> <p>· <i>Project: Video Instance Segmentation - EfficientVIS</i>(<a href="#">[Project Page]</a><a href="#">[Demo]</a>, CVPR 2022)</p> <p><b>Research Intern, Horizon Robotics</b><br/> <i>Autonomous Driving Perception Team</i>, Work with Dr. Yu Wang and Dr. Ming Yang</p> <p>· <i>Project: Multi-Object Tracking - TraDeS</i>(<a href="#">[Project Page]</a><a href="#">[Demo]</a>, CVPR 2021): 500+ GitHub stars; SOTA on 4 tasks and 6 datasets.</p> <p><b>Research Intern, Horizon Robotics</b><br/>         Work with Dr. Qian Zhang and Dr. Ming Yang</p> <p>· <i>Project: Occluded and Small Pedestrian Detection - TFAN</i>(CVPR 2020) <a href="#">[PDF]</a>, and <b>SML</b>(MM 2020) <a href="#">[PDF]</a></p> | <p>Sept 2022 - Oct 2022<br/> <i>Seattle, WA, USA</i></p> <p>May 2022 - Aug 2022<br/> <i>Redmond, WA, USA</i></p> <p>May 2021 - Aug 2021<br/> <i>Seattle, WA, USA</i></p> <p>May 2020 - Aug 2020<br/> <i>Cupertino, CA, USA</i></p> <p>May 2018 - May 2019<br/> <i>Beijing, China</i></p> |
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## AWARDS & HONORS

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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. First-class Entrance Fellowship, Tianjin University, 2018.
5. Tianjin City Fellowship, 2016.
6. Merit Student Fellowship, Tianjin University, 2015/2016/2017

## PROFESSIONAL SERVICES

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**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.