Jialian Wu

+1 (716) 817-3169 | jialianw@buffalo.edu

Education

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

- Major: Computer Science and Engineering
- Current GPA: 4.0/4.0
- Supervisor: Dr. Junsong Yuan

Graduate Study, Tianjin University 09/2018–07/2019

- Major: 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

- Major: Electronic 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: Pedestrian Detection and Object Detection in Still-Images and Videos; Joint Multi-Object Detection and Tracking; 3D Monocular Object Detection and Tracking

Publication

- *Heavily Occluded Pedestrian Detection*: Our solution is 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 *Proc. IEEE Conference on Computer Vision and Pattern Recognition* (CVPR), 2020.
- *Large-Vocabulary and Long-tailed Object Detection*: Our solution is to explore relations among object categories to build a classification forest so as to 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 *Proc. ACM International Conference on Multimedia* (ACM MM), 2020.
- *Small-scale Pedestrian Detection*: Our solution is 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 *Proc. ACM International Conference on Multimedia* (ACM MM), 2020.

Submission

- Liangchen Song, **Jialian Wu**, Ming Yang, Qian Zhang, Yuan Li, and Junsong Yuan, "Robust Knowledge Transfer via Hybrid Forward on the Teacher-Student Model", AAAI 2021, submission.
- 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.

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Research Experience

Research Intern, Horizon Robotics, San Francisco Bay Area, CA, USA May – August, 2020

Autonomous Driving Perception Team, Mentor: Dr. Yu Wang

- Improving state-of-the-art joint detection and tracking system based on anchor-free one-shot fashion.
- 3D monocular object detection system.

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'20, AAAI'21, IJICAI'21, ACCV'20, WACV'21
- Journals: IEEE Transactions on Image Processing

Awards

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

Computer Skills

- Python, MXNET, PyTorch, LaTex, Linux