

Jialian Wu

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Education

Ph.D. Candidate, State University of New York at Buffalo

08/2019–Present

- Computer Science and Engineering
- Current GPA: 4.0/4.0
- Supervisor: Dr. [Junsong Yuan](#)

Graduate Study, Tianjin University

09/2018–07/2019

- Electronic Information Engineering
- Supervisor: Dr. [Yanwei Pang](#)

(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: 5th/84
- Thesis: Multi-level Feature Fusion Network for Object Detection. (Outstanding Undergraduate 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

- *Heavily Occluded Pedestrian Detection*: 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

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and Segment: An Online Multi-Object Tracker”, submitted to CVPR 2021.

- 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, San Francisco Bay Area, CA, USA May – August, 2020

Autonomous Driving Perception Team, Mentor: Dr. [Yu Wang](#)

- 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](#)

- 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.

Project Experience

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.

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

Awards

- 2015-2016, Tianjin City Fellowship.
- 2014-2015, 2015-2016, 2016-2017, Tianjin University Merit Student Fellowship.

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Computer Skills

- Python, MXNET, PyTorch, LaTeX, Linux