GABRIEL(RUOZHEN) GU

4th Year Computer Science
University of Waterloo
Expected Graduation: **Sept. 2020**

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Skill PROFICIENCY

- **Language**: Python, C/C++, SQL (4 years); MATLAB, R, Bash (3 years); React, JavaScript, HTML/CSS (1.5 year)
- **Data System**: Hadoop, Tableau, Spark, MySQL, PostgreSQL, MongoDB, SPSS, Robot Operating System
- **Cloud**: Amazon Web Server (EC2, S3, Lambda, IAM, DynamoDB, APIs), Google Cloud ML Tools
- **Libraries**: Scikit-learn, Keras, Tensorflow, Pytorch, NLTK, OpenCV, Numpy, Pandas, D3.js, Matplotlib

WORKING EXPERIENCE

Autonomous Driving Engineer | Noah's Ark Lab | Toronto | Sept. 2019 - Dec. 2019

- Developed computer vision algorithm including ConvNets, RCNN, IntentNet to perform **object detection, segmentation, localization, classification, regression** through sensors and LIDAR in self-driving environment
- Implemented **LSTM network** to predict vehicle motion with **92% of precision** by extracting feature vectors of 3D point cloud and dynamic map from convolutional layers, which then feed into a LSTM encoder-decoder
- Optimized camera calibration processes and **replaced human labelling** with an algorithm that automatically identifies object's real-time orientation and rotation changes using python and robotic OS

Data Scientist | Ultimate Software | San Francisco Bay Area | Jan. 2019 - April. 2019

- Built a **machine learning** web **pipeline** with **500+** active internal users in **Python** with features including Bayesian Hyperparameter Tuning, Long-Short-Term-Memory (LSTM), A/B Testing and Web Deployment
- Developed a job resume ranking algorithm in Python using **CNN algorithm** and **learning to rank** approach, reducing prediction error by **17%** through L1/ L2 Regularization and Batch Norm
- Adopted **Attention based RNN** and **Transformer** models to identify 12 emotions on employee survey data

Software Engineer, Founder| SavourExp Mobile App | Waterloo | Feb. 2018 - Sept. 2018

- Led the Launch of a food delivery mobile app on Apple Store, **acquired 100+ customers** in the first week
- Optimized **order dispatch algorithm** using time/distance matrix and created **order tracking, review ranking and navigation systems** in **React** (front-end) and in **AWS** Cloud and **Python** (back-end)

GITHUB PROJECT

Voice Trigger Detection System | Feb. 2019

- Built a voice detection algorithm to trigger a specific response in Python by applying **Spectrogram** and **Fourier Transform** and loading voice synthesis dataset through **convolutional layer**

Harvard OS-161 Operating System | April. 2019 – July. 2019

- Implemented **Synchronization Primitives**, **Page Table, TLB** and **System Calls** in Harvard OS-161 Kernel

Web Feature Classification Algorithm | May. 2018

- Reduced 90% of human interaction by designing a machine learning algorithm to classify text, image and video data of web pages searched by Google using **Support Vector Machine** and **Naïve-Bayes**

Chess Game | July. 2018

- Developed Chess Game with AI features using **Objected-Oriented Programming** in **C++**

EDUCATION

Bachelor of Computer Science, *University of Waterloo*, ***Jan. 2016 – Sept. 2020***

- **Awards:** President's Scholarship, Exchange Scholarship, International Student Award
- **Courses:** Algorithm Design, Data Structure, Operating System, Distributed System, Database, Parallel Programming, Statistics/Probability, Linear Algebra, Artificial Intelligence