Daniel Ye

dzyye@uwaterloo.ca | 416-399-3636 | danielzyy.github.io | danielzyy | github.com/danielzyy

EDUCATION

University of Waterloo – Ontario, Canada — Sep 2020 – Apr 2025 (Expected)
- Candidate for BASc in Mechatronics Engineering (Cumulative Average: 96.6%, 4.0 GPA, Dean's List Recipient)
- Courses: Algorithms and Data Structures, Circuits, Digital Computation

SKILLS

Languages/Frameworks: C++, C, Python, Java, ROS, HTML, CSS
Applications: Arduino, Git, Android Studio, AutoCAD, SolidWorks

EXPERIENCE

Test Automation Intern – Ford Motor Company — May 2021 – Aug 2021
- Automated and configured **10+ test cases** for the Advanced Driver-Assistance System (ADAS) with **Python** using **Slash**
- Diagnosed automotive ECU issues by performing **50+ embedded software tests** in a **Linux** environment
- Validated internal CAN messages by simulating an MQTT-Broker using a publish-subscribe network protocol

Radar Team Lead – WATonomous (Autonomous Vehicle Design Team) — May 2021 – Present
- Led a team of 5 to research **clustering algorithms** for radar object detections through **ROS** to aid autonomous driving
- Developed a **CARLA simulation** environment to simulate radar point cloud detections in real-time

Firmware Developer – University of Waterloo Midnight Sun Solar Car Team — Sep 2020 – Aug 2021
- Developed **CAN** based GPIO control framework in **C**, to facilitate easier controller board firmware changes
- Wrote **Python** scripts to trigger I2C readings and concatenate multiple CAN messages for variable data lengths
- Validated the functionalities of the modules by creating comprehensive test suites with **15+ unit tests**

Lead Programmer – FIRST Robotics Competition Team 4015 — Sep 2018 – Jun 2020
- Implemented real-time camera vision processing to automatically align the robot with the target using a control loop, which **increased its speed and accuracy by 80%**
- Designed the intake system which greatly increased ball collection efficiency and reduced effort for drivers
- Developed joystick teleoperated controls and autonomous movement, intake, and shooter functionalities based off sensory feedback using **Java**, that improved maneuverability and **decreased cycle times by 50%**

PROJECTS

Gesture-Recognition Glove – Python, TensorFlow, Arduino, C/C++ (MakeUofT 2021 Winner) — Mar 2021
- Designed a smart glove using an Inertial Measurement Unit (IMU) and flex sensor data to track hand position and recognize gestures in real-time using a TensorFlow **machine learning model** with **92% accuracy**
- Processed time-series sensor data from hand gestures to create training datasets and validate the model

Self-Balancing Robot – Arduino, MPU6050, C/C++ — Dec 2020 – Jan 2021
- Created a two wheel self-balancing Arduino robot using real-time MPU6050 IMU readings to maintain balance
- Tuned **PID control loop** to drive the motors based off accelerometer and gyroscope measurements in **C**

Pipe Dodger Android Game – Java, Android Studio — Nov 2019 – Dec 2019
- Designed an interactive and scalable Android game available on the *Google Play Store* with **50+ downloads**
- Implemented storage of local data to keep track of scores and points to purchase in-game cosmetic items

Face the Police Project – Python, HTML, CSS (Hack the Hammer 2018 Winner) — Feb 2018
- Developed a **Python** facial recognition program to automatically detect and identify subjects on camera by matching their facial features to locally stored database of images
- Developed motion tracking functionalities and displayed the subject's information on a graphical interface