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Avery Chiu

MECHATRONICS ENGINEERING STUDENT

EDUCATION

University of Waterloo *Waterloo, Ontario, Sept 2019 - Apr 2024*

Candidate for Bachelor of Applied Science in Mechatronics Engineering (GPA: **3.98**)

Important Courses:

- Algorithms and Data Structures
- Introduction to Computer Structures & Real-Time Systems
- Microprocessors and Digital Logic

WORK EXPERIENCE

Display Engineering Intern *Palo Alto, California, Sept 2021 - Dec 2021*

Tesla

- Developed the controls and path-planning algorithms to automatically calibrate and maneuver a 3-axis robot for touchscreen testing with **Python**
- Designed a GUI with **PyQt5** to interface with the touch robot, utilizing multi-threading to handles events, visualize the robot's movement, and display test results simultaneously

Computer Vision Undergraduate Research Assistant *Waterloo, Ontario, Apr 2021 - Sept 2021*

University of Waterloo Vision and Image Processing Lab

- Implemented Mask-RCNN, Faster-RCNN, and RetinaNET with **Detectron2** and **PyTorch** for disease detection in corn and compared the average precision/average recall of each model
- Created **Python** script to compute the average precision and recall of each image and output a PDF with a side-by-side comparison of the ground truth versus the predicted bounding boxes

Firmware Developer Intern *Ottawa, Ontario, Jan 2021 - Apr 2021*

Ford Motor Company

- Developed **C** code for the bootloader and kernel of Qualcomm Snapdragon chips which are used on the telematics control unit (TCU) of Ford vehicles
- Implemented image versioning and signing for secure over-the-air firmware updates

Automotive R&D Intern *Waterloo, Ontario, May 2020 - Aug 2020*

Geotab

- Analyzed vehicle data using **Google BigQuery** and prepared dashboards to display visualizations with **Python** using libraries such as **Matplotlib**, **NumPy**, and **Pandas**

DESIGN TEAMS

Firmware Project Lead *Waterloo, Ontario, Sept 2019 - Present*

Midnight Sun Solar Car Team

- Designed the architecture for the CAN Explorer project, which helps decode and send messages to the solar car and which was created with **Django**, **React**, **MongoDB**, and **Docker**.
- Created the telemetry system with **Python** to read data, such as velocity and charge, from the solar car and store the data in **DynamoDB** to be displayed in a telemetry dashboard.

Telemetry/CAN Interface Manager *Waterloo, Ontario, Dec 2020 - Present*

WATonomous

- Lead a small team of 4 people to develop the telemetry system and CAN interface to monitor and control a self-driving Chevrolet Bolt EV for the SAE Autodrive Challenge
- Constructed **Python** scripts that would receive commands from the path-planning team through the **ROS** interface and convert those commands into **CAN** messages to control features such as the steering and braking

SKILLS

C/C++, Python, Unix, Java, Git, SQL, Matlab, ROS, Javascript, HTML/CSS