Hank Wu

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Experience

Maple Precision – Software Developer Intern
February 2020 - Present

- Developing **3D geospatial** topography maps and models through **quantized meshing** of databases of **lidar point clouds**, satellite imaging, and maps
- Building a mobile application version of the Maple Precision Web App, using **Objective-C** on **Swift** for IOS development and **Java** on **Android Studio** for Android OS development
- Utilizing **MongoDB**, Potree, Chart.js, **Amazon Web Services**, React, **Django**, **Java**, **Python**

Reach – Internet Access Through SMS
September 2019 - January 2020

- Built an automated program using **JavaScript** with **Node.js** that allows users to access the internet features through text messaging, including: Directions, Weather, News, Wikipedia Articles, Unit and Currency Conversion. Used **Google Maps and News APIs** and **Fixer API**
- Used **Google Firebase** to host my program on **cloud servers** to process and compute user request and **Twilio** to automatically send and receive SMS

Syrinx – Malignant Cyst Detector
January 2020 - Present

- Using **Tensorflow** and **NumPy** along with published medical MRI data sets to build an **neural network** to differentiate between a safe benign cyst and a harmful malignant cyst

Responsum – Educational Software
December 2019 - Present

- Building a Web App with surveying, forums, and live polling services for class as academic class representative on **UWaterloo Cloud Servers**. Using React, **HTML**, and **JavaScript**

Train μ – Machine Learning Sports Trainer
February 2020

- Built, trained, and ran a **machine learning model** to analyze sports footage and help users improve athletic form, achieving **top 3** out of over **100 teams** at Hack the Valley 4
- Used **TensorFlow** and Openpos for machine learning and dataset. Used **Python** and **Google Cloud Servers**, and **Django** for backend, and **JavaScript**, HTML, and **React** for frontend

Design Teams

Waterloop - SpaceX Hyperloop Team
September 2019 - Present

Linear Induction Motor Team Lead

- **Leading** a team of **over 25 students** prototyping, designing, and building a linear induction motor creating a new method of transportation to compete in the **Hyperloop Competition**
- Coordinating and working with a variety of teams to **integrate** software and hardware **subsystems** and create a full-sized functioning **linear induction motor (LIM)**
- Programming, configuring, and wiring **embedded systems** with Magnetometer, Hall Effect sensor, Digital Temperature sensor, and Accelerometer to collect data through trial runs
- Creating computer **simulations** of the LIM using **ANSYS** to apply **Maxwell's equations**

UWAFT - General Motors EcoCAR Team
September 2019 - Present

Connected Autonomous Vehicle Team Member

- Programming autonomous software using **C++** in **ROS** (Robot Operating System) on **Linux** to perform **sensor diagnostics** and **sensor fusion** to compete in the **EcoCAR Competition**
- Using **MATLAB** and **Simulink** to create **simulations** in order to test vehicle's autonomous capabilities and performance across all possible scenarios
- Processing **CAN bus** (Controller Area Network) data using **C++** data structures and algorithms in ROS to detect and counteract failures within **microcontrollers**, devices, and communication between control units in the vehicle system

Awards

1st Place
Waterloo Engineering Competition
(Senior Design 2019)

1st Place
Kwantlen Senior Science Challenge 2019

1st Place
Vancouver Math Olympiad 2018

Top 3/100 Teams
Hack the Valley 4 Hackathon 2020

B1 DELF Certificate
French Professional Working Proficiency

Toolkit

Native Speaker:
Java, Python, JavaScript, C++, C#, C, Firebase, PostgreSQL, Git, Docker, MongoDB, Django, Unix, Linux, Swift, Amazon Web Services, React, NodeJS

Conversationally Fluent:
Tensorflow, TypeScript, HTML5, Bash, ROS (Robot Operating Software), Keras, Redis, Flutter, Agile, Google Cloud Servers

Curious Tourist:
Postgres, WebGL, Potree, Chart.js, PyTorch, Agile, Entwine, AJAX, ANSYS

Education

University of Waterloo Mechatronics Engineering, Honours.
Sept. 2019 – Present

Intended Minors: Artificial Intelligence, Software Engineering
(Will be taking 7 courses per term)

Activities: Data Science Club, Model UN, Academic Class Representative, Residence Council Volunteer, Engineering Society Member

Scholarships: Loran Scholar Finalist, Waterloo President's Scholarship, BC District scholarship