JI LIN

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EDUCATION

Tsinghua University Beijing, China
BEng in Electronic Engineering Aug 2014 – June 2018

- GPA: 91/100 (ranked in top 10% out of 262)
- China National Scholarship, Cai Xiong Scholarship, Comprehensive Scholarship
- Member of Spark Scientific and Technological Innovation Program, top 50 out of 3300 Tsinghua students.

University of California, Berkeley Berkeley, USA
Visiting student June 2017 – Nov 2017

- Visiting student at UC Berkeley Artificial Intelligence Research (BAIR) lab
- Advisor: Prof. Trevor Darrell and Prof. Sergey Levine

PUBLICATIONS

[1] **J. Lin**, D. Wang, D. Zhang, P. Krahenbuhl, T. Darrell, F. Yu, Deep 3D Vehicle Tracking using Region-based LSTMs, submitted to 2018 IEEE Conference on Computer Vision and Pattern Recognition (CVPR'18) [pdf]
[2] Y. Gao*, H. Xu*, **J. Lin**, F. Yu, S. Levine, T. Darrell, Reinforcement Learning from Imperfect Demonstrations, submitted to 2018 International Conference on Learning Representations (ICLR'18) [pdf]
[3] **J. Lin***, Y. Rao*, J. Lu, J. Zhou, Runtime Neural Pruning, in 2017 Conference on Neural Information Processing Systems (NIPS'17) [pdf]
[4] Y. Rao, **J. Lin**, J. Lu, J. Zhou, Learning Discriminative Aggregation Network for Video-based Face Recognition, in 2017 IEEE International Conference on Computer Vision (ICCV'17) (spotlight presentation) [pdf]
[5] **J. Lin**, L. Ren, J. Lu, J. Feng, J. Zhou, Consistent-aware Deep Learning for Person Re-identification in a Camera Network, in 2017 IEEE Conference on Computer Vision and Pattern Recognition (CVPR'17) (spotlight presentation) [pdf]
** Equal Contribution*

RESEARCH EXPERIENCE

Google Brain, Mountain View (Remote) Mountain View, USA
Research Assistant to Prof. Song Han, Assistant Professor at MIT EECS (to be) Nov 2017 – Now
Ongoing: Automatic Network Surgery with Reinforcement Learning

- Design a framework for automatic network compression (pruning & quantization) with reinforcement learning, to find the best trade-off between performance and inference speed / model size.
- Achieve required inference speed / model size by designing specific reward function.
- Discover efficient network structures from the surgery results.

University of California, Berkeley (Department of Computer Science) Berkeley, USA
Research Assistant to Professor Trevor Darrell, co-Director of Berkeley Artificial Intelligence Research (BAIR), Director of Berkeley's DeepDrive (BDD) June 2017 – Nov 2017
Deep 3D Vehicle Tracking with Synthetic Dataset

- Developed a novel method using a region-based recurrent tracking architecture that can obtain accurate 3D trajectories of moving vehicles from monocular dash cam videos.
- Hacked the GTA V game as a simulator for autonomous driving; collected a new large-scale dataset of visual observation and rich annotations, including 2D/3D bounding box, geo-information, tracking ID, etc.
- Submitted a paper to 2018 Computer Vision and Pattern Recognition (CVPR) conference

University of California, Berkeley (Department of Computer Science) Berkeley, USA
Research Assistant to Professor Trevor Darrell, co-Director of Berkeley Artificial Intelligence Research (BAIR), and Professor Sergey Levine June 2017 – Oct 2017
Learning from Imperfect Demonstrations with Reinforcement Learning

- Designed a unified framework based on soft Q-Learning and policy gradient that jointly learns from human demonstration and in-environment exploration, which greatly accelerates the overall learning process
- Addressed the problem of significant performance drop when switching to in-environment exploration. Be able to handle noisy demonstration data.
- Validated our method in TORCS and GTA V to show the effectiveness in driving tasks
- Submitted a paper to 2018 International Conference on Learning Representations (ICLR) conference

Tsinghua University (Department of Automation) Beijing, China
Research Assistant to Professor Jiwen Lu, Tsinghua Intelligent Vision Group (IVG) March 2017 – May 2017
Dynamical Network Pruning with Reinforcement Learning

- Developed a method to dynamically prune the neural network according to the difficulty of an input image at runtime, scalable to existing neural network structures.
- Modeled the pruning as a bottom-up, layer-by-layer MDP, solved by reinforcement learning. Addressed the problem of large action space and long trajectory.
- Proved the effectiveness of sample-specific inference. Achieved much better speed-accuracy tradeoff on CIFAR and ImageNet
- Paper accepted by NIPS'17 as first author

Tsinghua University (Department of Automation) Beijing, China
Research Assistant to Professor Jiwen Lu, Tsinghua Intelligent Vision Group (IVG) Jan 2017 – April 2017
Combine Adversarial Learning and Metric Learning for Efficient Video Face Recognition

- Developed an aggregation method that produces few high-quality images from redundant and noisy face videos
- Combined adversarial learning and metric learning to make the generated image realistic and discriminative in the feature space, which speeds up the recognition and improves accuracy
- Paper accepted by ICCV'17 as second author (spotlight presentation)

Tsinghua University (Department of Automation) Beijing, China
Research Assistant to Professor Jiwen Lu, Tsinghua Intelligent Vision Group (IVG) June 2016 – November 2016
Consistent-aware Deep Person Re-identification in a Camera Network

- Among the first attempts to address the inconsistency problem in multi-camera person re-identification
- Modeled multi-camera re-identification as an optimization problem and solved with gradient descent to eliminate the inconsistency, which also guides the back-propagation in the training phase
- Paper accepted by CVPR'17 as first author (spotlight presentation)

Tsinghua University (Department of Electronic Engineering) Beijing, China
Research Assistant to Professor Yu Wang, Tsinghua EE NICS lab, co-Founder of DeePhi Technology Nov 2015 – May 2016
Deep Learning Acceleration Framework for Mobile Low-Power Platform

- Developed hardware-based inference acceleration framework for mobile low-power platform, including cell phones, drones, etc.
- Coded with OpenCL to make use of mobile embedded GPU. Built up CPU & GPU pipeline for an efficient system. Achieved faster speed and better power efficiency
- Realized a significant speed-up (up to 50x) for CNN inference. Won third prize in IEEE LPIRC'16

WORK EXPERIENCE

SenseTime Group Limited (China's leading deep learning start-up) Beijing, China
Vision Researcher, Detection Team Jan 2017 – Apr 2017

- Developed algorithms on semi-supervised face detection, and more efficient training with large-scale dataset
- Explored efficient models for object detection (part of the results were deployed in real products).

SELECTED AWARDS AND HONORS

- China National Scholarship (highest level of scholarship set by the government of China)
- Cai Xiong Scholarship (top 10 out of 3300 Tsinghua students for excellent scientific potential)
- Spark Scientific and Technological Innovation Program (top 50 out of 3300 Tsinghua students)
- Third Prize in IEEE 2016 Low Power Image Recognition Challenge (LPIRC'16)
- Annual Academic Excellent Award, 2015-2017 (top ~5% out of 262 students)
- Annual Comprehensive Excellent Award, 2015-2017 (top ~5% out of 262 students)
- First Prize in 17th Electronic Design Contest, Tsinghua University (rank No.1 in 400 entrants)
- Scholarship of Freshmen 2014, Tsinghua University (top 10 in College Entrance Exam)

ADDITIONAL INFORMATION

- Extracurricular Activities: Photography Team of Tsinghua Student Art Troupe (Mar 2015 – now), Student Union of EE Dept. (2015), Student Union of Tsinghua University (2015)
- Programming Skills: Proficient in Python, C/C++, Matlab, Java, Caffe, PyTorch
- Languages: Mandarin Chinese (native), English (proficient)