Hao(Alex) Xiao

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Summary

- Current UW master student with computer vision and machine learning related internship experiences in startup.
- Professional skills in software engineering with various project experiences, especially in the field of computer vision.
- Familiar with different programming languages and development tools, self-motivated and hard-working

Education

M.S. in Electrical & Computer Engineering, University of Washington (UW) *Sep. 2017 - Dec. 2018, Seattle*

- GPA:3.90/4.0, Member of Information Processing Lab, Advisor: Prof. Jenq-Neng Hwang (IEEE Fellow)
- Selected Coursework: Data Structure, Statistic Learning, Computer Vision, Algorithm and Complexity, Artificial Intelligence

B.S. in Electrical & Computer Engineering, Shanghai Jiao Tong University (SJTU) *Sep. 2013 - Jun. 2017, Shanghai*

- Major GPA: 3.70/4.0, Ranking:15/176, Member of IVM Lab, Advisor: Prof. Weiyao Lin, Outstanding Graduate (10%) of SJTU

Skills

Interests : Computer Vision, Video/Image Processing, Machine Learning, Deep Learning, Autonomous Driving

Languages : C/C++, Python, Java, MATLAB **Tools** : OpenCV, Linux, Git, Vim, Bash, TensorFlow

Work Experiences

Machine Learning Intern in Perception Team @ TuSimple Inc. *Jun. 2018 - Sep. 2018, San Diego*

- Built an online **multi-sensor tracking** algorithm, which includes Lidar and cameras, that runs in real-time for an **autonomous truck**
- Utilized lane detection results and 3d map to do real-time camera pose estimation and tracking stabilization
- Created a regression test pipeline for better analyzing tracking results of different versions of tracking algorithm

Machine Learning & Computer Vision Intern @ Clobotics Co. *Jan. 2018 - May. 2018, Seattle*

- Refactored the model training setup by utilizing multiprocessing pool to reduce time at assembling data and cropping images
- Improved classification accuracy by using super-resolution technique to do **fine-grained classification** (more than 2000 types)
- Trained an end-to-end fine-grained classification model by combining image super-resolution and classification into a single model

Research & Projects

Research Assistant @ Information Processing Lab (IPL), UW *Sep. 2017 - Jun. 2017, Seattle*

- Realized a fully unsupervised online learning framework to achieve **multi-camera tracking** of people
- Designed multi-camera tracking of vehicle with a fusion of adaptive appearance, semantic features and comparison of license plates
- Participated in **NVIDIA AI City challenge 2018**, which held as a workshop at CVPR 2018, and achieved a superiority performance in both Track 1: Traffic Flow Analysis and Track 3: Multi-camera Vehicle Detection & Reidentification, among over 20 teams

Research Assistant @ Image, Video, and Multimedia Communication (IVM) Lab, SJTU *Sep. 2016 - Sep. 2017, Shanghai*

- Collected two challenging group re-identification datasets by applying social constraint structure learning to detect groups
- Developed a **multi-grain group re-identification** process which derives features for multi-grain objects and iteratively evaluates their importance to handle interferences from group dynamics
- Proposed a multi-order matching process by a personalized random walk scheme through a multi-order association graph, which integrates multi-grain information to obtain more reliable group matching results

Project Leader of an Intelligent Detection & Tracking System *Sep. 2016 - Dec. 2016, Shanghai*

- Achieved a real-time object detection system by training detection model based on YOLO, which can classify abnormal events
- Utilized graph matching algorithm based on confident tracklets to develop multiple object tracking algorithm
- Implemented a **real-time UAV-based intelligent tracking system** on video stream by combining detection and tracking algorithm

Group Leader @ Research Center of Intelligent Internet of Things (IIOT), SJTU *Sep. 2015 - Oct. 2016, Shanghai*

- Conducted the construction and maintenance of an academic search system: **Acemap**
- Adapted topic model to recognize the relationship between word topics and document topics, and applied for a patent: *Construction and Visualization of Heterogeneous Topic Web Based on Text Network*
- Designed a novel "interactive map" approach to visualize large-scale academic literatures and display the deep relationship among them

Publications

- **Hao Xiao**, W. Lin, B. Sheng, etc., "Group Re-Identification: Leveraging and Integrating Multi-Grain Information" in *ACM Multimedia*, 2018
- Z. Tang, G. Wang, **Hao Xiao**, A. Zheng and J.-N. Hwang, "Single-camera and inter-camera vehicle tracking and 3D speed estimation based on fusion of visual and semantic features" in *IEEE CVPR Workshop on the NVIDIA AI City Challenge*, 2018

Honors

Student Travel Grant, ACM Multimedia 2018 conference, funded by US National Science Foundation(NSF) Aug. 2018

Winner Team, Track 1 & Track 3 at the NVIDIA AI City Challenge Workshop at CVPR 2018 Jun. 2018

Academic Excellence Scholarship & Xin Dong Scholarship & National Endeavor Fellowship, SJTU 2013-2017

First Prize, Chinese Mathematical Olympiad & China Undergraduate Mathematical Contest in Modeling 2012-2013