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 (top 5% out of 262, awarded for outstanding academic performance and extracurricular achievement)
- Admitted to Spark Scientific and Technological Innovation Program, top 50 out of 3300 Tsinghua students.
- Admitted on basis of top-ranked performance on Tsinghua early decision admissions exam
- Visiting student at UC Berkeley Artificial Intelligence Research lab (summer 2017), assisted top professors with AI research

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)

[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)

[3] **J. Lin**, Y. Rao, J. Lu, J. Zhou, Runtime Neural Pruning, to appear on 2017 Conference on Neural Information Processing Systems (NIPS'17) [pdf]

[4] Y. Rao, **J. Lin**, J. Lu, 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]

RESEARCH EXPERIENCE

University of California, Berkeley (Department of Computer Science)   Berkeley, USA
Research Assistant to Professor Trevor Darrell, co-Director of Berkeley Artificial Intelligence   June 2017 – Present
Research (BAIR), Director of Berkeley's DeepDrive (BDD)
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 inner data, 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   June 2017 – Present
Research (BAIR), and Professor Sergey Levine
Learning from Imperfect Demonstrations with Reinforcement Learning
- Designed a unified framework based on Soft Q-Learning and Value 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 and multi-modality data
- Validated our method on Enduro, TORCS and GTA V to show the effectiveness on 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 method to dynamically prune the neural network according to the difficulty of 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
- Submitted a paper to 2017 Conference on Neural Information Processing Systems (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 single high-quality image from redundant and noisy face video
- Combining adversarial learning and metric learning to make the generated image realistic and discriminative in the feature space, which speeds up the recognition greatly 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   Nov 2015 – May 2016
of DeePhi Technology
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.
- Coding with OpenCL to make use of mobile embedded GPU. Building up CPU & GPU pipeline for efficient system. Achieved faster speed and 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   Beijing, China
Vision Researcher, Detection Team   Jan 2017 – Mar 2017
- China's leading deep learning startup
- Developed algorithm 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 (rand No.1 in 400 entrants)
- Scholarship of Freshmen 2014, Tsinghua University (top 10 in College Entrance Exam)

ADDITIONAL INFORMATION

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