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Ryan Corpuz

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www.ryancorpuz.com

EDUCATION

B.Sc., Computer Engineering *University of Alberta, Edmonton AB* Sep 2010 - May 2015

Engineering Coursework: Computer Architecture, Logic Design, Signal Processing, Embedded Systems, Circuits
Software Coursework: Algorithms, Operating Systems, Networks, Database Management, Data Structures

EMPLOYMENT

Research Engineer Assistant *University of Alberta, Edmonton, AB* May 2015 - Jul 2017

- Implemented a portable sized impedance analyzer for a prototype metabolomic biosensor system by designing the PCBs, soldering components, and hardware testing the system.
- Developed the firmware for the biosensor system and testing software to measure system performance.
- Improved biosensor system through multiple iterations using performance metrics of the system against laboratory grade impedance analyzer.
- Optimized the sensor chip fabrication process by fabricating chips and using test results to improve the process.
- Established a universal interface for the biosensor system by integrating BluetoothLE connectivity to enable communication with any bluetooth enabled device.
- ***Publication:*** *S. MacKay, R. Corpuz, C. Chong, J. Chen and D. Wishart, "Live demonstration: Portable impedance-based biosensor system for metabolomic sensing," 2016 IEEE Biomedical Circuits and Systems Conference (BioCAS), Shanghai, 2016, pp. 129-129*
- Leveraged knowledge: ARM Cortex-M3, Microfabrication, Eagle CADSoft (schematic, PCB development), Soldering, BluetoothLE, programmed in C, and debugged using a Multimeter and Oscilloscope.

PROJECTS

Personal Website: www.ryancorpuz.com (for more information)

Coloured-Object Tracking Camera

- Developed an FPGA component using VHDL that filters a composite video stream and records the center of the filtered pixel cluster.
- Integrated a video feedback system by controlling the VGA output to display the unfiltered or the filtered video stream on a monitor.
- Incorporated a hardware user interface by displaying operational feedback to an LCD display and utilizing slide switches for tagging objects, setting camera to default position, and switching VGA output.
- Built a dual-axis servo system by designing the camera mount and implementing a Pulse Width Modulation controller on the FPGA.
- Utilized: C programming, VHDL, FPGA, Image Processing, MATLAB

Event Logger App

- Created a personal web application used to track days since a recorded occurrence of a specific event.
- Implemented RESTful API backend server to store event occurrences on a cloud database.
- Utilized: Javascript, Vue.js, Node.js, HTML/CSS, Git, MongoDB, Heroku

Job Hunt Tracker App (*Demo: https://job-hunt-tracker.herokuapp.com/ *May take some time to load)*

- Created a personal application used to track jobs I have applied to.
- Implemented RESTful API backend server to store jobs, location, date applied to, and the application's status on a cloud database.
- Utilized: Javascript, Vue.js, Node.js, HTML/CSS, Git, MongoDB, Heroku

SKILLS

Software

Proficient: C, Python, Git, Octave

Familiar: MATLAB, VHDL, SQL, Javascript, HTML/CSS, C++

Electronics

Experience: Eagle CADSoft (schematic, PCB development), Soldering, Oscilloscope, Multimeter