

# Jialian Wu

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## Current Employment

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**Computer Vision Researcher/Senior Engineer, Qualcomm, San Diego, CA** *June 2023 - Present*

## RESEARCH INTERESTS

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Vision and Language Models, Multimodal Large Language Models, Large Language Models, Video Understanding, Object Understanding

## Education

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**Doctor of Philosophy, State University of New York at Buffalo, USA** *Aug 2019 - June 2023*

Computer Science and Engineering

Advisor: Dr. [Junsong Yuan](#)

Best Graduate Research Award, Best First Year Achiever Award

Thesis: Language and Context Guided Object Analysis in Images and Videos

**Graduate Study, Tianjin University, China**

*Sept 2018 - July 2019*

M.Eng. in Information and Communication Engineering

Left for University at Buffalo in Aug 2019 before finishing my degree

**Bachelor of Engineering, Tianjin University, China**

*Sept 2014 - July 2018*

Electronic Information Engineering

GPA: 3.85/4.0 (90.94/100), Top 5%

Thesis: Multi-level Feature Fusion Network for Object Detection. (Outstanding Bachelor Thesis)

## 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. [\[PDF\]](#) [\[Code\]](#) [\[Demo\]](#) (250+ **GitHub Stars**)
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. [\[PDF\]](#) [\[Demo\]](#)
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. [\[PDF\]](#) [\[Code\]](#) [\[Demo\]](#) (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**, 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. Junyi Liu, Esha Naidu, **Jialian Wu**, Shira Gabriel, Edward Steinfeld, and Junsong Yuan, “Personalized Prediction of Indoor Comfort Using Graph Convolutional Matrix Completion”, in *Proceedings of the IEEE 5th International Conference on Multimedia Information Processing and Retrieval (MIPR)*, 2022. [\[PDF\]](#)
10. 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. [\(Oral\) \[PDF\]](#)
11. 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. [\[PDF\]](#)
12. 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 Internship 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<br/>         · <i>Project: Weakly Supervised Video Instance Segmentation</i></p>  | <p>Aug 2022 - Oct 2022<br/> <i>Seattle, WA, USA</i></p>   |
| <p><b>Research Intern, Microsoft</b><br/> <i>Microsoft Azure AI Team</i><br/>         Mentors: Dr. Jianfeng Wang, Dr. Zhe Gan, Dr. Lijuan Wang, Dr. Zhengyuan Yang, Dr. Zicheng Liu<br/> <i>Project: Multimodal Object Understanding with Language - GRiT <a href="#">[Demo]</a> (arxiv’22) (250+ GitHub Stars)</i></p> | <p>May 2022 - Aug 2022<br/> <i>Redmond, WA, USA</i></p>   |
| <p><b>Applied Scientist Intern, Amazon</b><br/> <i>Amazon Go Team</i>, Mentors: Dr. Tian Lan, Dr. Hui Liang<br/>         · <i>Project: Video Instance Segmentation - EfficientVIS <a href="#">[Demo]</a> (CVPR’22)</i></p>  | <p>May 2021 - Aug 2021<br/> <i>Seattle, WA, USA</i></p>   |
| <p><b>Research Intern, Horizon Robotics</b><br/> <i>Autonomous Driving Perception Team</i>, Mentor: Dr. Yu Wang<br/>         · <i>Project: Multi-Object Tracking - TraDeS <a href="#">[Demo]</a> (CVPR’21) (500+ GitHub Stars)</i></p>  | <p>May 2020 - Aug 2020<br/> <i>Cupertino, CA, USA</i></p> |
| <p><b>Research Intern, Horizon Robotics</b><br/>         Mentor: Dr. Qian Zhang<br/>         · <i>Project: Occluded and Small Pedestrian Detection - TFAN (CVPR’20), and SML (MM’20)</i></p>  | <p>May 2018 - July 2019<br/> <i>Beijing, China</i></p>    |

## AWARDS & HONORS

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1. [Best Graduate Research Award](#), CSE department, State University of New York at Buffalo, 2022.
2. [Best First Year Achiever Award](#), CSE department, 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

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**Conference Reviewer:** CVPR 2020/2021/2022/2024, ICLR 2024, ICML 2024, NeurIPS 2023, ICCV 2021/2023, ECCV 2022/2024, AAAI 2021/2022/2023, IJCAI 2021/2022, WACV 2021/2022, ICASSP 2021, etc

**Journal Reviewer:** IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Image Processing, IEEE Transactions on Multimedia, IEEE Transactions on Circuits and Systems for Video Technology, Neurocomputing, Machine Vision and Applications, Neurocomputing, The Visual Computer

### Teaching Assistant:

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