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 Engineering, University of Washington (UW) *Sep. 2017 - Mar. 2019, Seattle*

- GPA:3.90/4.0, Member of Information Processing Lab, Advisor: Prof. Jenq-Neng Hwang (IEEE Fellow)

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

- Major Score: 87.5/100 , Major GPA: 3.7/4.0, Ranking:15/176, Outstanding Graduate of SJTU
- Selected Coursework: C++ programming, Data Structure, Statistic Learning, Computer Vision, Algorithm and Complexity

Skills

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

Languages : C/C++, Python, Java, MATLAB, SQL, JavaScript, HTML **Tools** : OpenCV, Linux, Git, Vim, Bash, TensorFlow, Azure, AWS

Work Experiences

Machine Learning Engineer Intern @ TuSimple Tech Co., Ltd *Jun. 2018 - Sep. 2018, San Diego*

- Working on solutions for online tracking algorithms that run in real-time of an autonomous vehicle

Machine Learning & Computer Vision Intern @ Clobotics Tech Co., Ltd *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 - present, 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 Anomaly Detection System *Sep. 2016 - Dec. 2016, Shanghai*

- Achieved a real-time object detection system by training detection model based on YOLO, which can classify normal and fallen people
- Utilized graph matching algorithm based on confident tracklets to develop multiple object tracking algorithm
- Implemented a **real-time intelligent tracking system** on video stream by combining detection and tracking algorithm, which can reliably detect abnormal events such as a person falling down in different scenarios and give real-time warning through a smartphone

Research Assistant @ 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

- **H. Xiao**, W. Lin, etc., "Group Re-Identification: Leveraging and Integrating Multi-Grain Information", Accepted in *ACM MM*, 2018
- Z. Tang, G. Wang, **H. 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" Accepted in *IEEE CVPR Workshop on the NVIDIA AI City Challenge*, 2018

Honors

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

Academic Excellence Scholarship & Xin Dong Scholarship & National Endeavor Fellowship, SJTU

National First Prize, Chinese Mathematical Olympiad & China Undergraduate Mathematical Contest in Modeling