

Alfredo Muniz

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EDUCATION

University of Pennsylvania, Philadelphia PA

Bachelor of Science in Engineering

Majors: Electrical Engineering

Mechanical Engineering and Applied Mechanics

Masters of Science in Engineering

Major: Robotics

GPA: 3.16

Graduation: May 2016

GPA: 4.00

Graduation: May 2016

PROJECTS

Measuring Straps

Jan 2015-Present

- Modeling arms and legs as robotic joints to track swing arc using IMU and BLE for mobile
- Creating a simple app interface so that physical therapists and users can analyze data

APRo: Application-Based Robot

Aug 2014-Present

- Beaglebone Black with numerous sensors and actuators to kickstart robotic applications
- Featuring completely open source hardware and software to give hackers maximum flexibility

Kinematic Lute

Oct 2014-Dec 2014

- Mechatronic instrument made for an opera that plays sounds and lights when commanded

Wireless Club at the University of Pennsylvania

Aug 2013-Present

- Created a student VE team and licensed 15 new operators; only VE team in Philadelphia
- Teaching PCB design from sourcing parts to SMD soldering with FM Transmitter bug project

GNU Radio Tutorials

Jan 2014-Dec 2014

- Guided tutorials for developing on GNU Radio using GRC and Python; write access on github

SwitchBlade

Jun 2013-Aug 2013

- Remote controlled 3D printed BMW with actuated scissor doors, differential drive, and music

NeatoDash

Jan 2013-May 2013

- Hacking the Neato XV-11 vacuum cleaning robot into a goalie and autonomous security system

WORK EXPERIENCE

Google Summer of Code 2014 at Ettus Research, Santa Clara CA

May 2014-Aug 2014

- Interface TI's Keystone2 coprocessors with GNU Radio for hardware acceleration
- Rewrite GNU Radio buffer management libraries for zero copy to and from coprocessors

Machine Shop Worker at Penn, Philadelphia PA

Aug 2013-Present

- Assist students in learning safe operating practices and good machining techniques

Rachleff Scholars at Penn, Philadelphia PA

Sep 2012-Aug 2013

- Honors summer research program in optimizing battery life of electric vehicles by creating a circuit and control loop that efficiently uses a combination of batteries and supercapacitors

Multi-Robot Systems at Rice University, Houston TX

Jun 2011-Aug 2011

- Built a portable "toaster charger" that charges six robots simultaneously at 1 amp
- Built friction-free velcro skirts and velcro polygons for multi-robot manipulation research

SKILLS

Languages: C, C++, Python, Assembly, Makefile, VHDL, HTML/CSS, Java, Spanish

Software: GDB, MCSDK, GNU Radio, KiCad, Open Embedded, Eagle, Vivado, Solidworks, MATLAB

Hardware: Beaglebone Black, Keystone2, Zedboard, RTLSDR, MSP430, HCS12, MBED, ARM, AVR

Fabrication: PCB Plotters, SMD Soldering, 3D Printing, CNC & Manual Machining, Lasercutting

Communication: Presented at GRCon 2014 and have numerous wiki pages explaining project detail