

Oswin Rodrigues

Hardware · Embedded Software

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🏆 GOALS

- Micro: to excel in the design of hardware and embedded software technologies.
- Macro: to belong to a team passionate about problems that matter and solutions that revolutionize.

🔧 TOOLS

- Schematics & Layouts · Soldering & Rework · Multimeter & Oscilloscope · Arduino & Raspberry Pi ⚡
- C · C++ · Python · Linux · ROS · FPGA Programming · MATLAB · PLC Ladder Logic · JavaScript </>

📈 INTERNSHIPS

Hardware Engineer

Summer 2017

Nuvation Energy

Waterloo, ON

Fulfilling Integrated Design-to-Manufacturing (IDM) needs for released products.

- Executed Altium layout updates, team design reviews and fabbed board inspections.
- Investigated isoSPI bug by sniffing traffic with oscilloscope and consulting IC datasheet.
- Reworked boards extensively, being trained to even solder small 0402 SMT packages.
- Designed and built hipot test fixtures that comply with national safety regulations.
- Served in various other IDM-related avenues as needed, such as: building assemblies and cables, creating wiring diagrams in Visio, running in-house production tests, documenting developments in detail, facilitating environmental certification process.

Mechatronics Engineer

Fall 2016

KitchenMate Inc.

Toronto, ON

Building electrical and software sub-systems in automated home-cooker.

- Designed custom linear encoder sensor with photo-interrupter pair and Python driver.
- Sensed heat modes on cooker with hack involving opto-isolator and ADC combination.
- Received abundant exposure and insight on the business side of startup operations.

AI & Robotics Engineer

Winter 2016

Kindred Systems Inc.

Toronto, ON

Robot-wrangling with Python over distributed communication architecture system.

- Soldered robots' power boards and executed safety bringup.
- Sourced and integrated components into system with custom-coded drivers.
- Coded behaviour patterns of robots using Finite State Machines (FSMs) in Python.

EDA & CAD Engineer

Summer 2015

Upverter Inc.

Toronto, ON

Creating 150+ components' symbols and footprints; enhancing CAD features using JavaScript.

Junior Mechanical Designer

Fall 2014

Prodomax Automation Inc.

Barrie, ON

Designing in Solidworks two stations in assembly line for vehicle's seat track mechanism.

Neuro-Robotics Lab Research Assistant

Winter 2014

University of Waterloo

Waterloo, ON

Implementing C++ and Python nodes on ROS-run Turtlebot for navigation research.

PROJECTS

UW Robotics Team & Waterloo Autonomous Vehicles Lab

Various

- Designed and reviewed schematics, layouts and components in EAGLE and DipTrace for motor shields.
- Spec-ed and sourced sensors for soil-analysis, given engineering and science constraints.
- Soldered SMT and THT parts onto bare PCBs and probed subsequently for bringup.

Tilt-Sensitive LED Matrix Panel

Winter 2016

- Wrote LED matrix panel driver, with two 74HC595N shift registers for I/O expansion.
- Wrote IMU driver for ADXL335 and MPU6050, with filter to integrate gyro and accelerometer.

COURSES

Hardware

- | | |
|---------------------------------|------|
| • Integrated Analog Electronics | 100% |
| • Sensors & Instrumentation | 80% |
| • Circuits | 93% |

Embedded Software

- | | |
|---|-----|
| • Algorithm Design & Analysis | 90% |
| • Microprocessor Systems & Interfacing | 95% |
| • Computer Structures & Real-Time Systems | 91% |
| • Data Structures & Algorithms | 94% |

EDUCATION

Mechatronics Engineering, Honors, BAsC.

Class of 2018

University of Waterloo

Waterloo, ON

Graduated with distinction, having a cumulative GPA of 88.23%