**Education**

**Ph.D. Candidate, State University of New York at Buffalo** 08/2019–Present

* Computer Science and Engineering
* Advisor: Dr. [Junsong Yuan](https://cse.buffalo.edu/~jsyuan/index.html)

**M.Eng. Study, Tianjin University** 09/2018–07/2019

* Electronic Information Engineering
* Advisor: Dr. [Yanwei Pang](https://scholar.google.com.hk/citations?user=dE-2UtsAAAAJ&hl=zh-CN)

(Left for University at Buffalo in July 2019 before finishing my degree)

**Bachelor of Engineering, Tianjin University** 09/2014–07/2018

* Electrical Information Engineering
* GPA: 3.85/4.0 (90.94/100)
* Rank: 5/84
* Thesis: Multi-level Feature Fusion Network for Object Detection. (Outstanding Bachelor Thesis)

**Research Interest**: Joint Multi-Object Detection Segmentation and Tracking; Pedestrian Detection and Object Detection in Still-Images and Videos; 3D Monocular Object Detection and Tracking

**Publication**

* ***Occluded Pedestrian Detection in Videos***: We propose to exploit less-occluded pedestrians from adjacent spatial-temporal space to aid the detection of heavily occluded pedestrians in current frame.

● **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.

* ***Large-Vocabulary and Long-tailed Object Detection***: We propose to build a forest classifier based on object relations, which can suppress the noisy logits existed in a fine-grained classifier.

● **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.

* ***Small-scale Pedestrian Detection***: We propose to utilize the features of large-scale pedestrians from the same neural network to help the feature learning of the small-scale pedestrians.

● **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.

* ***Knowledge Transferring****:* We propose a hybrid network forwarding scheme to transfer the knowledge encoded in a teacher network to a student network.

● 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.

**Submission**

* **Jialian Wu**, Jiale Cao, Liangchen Song, Yu Wang, Ming Yang, and Junsong Yuan, “Track to Detect and Segment: An Online Multi-Object Tracker”, submitted to CVPR 2021.
* **Jialian Wu**, Liangchen Song, Qian Zhang, Ming Yang, and Junsong Yuan, “Forest DetSeg: Large-Vocabulary Long-Tailed Object Detection and Instance Segmentation”, IEEE Transactions on Image Processing, under review.
* Liangchen Song, Ming Yang, **Jialian Wu**, Qian Zhang, Yuan Li, and Junsong Yuan, “Handling Difficult Labels for Multi-label Image Classification via Uncertainty Distillation”, IEEE Transactions on Image Processing, under review.

**Research Experience**

**Research Intern, Horizon Robotics, Silicon Valley, CA, USA** May – August, 2020

Autonomous Driving Perception Team, Mentor: Dr. [Yu Wang](https://scholar.google.com/citations?user=uNj2w9gAAAAJ&hl=en)

* Designed an online and real-time multi-object tracking model that is able to perform 2D box prediction, 3D box prediction, instance segmentation and data association (tracking). The designed model achieves state-of-the-art performance on the Nuscenes dataset (3D box tracking), MOT/MOTS dataset (2D box and instance mask tracking) and Youtube-VIS (instance mask tracking).

**Research Intern, Horizon Robotics, Beijing, China** May – September, 2018

Mentor: Dr. [Qian Zhang](https://scholar.google.com/citations?user=pCY-bikAAAAJ&hl=zh-CN)

* Implemented "Repulsion Loss: Detecting Pedestrians in a Crowd" with the FPN backbone network and achieved miss rate of 13.6% on the Cityperson dataset.
* Designed a multi-pedestrian aware network as well as a self-mimic learning technique, achieving the top-1 result on the test subset of Cityperson dataset.

**Others**

**Alibaba Cloud Tianchi Competition** April – May, 2019

* Ranked 30th / 2157 teams in China and 1st / 44 teams in Tianjin City.
* Achieved restricted object detection and segmentation in X-ray images.

**Object Detection for Autonomous Driving Ship, TJU Vision Intelligence Lab** March – May, 2018

* This project includes: 10,000 images and annotations collection, object detector implementation, interface and SDK design.

**National Innovation Project for Undergraduate Students** March – May, 2017

* Achieved pedestrian detection in foggy weather by using the traditional hog+svm detector with a hard example mining scheme.

**Awards**

* [Best CSE First Year Achiever Award](https://engineering.buffalo.edu/computer-science-engineering/people/hall-of-fame/graduate-student-award-recipients.html), State University of New York at Buffalo, 2020.
* Outstanding Bachelor Thesis, Tianjin University, 2018.
* First-class Entrance Fellowship, Tianjin University, 2018.
* Tianjin City Fellowship, 2016.
* Merit Student Fellowship, Tianjin University, 2017, 2016, 2015.

**Professional Services**

* **Teaching Assistant:**
* CSE573: Computer Vision and Image Processing, Fall 2019.
* CSE191: Discrete Structures, Spring 2020.
* **Reviewer**:
* Conferences: CVPR’21’20, AAAI’21, IJCAI’21, ACCV’20, WACV’21
* Journals: IEEE Transactions on Image Processing

**Computer Skills**

* Python, MXNET, PyTorch, LaTex, Linux