

HANG GAO

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EDUCATION

- **UC Berkeley** Berkeley, CA
Full-time visiting research intern in Prof. Trevor Darrel's group May 2018 – Present
- **Columbia University** New York, NY
M.S. in Computer Science; Overall GPA: 4.1/4.0 Sep 2017 – Dec 2018 (Expected)
- **Shanghai Jiao Tong University (SJTU)** Shanghai, CN
B.E. in Information Security; Major GPA: 3.82/4.0, Rank: 2/82 Sep 2013 – Jul 2017
- **Carnegie Mellon University** Pittsburgh, PA
Full-time visiting research intern in Prof. Anind K. Dey's group Jul 2016 – Sep 2016

PUBLICATIONS

- **Low-shot Learning via Covariance-Preserving Adversarial Augmentation Network**
H. Gao, Z. Shou, A. Zareian, H. Zhang, SF. Chang. *Neural Information Processing Systems (NIPS) 2018.*
- **AutoLoc: Weakly-supervised Temporal Action Localization in Untrimmed Videos**
Z. Shou, H. Gao, L. Zhang, K. Miyazawa, SF. Chang. *European Conference on Computer Vision (ECCV) 2018.*
- **ER: Early Recognition of Inattentive Driving Events Leveraging Audio Devices on Smartphones**
H. Gao, X. Xu, J. Yu, Y. Chen, Y. Zhu, G. Xue, and M. Li. *IEEE International Conference on Computer Communications (INFOCOM) 2016.*
- **Distribution Modeling for Smart Citys Taxi Resources Allocation**
H. Gao, F. Qiu, N. Yang. *International Journal of Engineering Mathematics (Best Undergrad Paper), 2016.*

EXPERIENCE & PROJECTS

- **UC Berkeley, BAIR, Berkeley DeepDrive Lab** Berkeley, CA
Research Intern | Supervised by: Prof. Trevor Darrel May 2018 – Present
 - **High Quality Video Prediction:** Ongoing research topic. We aim to generate high quality video clips via motion constraints. Planning to submit to *CVPR'18*.
- **Columbia University, Digital Video Multimedia Lab** New York, NY
Research Assistant | Supervised by: Prof. Shih-Fu Chang Sep 2017 – May 2018
 - **Low-shot Learning via Covariance-Preserving GAN:** Proposed a novel GAN model to attack low-shot learning task via feature augmentation, achieved state-of-the-art performance on ImageNet. In submission to *NIPS'18*.
 - **Weakly-supervised Action Detection:** Proposed and implemented a YOLO-alike action detector for untrimmed video, achieved 200% mAP than previous strong baseline on ActivityNet. In submission to *ECCV'18*.
- **4 Paradigm Co., Group of Machine Learning and Algorithm** Beijing, China
Research Intern | Supervised by: Yuqiang Chen and Weiwei Tu May 2017 – Sep 2017
 - **Diabetes Prediction:** Inferred on a long-term-retrieved healthcare dataset consisting of 1m records for diabetes prediction, using Gradient Boosting Decision Tree (GBDT) on large clusters.
 - **Multi-task Learning:** Proposed a MTL-based GBDT algorithm which improved performance in all 21 subtasks using novel multi-task boosting techniques with sparse feature encoding.
- **Alibaba AI Lab, Group of Machine Learning** Hangzhou, China
Research Intern | Supervised by: Jichao Zhen Feb 2017 – May 2017
 - **Distributed Crawler System enabled of By-passing Firewalls:** Developed and deployed a highly distributed crawler system which would by-pass most of firewall blocking. Built up a dataset of personal information with more than 100 million records in less than two weeks.
 - **Lifelong Learning for Anomaly Detection:** Improved detection of abnormal user behaviors along with the data collection of crawlers. The model was able to discover new category during its life span.

- Google, Group of Ad Serving** Shanghai, China
Software Engineer | Supervised by: Yu Shen *Oct 2016 – Jan 2017*
 - Click-Through Rate (CTR) Prediction:** Proposed multi-stage strategy to maximize online performance by first using offline model ensemble, then building LR/FM on top of soft probabilities of base learners.
 - Variational Feature Compression:** Compress source feature space of sparse user information into a dense target representation, and populate them to understand user behaviors using Spatial Variational Auto-encoder.
- Carnegie Mellon University, Lab of Ubiquitous Computing** Pittsburgh, PA, USA
Research Intern | Supervised by: Prof. Anind K. Dey *Jul 2016 – Sep 2016*
 - Online Correction for Aggressive Drivers:** Built a smartphone-based online correction application for aggressive driver by predicting driving states sequence based on individual history and street information. According work has been submitted to UBIComp'18.
 - Object Detection & Semantic Segmentation:** Detect pedestrians and other contextual information within video stream and populate semantic segmentation by Faster R-CNN to boost correction performance
- Shanghai Jiao Tong University, Lab of Intelligent Perception** Shanghai, China
Research Team Leader | Supervised by: Prof. Minglu Li *Aug 2015 – Jul 2016*
 - Exclusively Audio-based System:** Eliminate restriction on smartphone posing as such in traditional Computer Vision methods by transferring raw sound signal into doppler representations.
 - Early Recognition:** Designed an early recognition algorithm by measuring distance between action points on feature space. Achieved over 90% accuracy using data of about half the gesturing duration.

HONORS & TEACHING

- Course Assistant, COMS 203 (Probability Theory and Statistics) 2017
- Best Graduate Thesis (~1%) of SJTU 2017
- Rong Chang Scholarship (5/80) for academic excellence of SJTU 2016
- Finalist Winner Prize (~1%) of Mathematical Contest in Modeling 2016
- Gold Medal (7/400) of China Undergraduate Mathematical Contest in Modeling 2015
- Chinese National Scholarship (~3%) 2015, 2016, 2017
- Silver Medal (10/370) of Intel International Science and Engineering Fair (ISEF) 2012

PROGRAMMING SKILLS

- Programming Languages:** Python, C++, C, Java, Bash, \LaTeX , SQL, HTML/CSS, JavaScript, C#, Verilog
- Libraries:** Pytorch, Tensorflow, Keras, Caffe, OpenCV, XGBoost, Scrapy, Django, Flask, Android
- Tools & Platforms:** Vim, Visual Studio, IntelliJ, TMUX, CMake, Redis, MongoDB, Hadoop, Docker, FPGA, git, ssh

EXTRACURRICULUM

- Shanghai International Marathon** Shanghai, China
Top 200 over more than 3000 participants consisting of fans, semi-pros, and professionals 2016
- weMet - Welcoming Gala for 2018er, SJTU** Shanghai, China
President director of the gala, taking charge of more than 80 people 2014
- Volunteer Society Nepal** Kathmandu, Nepal
Volunteer teacher in Chinese and Mathematics 2013