Oswin Rodrigues

3A Mechatronics Engineering

Hardware · Embedded

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Tools

- Circuit Design · Soldering & Rework · Multimeter & Oscilloscope · Upverter · EAGLE · Arduino
- C · C++ · Python · MATLAB · JavaScript · Ladder Logic

Experience

AI / Robotics Intern Jan – Apr 2016

Stealth-mode AI / Robotics Startup Toronto, ON

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

- Sourced and integrated - especially by writing drivers - hardware components into system.
- Soldered robots' power system boards and tested thoroughly for safety.

EDA / CAD Engineer Intern May – Aug 2015

Upverter Inc. Toronto, ON

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

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

Mechanical Design Co-op Sep – Dec 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 extensively.

Neuro-Robotics Lab Research Assistant Feb – Apr 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 Jan 2015 – Present

- Modified EAGLE schematics and layouts for Arduino motor shield.
- Soldered SMT and THT components onto multiple bare shields.
- Currently designing and implementing a wireless (RF) e-stop mechanism for racing robot.
- Currently rebuilding and parts-sourcing a Mars Rover's electrical box.

Tilt-Sensitive LED Matrix Panel Personal Project, Ongoing

'Moving' a single lit LED on panel by physically tilting it. This uses:

- Arduino microcontroller for handling the 'smarts and magic'.
- ADXL335 accelerometer for controlling the tilt functionality.
- 74HC595N shift register (SIPO) for I/O expansion on the Arduino board.

Hackathons Various

- Pebble-run dosage notification service - *SmartMeds*; used C. Hack the North, 2015
- IMU-based instructor - *Yoga Yoda*; developed business case. PCH Hardware Hackathon, 2015
- Myo-controlled air drum kit - *DruMyo*; used C++. hackWaterloo, 2014
- Myo-enabled Solidworks controller; used Lua. Hack the North, 2014

Education

Mechatronics Engineering
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