Oswin Rodrigues

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Tools

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

Experience

EDA 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.
- Implemented component-tagging feature, using pin names to deduce functionality.
- Adjusted prioritization of design rules in layout constraint manager.
- Fixed incorrect drawing and positioning of constraint violation layout bodies.
- Refactored click event-listening logic in schematic net-drawing tool.
- Corrected book-keeping errors in pin manager for tracking connection mappings.
- Facilitated BGA footprint generator's omitting specific letters during row enumeration.

Research Assistant Feb – Apr 2014

University of Waterloo Waterloo, ON

Using ROS-run Turtlebot^{TM} for social navigation research purposes.

- Wrote C++ and Python nodes to implement basic navigation stack on Turtlebot.
- Published sensor, odometry and transform messages to mobile base.
- Tweaked existing open-source code for advanced algorithms: person-detection, SLAM navigation.

Projects

UW Robotics Team & WAVE[1] Lab Jan – Apr 2015, Sept 2015 – Present

[1] *Waterloo Autonomous Vehicles*

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

Tilt-Sensitive LED Matrix Panel Personal Project, Ongoing

The idea is to 'move' a single lit LED on the 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-facilitated 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	
Microprocessors & Digital Logic	78%
Computer Structures & Real-Time Systems	