SHICHEN LIU

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EDUCATION

Tsinghua University, Beijing China Sep 2014 - Present
Bachelor of Engineering *School of Software*

- **GPA**: Overall: 88.8/100 (Major: 92.0/100) Ranking: 10/67 (Major: 6/67)
- **Core Courses**: Probability and Statistics (96)/ Calculus (92)/ Complex Variables Functions (95)/ Data Structure and Algorithm (93)/ Computer Network and Architecture (96)/ Principle of Compiler and Assembly Language (90)

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