ZHIYU LIANG

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EDUCATION

University of Toronto, Ontario, Canada *September 2015 - Present*
Honours Bachelor of Science, Computer Science Cumulative GPA: 3.84/4.00
Focus on Artificial Intelligence and Computer Vision Advanced year GPA: 3.97/4.00

RESEARCH AND INDUSTRY EXPERIENCE

Vector Institute *May 2019 - Present*
Research Intern

- Collected large-scale high-quality text data (12 billion word tokens)
- Implemented and trained large-scale Transformer-based language models (GPT-2) in Tensor2Tensor
- Automated distributed training setup and extensive model evaluations
- Researched on momentum optimization methods for training deep neural networks
- Supervised by Professor Jimmy Ba and Michael Zhang

Qualcomm Canada *May 2018 - April 2019*
Machine Learning Software Engineer

- Developed and trained quantization-friendly MobileNet for ImageNet dataset
- Researched on Knowledge Distillation for Image Recognition and Object Detection
- Researched on deep learning algorithms for Image De-noising using unpaired data
- Developed an Android App FaceBlock to protect privacy in photos and videos
- Published a NeurIPS Workshop paper on quantization-friendly MobileNet

St. Michael's Hospital (LKS-CHART) *September 2018 - May 2019*
Research Assistant

- Researched on nodule segmentation of lung CT scans
- Proposed and trained 3D UNet which achieved state-of-the-art accuracy
- Supervised by Professor Michael Guerzhoy and Chloe Pou-Prom

TEACHING

CSC343 Introduction to Databases *September 2017 - January 2018*
CSC320 Introduction to Visual Computing *January 2019 - May 2019*
CSC384 Introduction to Artificial Intelligence *January 2020 - May 2020*

PUBLICATIONS

Low Power Inference for On-Device Visual Recognition with a Quantization-Friendly Solution
Chen Feng, Tao Sheng, Zhiyu Liang, Shaojie Zhuo, Xiaopeng Zhang, Liang Shen, et al
Neural Information Processing Systems 2018 MLPCD 2
Montreal, Canada

2018 Low-Power Image Recognition Challenge
Sergei Alyamkin, et al
Computer Vision and Pattern Recognition 2018 LPIRC
Salt Lake City, Utah, United States

ACHIEVEMENTS / AWARDS

New College Student Council In-Course Scholarship *June 2019*

Recognition of overall academic achievement

Qualcomm Hack Mobile First Place *July 2018*

Best hackathon project out of 60+ participating teams and 250+ participants. Presented to the CEO of Qualcomm and judged by a panel of Executive VPs

IEEE Low Power Image Recognition Challenge First Prize *June 2018*

Achieved the highest image recognition accuracy under 30ms on SDM835 platform

New College Council In-Course Scholarship *September 2017*

Recognition of overall academic achievement

Dean's List Scholar *September 2016 - Present*

Awarded for maintaining a Cumulative GPA higher than 3.5 every year

PROJECTS

Quantization-friendly MobileNets Family *May 2018 - September 2018*

· Inspected the weights distribution of a post-training quantized MobileNet
· Removed BatchNorm & ReLU between Depthwise & Pointwise Convolution layers
· Substituted ReLU6 layers with ReLU layers
· Trained the Quantization-friendly MobileNet V2 using Knowledge Distillation (KD) method
· Automated model conversion for building quantized models
· Won 1st place on LPIRC 2018 by achieving the highest accuracy (65.2%) under 30ms time budget

FaceBlock *June 2018 - August 2018*

· Developed an Android app using Java, TensorFlow, Qualcomm SNPE to protect people's privacy in live video streams by detecting, tracking and blocking unwanted faces with a selected emoji in real time
· Won 1st place in Qualcomm Hack Mobile 2018 out of 60+ teams and 250+ participants

Fake News Detection *March 2018 - April 2018*

· Crawled news headlines as training data from Kaggle and other sources
· Applied lemmatization and Part-of-Speech tagging for feature extration
· Extracted 27 other features useful for sentiment analysis for each headline
· Trained a Random Forest (RF), MLP and AdaBoost classifiers which vote to produce predictions
· Won the 1st place out of 200+ submissions in the Fake News Challenge of CSC411/2515

SKILLS

Languages	Python, C/C++, Matlab, Java, Shell, Node.js, R
Frameworks	PyTorch, TensorFlow, Caffe, OpenCV, NumPy, spaCy, NLTK, Qualcomm SNPE