Oswin Jonathan Rodrigues

3A Mechatronics Engineering
Hardware & Embedded Systems

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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