SHICHEN LIU

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EDUCATION

University of Southern California Sep 2018 - Present
Ph.D. of Computer Science *Computer Science Department*
· **Adviser**: Prof. Hao Li

Tsinghua University, Beijing China Sep 2014 - Jun 2018
Bachelor of Engineering *School of Software*
· **GPA**: Overall: 88.8/100 (Major: 92.0/100) Ranking: 10/67 (Major: 6/67)

PUBLICATIONS

· Gao Huang*, **Shichen Liu***, Laurens van der Maaten, Kilian Weinberger. "CondenseNet: An Efficient DenseNet using Learned Group Convolutions". *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2018
· Yue Cao, Mingsheng Long, Jianmin Wang, **Shichen Liu**. "Deep Visual-Semantic Quantization for Efficient Image Retrieval". *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2017
· Yue Cao, Mingsheng Long, Jianmin Wang, **Shichen Liu**. "Collective Deep Quantization for Efficient Cross-Modal Retrieval". *AAAI Conference on Artificial Intelligence (**AAAI**)*, 2017

RESEARCH EXPERIENCE

Summer Research Intern at Department of Computer Science, Cornell University Jun 2017 - Oct 2017
Advisor: Kilian Q. Weinberger, Associate Professor

Project: CondenseNet – An Efficient DenseNet using Learned Group Convolutions
· Systematically analysed the importance of shortcut connections and sparse convolution structures, e.g. group convolution and depth-wise convolution, in efficient modern deep architectures.
· Designed dynamic connection pruning patterns for densely connections based on weight and an auxiliary group-lasso regularizer to minimize the pruning risk, resulting a sparse yet dense network (reduced 75% parameters).
· Achieved higher accuracy compared to MobileNet using 50% computation budget on ImageNet and CIFAR-10/100.

Undergraduate Research Assistant at Tsinghua University Jan 2016 - Present
Advisor: Mingsheng Long, Assistant Professor

Project: Domain Adaptation in Semantic Segmentation
· Designed selective learning mechanism to promote positive transfer in domain adaptation.
· Proposed selective cross-entropy loss and selective adversarial loss to avoid negative transfer.
· Experimented with GTA5 and SYNTHIA datasets and increased mIoU by 3% compared to baseline models.

Project: Deep Quantization for Efficient Cross-Modal Retrieval
· Optimized a novel adaptive cross-entropy loss on semantic similarity pairs to learn the cross-modal relations.
· Proposed quantization loss to compact data to bit-level for efficient storage and speedy retrieval.
· Experimented with NUS-WIDE and MIR-Flickr datasets and increased mAP by 10% compared to baseline models.

Project: Deep Transfer Learning with Joint Adaptation Networks
· Implemented Joint Maximum Mean Discrepancy(JMMD) which matches the joint distribution of feature and classifier.
· Discovered the benefit of JMMD and extended it to multiple JMMD to further boost the performance.
· Conducted comparative experiments on Office-Home and Image-Clef datasets and achieved 5% higher precision.

WORK EXPERIENCE

Sogou Corporation | Browser Developer Intern | Beijing Jun 2015 - Sep 2015
· Led a team of 4 members to implement Chinese optical character recognition algorithms, and incorporated in products.
· Employed a Python crawler program to collect images by keywords from the Internet as the training dataset.

Microsoft Asia | Software Development Intern | Beijing Dec 2017 - Apr 2018
· Help optimize the performance of visual recognition and understanding of xiao-ice software.

AWARDS

· Tsinghua University Scholarship (3/69) 2017
· Sensetime Scholarship (4/3000) 2017
· Qualcomm Scholarship (33/3000) 2016
· Tsinghua Technology Innovation Scholarship (1/69) 2015/2016
· First Prize of National Olympiad in Information Competition, Beijing City (78/1278) 2012

SKILLS AND INTERESTS

· Language: Native in Chinese (Mandarin), Fluent in English, Conversational Proficiency in Japanese
· Programming Language: Python, C/C++, Matlab, Haskell, Lisp, JavaScript, Lua and LaTeX
· Deep Learning Platform: Caffe, PyTorch, Torch, TensorFlow and MXNet