

Ryan-David Reyes

2040 Stearns Rd Apt 42 – Cleveland, OH 44106

☎ (850) 559 7516 • ✉ ryan.david.reyes@gmail.com • 💻 recu.rs

Education

Case Western Reserve University

M.S. Biomedical Engineering

Cleveland, OH

Fall 2016–Spring 2021

Florida State University

B.S. Computer Engineering and B.S. Electrical Engineering with Honors, GPA: 3.83

Tallahassee, FL

Fall 2011–Spring 2015

Experience

Graduate Student, Research Assistant

Case Western Reserve University

Biomedical Engineering Department, Advanced Platform Technology Center

Cleveland, OH

August 2016–May 2021

- **Masters Project:** [Biologically Inspired Optimal Terminal Iterative Learning Control for a Motorized Hybrid Neuroprosthesis](#)
 - a device for persons with paraplegia which combines functional electrical stimulation (FES) of their muscles with a motorized exoskeleton to restore their ability to walk using learning algorithms.
 - Designed and implemented the firmware of the exoskeleton in C across multiple Teensy 3.6's communicating over CAN.
 - Developed a web-based real-time user interface for the exoskeleton with Javascript, Node.js and Socket.IO with a Raspberry Pi.
 - Development of algorithms to control stimulated muscles and motors in tandem using terminal iterative learning control.
 - Publication: [Effect of Joint Friction Compensation on a "Muscle First" Motor-Assisted Hybrid Neuroprosthesis](#)
 - Publications as co-author:
 - [Embedded control system for stimulation-driven exoskeleton](#)
 - [Biologically Inspired Optimal Terminal Iterative Learning Control: A Modeling Study](#)
 - [Adaptation Strategies for Personalized Gait Neuroprosthetics](#)
- Worked with a mechanical engineer to create an [origami-inspired folding quadcopter](#) for the class *EMAE 488: Advanced Robotics*.
- Non-degree related:
 - Created an open source linear algebra library for the Elm programming language: [elm-numeric](#).
 - Contributed to Blender, the open source 3D modeling software. The [patch](#) concerned rewriting OpenGL 2 dependent API with an OpenGL 3 shader-based library.

Biomedical Engineering IT Support

Case Western Reserve University, Louis Stokes VA

Biomedical Engineering Department, Advanced Platform Technology Center

Cleveland, OH

Nov 2017–Dec 2019

- General technical support for Researchers ranging from email administration to solving computer hardware issues.
- Management of MATLAB License Servers
- Management of Remote Linux (Rocks Distribution) Computing Clusters

Research Assistant

Florida State University

Mechanical Engineering Department, CISCOR Robotics Lab

Tallahassee, FL

July 2012–August 2014

- Created drivers for Inertial Measurement Units, Gamepads, TCP/IP, and Force Sensors on Windows, Linux, and QNX in C++.
- Implemented Real-Time Linux Xenomai Framework on robots with comprehensive documentation.
- Experience writing control systems with QNX Real-Time operating system (RTOS).
- Project: [GOLIATH](#) - Gas Operated Land Intelligent All Terrain veHicle - Autonomous ATV designed for terrain classification.
 - Designed the control system that allows the user to drive the ATV via a Logitech Gamepad, communicating with the host system via TCP/IP for Windows, Linux, and QNX in C++.
- **Honors Thesis:** [Identification of the Inertial Parameters of Manipulator Payloads](#)
 - Concerned what motions a load bearing two-link manipulator can use to identify the inertial parameters of its payload.
 - Used to augment CISCOR Intelligent Planner - Sampling Based Model Predictive Optimization (SBMPO) Research.

Qualifications and Awards

Outstanding Master's Work Award in the CWRU Biomedical Engineering Department:

Spring 2021

Recipient of NIH T32 Training Grant:

Fall 2016

NSF Graduate Research Fellowship Program (GRFP) Honorable Mention:

Spring 2015

Eagle Scout - Boy Scouts of America:

Dec. 2009