

# Oswin Rodrigues

3A Mechatronics Engineering  
Hardware · Embedded

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## 🔧 TOOLS

- Schematics & Layouts · Soldering & Rework · Multimeter & Oscilloscope · Arduino ⚡
- C · C++ · Python · ROS · MATLAB · JavaScript · Ladder Logic </>

## 📈 EXPERIENCE

**AI & Robotics Engineer Intern** Winter 2016

**Stealth-mode AI & Robotics Startup** Toronto, ON

*Robot-wrangling, with Python, over a distributed communication architecture.*

- Sourced and integrated hardware components into system, via custom-coded drivers.
- Soldered robots' power system boards and tested thoroughly for safety.

**EDA / CAD Engineer Intern** Summer 2015

**Upverter Inc.** Toronto, ON

*Enhancing PCB CAD tool features in software (JavaScript, Python) and hardware avenues.*

- Re-factored features and fire-fought bugs extensively, for empowered user experience.
- Created and verified symbols and footprints for 150+ electronic components.

**Mechanical Design Co-op** Fall 2014

**Prodomax Automation Inc.** Barrie, ON

*Designing jigs and fixtures in Solidworks for automotive part-assembly stations.*

- Modeled custom tooling in two assembly stations for a vehicle's seat track mechanism.
- Detailed and ballooned numerous part and assembly drawings.

**Neuro-Robotics Lab Research Assistant** Winter 2014

**University of Waterloo** Waterloo, ON

*Using ROS-run Turtlebot for social navigation research purposes.*

- Wrote C++ and Python nodes to implement navigation stack on Turtlebot.
- Gained immense troubleshooting experience associated with accommodating open-source software.

## 🏠 PROJECTS

**UW Robotics Team & Waterloo Autonomous Vehicles Lab** Ongoing

- Reviewed and modified EAGLE schematics and layouts for Arduino motor shield on racing robot car.
- Soldered SMT and THT components onto three bare PCBs, and probed circuitry subsequently.
- Researched, brainstormed and refined design plans for wireless (RF) e-stop mechanism on car.
- Currently executing lab bring-up of new board and deployment on all systems.

**Tilt-Sensitive LED Matrix Panel** Winter 2016

- Wrote LED matrix driver that uses two 74HC595N shift registers (SIPO) for I/O expansion.
- Wrote IMU - ADXL335 and MPU6050 - driver, including filter to integrate gyro and accelerometer.

## 🎓 EDUCATION

**Mechatronics Engineering, Honors**

Candidate for BASc

2013 – Present

Class of 2018

University of Waterloo, Waterloo, ON

## 📖 COURSES

Circuits	93%
Sensors & Instrumentation	80%
Actuators & Power Electronics	N/A
Data Structures & Algorithms	94%
Computer Structures & Real-Time Systems	91%
Microprocessor Systems & Interfacing	N/A