Hank Wu

519-721-9529 | hanksoftware@gmail.com | hank-w.github.io | Hank-W | Hank Wu

Experience

Royal Bank of Canada *Enterprise Application Software*
SOFTWARE DEVELOPER *September 2020 - Present, Internship*

- Building a CI/CD **Jenkins** pipeline with auto remediation using **Java** to automate deployment to **AWS** S3 buckets
- Developing feedback-based recommendation methods in **C++** through subsets of prefetches for **over 400 users**
- Creating **Scala** and **Spark** applications to perform data analysis and error detection across **hundreds of pipelines**
- Built a Slackbot using **Python** to help connect RBC employees virtually, **demoed to RBC CTO** and deployed to **production**

Maple Precision *Velocity Accelerator Startup*
SOFTWARE ENGINEER *January 2020 - April 2020, Part Time*

- Designed and built **layered search engine** with PageRank, login system, chat, user and project profile, used by **38 companies**
- Used **PostgreSQL**, Express.js, **Node.js**, and **React** for development. **AWS**, **Docker**, **Kubernetes** for hosting and deployment
- Migrated server side map rendering process from CPU to GPU, increased **CRI efficiency** by **176%**, decreased **runtime** by **59%**

Autonomous Vehicle Research and Intelligence Lab, University of Waterloo *Machine Learning Lab*
MACHINE LEARNING ENGINEER *May 2020 - August 2020, Research*

- Created a facial recognition **neural network** using **PyTorch** with optimized layer operations, backpropagation, genetic learning
- Built end-to-end data collection, training, inference pipeline with **network pruning** and **hyperparameter search**
- Generated **100,000 data points** by applying StackGAN on **Kaggle** datasets using **GCP** TPUs

Projects

Responsum - Educational Web Application
HTTPS://GITHUB.COM/HANK-W/RESPON_SUM *2019 - Present*

- Building a fullstack **web app** with live quizzing, **forums**, and database of learning resources for online classes
- **Currently used by of 135** University of Waterloo students, saving students and faculty a total of **$18,250 CDN**
- Designed **REST API** with **RAML**, using **MEAN stack** for development, automated API tests with **Postman**, Figma for UI/UX

Reach - Internet Access Through SMS
HTTPS://HANK-W.GITHUB.IO/REACH.HTML *2019*

- Built an automated program using **Node.js** to enable internet features through SMS
- Worked with **APIs from Google**, Yahoo, XE for features including directions, weather, news, web page text, currency conversion
- Hosted program on **Firebase** cloud servers, used **Twilio** to automate sending and receiving SMS text messages

QR-CNN – Quantum Computing Mask R-CNN
HTTPS://GITHUB.COM/HANK-W/QUANTUM-MASK-R-CNN *2020*

- Created and trained MASK R-CNN model on live vehicle footage to return **instance segmentation** with object tracking
- Integrated Qiskit with **PyTorch** to speed up model training **efficiency** by **310%** and model **runtime** by **90%**
- Applied **parameter binding** and **expectation value evaluation** to optimize tensorization of video frames

Hackathons

2020	**Winner**, Hack the Valley 4, awarded prize from Facebook, top 3/100 teams	*Scarborough*
2019	**Winner**, Hack The North, and won Deloitte coding challenge	*Waterloo*
2020	**Mentor**, StarterHacks, HobbyHacks, NWHacks, Brick Hack	*Remote*
2020	**1st place**, RBC Innovation Challenge, demoed to RBC CTO	*Remote*
2019	**1st place**, UWaterloo Engineering Competition, Senior Division	*Waterloo*

Skills

Languages Java · Python · C++ · JavaScript (ES6) · Scala · RAML · SQL

Technologies AWS · GCP · Firebase · MongoDB · PostgreSQL · Node.js · Git · Docker · Kubernetes · Django · REST API · GraphQL

Education

University of Waterloo *September 2019 - May 2023*
MECHATRONICS ENGINEERING, SOFTWARE SPECIALIZATION | GPA: 3.9 *Overloading 7 courses/term*
Relevant Coursework: Data Structures and Algorithms, C++ Programming, Systems Design