

# ZHIYU LIANG

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## EDUCATION

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### **Yale University**

*September 2021 - May 2022*

Master of Science in Computer Science

### **University of Toronto - St. George Campus**

*September 2015 - December 2019*

Honours Bachelor of Science with High Distinction, Computer Science

GPA: 3.84/4.00

Focus on Artificial Intelligence and Computer Vision

## EXPERIENCE

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### **Qualcomm**

*February 2020 - July 2021*

*Machine Learning Software Engineer*

*Markham, ON*

- Identified severe accuracy drop (74.7% lower) for 8-bit quantized Transformer models on Machine Translation tasks
- Developed a post-training quantization solution to recover the accuracy by 97.7%
- Developed quantization-friendly training techniques for Transformer models which achieves no loss in post-training quantization

### **Qualcomm**

*May 2018 - April 2019*

*Machine Learning Software Intern*

*Markham, ON*

- Collaborated on developing the Quantization-Friendly MobileNet, won the 1st prize in 2018 IEEE Low Power Image Recognition Challenge and published a NeurIPS Workshop paper
- Automated quantization process which reduced the time for the pipeline from 2 hours to 5 seconds
- Developed an Android App FaceBlock to protect privacy in photos and videos for Qualcomm 2018 HackMobile, featured in Qualcomm Developer Network and won the best hackathon project out of 60+ teams and 250+ participants.

## TEACHING

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**CSC384 Introduction to Artificial Intelligence**

*January 2020 - May 2020*

**CSC320 Introduction to Visual Computing**

*January 2019 - May 2019*

**CSC343 Introduction to Databases**

*September 2017 - January 2018*

## PUBLICATIONS

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### **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

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### **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 - December 2019*

Awarded for maintaining a Cumulative GPA higher than 3.5 every year

## PROJECTS

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### **FaceBlock**

- 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

### **iOS Weather App**

- Designed and implemented the app UI with automatic dark mode enabled
- Implemented core functionality following MVC and Delegate Design Pattern
- Implemented networking with OpenWeatherMap API and data parsing
- Implemented location based weather presenting

### **Fake News Detection**

- Crawled news headlines as training data from Kaggle and other sources
- Applied lemmatization and Part-of-Speech tagging for feature extraction
- 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

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### **Languages**

Python, Swift, C/C++, Matlab, Java, Shell, JavaScript, R

### **Frameworks**

PyTorch, TensorFlow, NumPy, OpenCV, Fairseq, Tensor2Tensor