Ryan Corpuz

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LINKS
www.ryancorpuz.com
www.github.com/RyanCorpuz

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*
- <u>Leveraged knowledge</u>: 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)

Colored-Object Tracking Camera   *(Project Report https://www.ryancorpuz.com/Capstone_FinalReport.pdf)*

- 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.
- <u>Utilized</u>: C programming, VHDL, FPGA, Image Processing, MATLAB

My Dashboard App (*Demo: https://my-dashboard-demo.herokuapp.com/ *May take some time to load*)

- Created a personal management application by implementing various applications for managing and organizing my life.
- Implemented a clock application that displays various time metric representations such as percent of day elapsed, count up from day start, and countdown to day end used to enhance my time awareness.
- Implemented an event tracking application used to record and track recurring events, displaying date and number of days since the last occurence.
- Implemented a job hunt tracking application used to keep track of the jobs I have applied to, their details, and the status of the application.
- Implemented REST API for a MongoDB database to store clock start and end time, event tracker items and job hunt tracker items
- <u>Utilized</u>: Javascript, Vue.js, Node.js, HTML/CSS, Git, MongoDB, Heroku

SKILLS

Software

<u>Proficient</u>: C, Python, Git, Octave   <u>Familiar</u>: MATLAB, VHDL, SQL, Javascript, HTML/CSS, C++

Electronics

<u>Experience</u>: Eagle CADSoft (schematic, PCB development), Soldering, Oscilloscope, Multimeter