# Camilo Tejeiro

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## Skills

**Areas of Knowledge**
Circuit Design, PCB Design, Analog Circuits, Embedded Systems, Firmware Development, Software Development.

**Technical Skills**
KiCad EDA, Eagle PCB, Altium Designer, SPICE, QUCS, LaTeX, C, Python, Java, Bash, Linux, PHP, HTML, CSS, MySQL, C++, Verilog, C#.

**Personal Skills**
English bilingual proficiency, Spanish bilingual proficiency, Self-driven, Strong work ethic, Perseverant, Team-oriented.

## Education

**University of Washington** — Seattle, WA, USA
Cumulative GPA — 3.54 on a 4.0 scale
Bachelor of Science in Electrical Engineering — June 2013

**North Seattle Community College** — Seattle, WA, USA
Cumulative GPA — 3.81 on a 4.0 scale
Associate of Science — June 2010

**Peninsula College** — Port Angeles, WA, USA
Cumulative GPA — 3.15 on a 4.0 scale
College Transfer — June 2009

## Engineering Experience

**Ashima Devices** — Pasadena, CA, USA
*Hardware/Firmware Design Engineer* — June 2014 - May 2015
Development of the sensor, communication and flight control hardware for the Hexpuck unmanned aerial device.

Li-Ion Active Battery Balancer Hardware Design

*Analog Circuits, PCB Design* — *Eagle CAD, 4 layers, 176 components*
Design of a power management system for monitoring and efficiently balancing the cells on a Li-Ion battery to prolong flight lifetime.

Li-Ion Active Battery Balancer Embedded System

*Firmware Development* — *C, Python, ARM-M0, Linux, GCC, GDB*
Design of the firmware state logic for battery monitoring, safety procedures, serial communication and active balancing control.

Motor ESC Hardware Design

*Embedded Systems, Circuit Design* — *Eagle CAD*
Development of the embedded system architecture for efficiently controlling the speed of six brushless DC motors. Integration of the control, sense and driver circuitry into a complete device schematic.

Motor FET Driver Power Board

*Circuit Design, PCB Design* *Eagle CAD, 43 components*

Design of a power circuit board for driving a Brushless DC motor at high pulsed currents (rated at 40A per motor max) using a standalone 3 phase MOSFET driver.

Battery Simulator Hardware Design

*Analog Circuits, PCB Design* *Eagle CAD, 16 components*

Design of a stackable cell simulator circuit (constant voltage, variable current output) for creating battery stacks to safely test the active balancing circuit under different operating conditions.

Power Limiter Hardware Design

*Analog Circuits, PCB Design* *QUCS, Eagle CAD, 22 components*

Design of a simple analog circuit to place in series with a simulated battery stack to provide variable current settings while enforcing safe maximum power.

RGB Pixels Array Board

*Circuit Design, PCB Design* *Eagle CAD, 58 components*

Development of a programmable multicolor LED (Pixels) display board for communicating alerts and messages while in flight.

Gyroscope Breakout Board

*Circuit Design, PCB Design* *Eagle CAD, 8 components*

Developed a simple circuit board for testing the functionality of an alternative gyroscope for the flight controller.

GPS Magnetometer Board

*Circuit Design, PCB Design* *Eagle CAD, 30 components*

Development of a printed circuit board for position and orientation purposes: integrating a commercial GPS module, a low noise amplifier, a ceramic patch antenna and a 3-axis digital compass into a single board.

Flight Controller Daughter Board

*Circuit Design, PCB Design* *Eagle CAD, 48 components*

Development of a daughter circuit board for the flight controller to provide GPS positioning, WiFi communication and access to a single-board computer (for communication, image processing and computation heavy operations).

Flight Controller Interface Board

*Circuit Design, PCB Design* *Eagle CAD, 10 components*

Development of an interface circuit board for the flight controller board to allow access to communication channels and hardware peripherals.

**RTneuro Inc.** Seattle, WA, USA

*Lead Design Engineer* July 2013 - May 2014

Design of the bio-medical sensors, the wireless embedded system and the communication software for the Rainbow wearable health device.

Bluetooth LE Router Application

*Software Development* *Java, Android API*

Design of a service based multi-threaded router application (Bluetooth Low Energy and Internet communication) with task-scheduling, inter process communication and error detection and handling.

Wearable Wireless Health Device Hardware Design

*Embedded Systems, PCB Design* *Altium Designer, 4 layers, 92 components*

Design of the low power wireless embedded architecture and integration of all analog sensors and supporting circuitry into a complete high density circuit board.

Wearable Wireless Health Device Firmware Design

*Embedded Systems, Firmware Development* *C, ARM, KEIL*

Design and implementation of the firmware system logic, the sensors' interface and the wireless communication support (custom Bluetooth Low Energy service).

Low Power Reflectance Pulse Oximeter

*Analog Circuits, PCB Design* *Altium Designer, Multisim*

Design of a low power (low duty cycle) reflectance based pulse oximeter sensor (mixed signal and transistor level design), with software controllable light intensity and calibration support.

Electromyography Sensor

*Analog Circuits, PCB Design* *Altium Designer, Multisim*

Design of a low power (shutdown support), low noise (Instrumentation amplifier based topology) mixed signal Electromyography sensor (measurement of muscles electrical activity) with software controllable gain and calibration support.

Galvanic Skin Response Sensor

*Analog Circuits, PCB Design* *Altium Designer, Multisim*

Implementation of a differential output, baseline adaptive (can adapt to multiple users) skin conductance sensor.

**The Daniel Lab** Seattle, WA, USA

*Undergraduate Research Assistant* January 2013 - March 2013

Development of a software application to aggregate gesture and myography data for control purposes.

Emg hand tracking and gesture recognition

*Software Development* *C++, Visual Studio*

Developed a system to enhance gesture recognition by integrating multiple sensory inputs from a depth camera and an electromyography sensor.

**University of Washington** Seattle, WA, USA

*Design Curriculum* September 2011 - March 2013

Design of analog circuits and embedded systems for the development of practical engineering applications.

Single Cycle and Pipelined CPU

*Embedded Systems* *Verilog, FPGA, Altera Quartus*

Designed the processors' hardware architectures and developed the individual processors' sub modules to support a MIPS instruction set. Both processors were realized onto a Field Programmable Gate Array.

PVT Invariant Voltage Controlled Low Pass Filter

*Analog Circuits* *Multisim*

Designed a 12th order Butterworth voltage controlled low pass filter (Gm-c implementation) with mixed digital processing added to provide compensation for process, voltage and temperature variations.

Graphic Equalizer Design

*Analog Circuits* *Multisim*

Designed a 7 band graphic equalizer using simulated inductors or Gyrators to synthesize the band pass filters in each stage.

Wireless EMG Actuated Prosthesis For Upper Limb Amputees

*Analog Circuits, Firmware Development* *C, MSP430, Multisim*

Designed a wireless robotic manipulator actuated via electromyography with remote sensory feedback proportional to applied gripping force.

**Spacelabs Healthcare** Issaquah, WA, USA
*Internship* January 2012 - June 2012
Design of multiple software applications for monitoring patient health in a mobile environment and displaying health data in a remote graphical interface.

WiMM Watch Wireless Health Monitoring System

*Software Development* *Java, Android API, C#*
Developed a system that monitored blood pressure (Bluetooth sensor), pulse oxygenation (Bluetooth sensor) and user activity (Accelerometer) and transmitted possible health alerts and real time data to a remote server via TCP IP.

**Neurobotics Laboratory** Seattle, WA, USA
*Undergraduate Research Assistant* June 2011 - August 2011
Development of a manipulation experiment for researching feedback delivery techniques and design of a remote feedback device to help amputees.

Comparison of Remote Feedback Modalities for Prosthetic Hand Control

*Embedded Systems*
Implemented a pneumatic pressure feedback system, conducted virtual manipulation experiments and published a research paper on the findings.

Wireless Vibrotactile Feedback Device

*Embedded Systems, Firmware Development* *C, MSP430*
Design of a low power wireless embedded system for integrating vibrotactile sensory feedback into low-cost prostheses.

**Peninsula College** Port Angeles, WA, USA
*Undergraduate Research Assistant* September 2008 - June 2009
Academic research for the development of physics applications.

Small scale low-energy Electron Linear Accelerator

*Applied Physics*
Implemented two voltage multipliers to establish the needed potential across the testing tube.

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## Publications

**Tejeiro, C.**; Stepp, C.E.; Malhotra, M.; Rombokas, E.; Matsuoka, Y.; , "Comparison of remote pressure and vibrotactile feedback for prosthetic hand control," *Biomedical Robotics and Biomechatronics (BioRob), 2012 4th IEEE RAS & EMBS International Conference on*, vol., no., pp.521-525, 24-27 June 2012.

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## Awards and Honors

**University of Washington Quarter Dean's List** March, 2013
Award received for maintaining a full time GPA of 3.50 or better during the winter quarter of 2013.

**University of Washington Kaiser Aluminum Scholarship** June, 2012
Scholarship awarded for good academic record and leadership potential.

**University of Washington Annual Dean's List** June, 2011
Award received for maintaining a full time GPA of 3.50 or better during the 2010-2011 academic year.

**North Seattle Community College Merit Scholarship** June, 2010
Scholarship awarded for academic excellence.

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## Leadership Experience

**Osohm Inc.** Torrance, CA, USA
*Founder and Lead Design Engineer* June 2015 - June 2016
Development of tools and applications to facilitate the widespread adoption of open technologies in the consumer market.

KipOpen Platform

*Software Development* *PHP, HTML, CSS, MySQL, Apache HTTP Server, Linux*
Design of a viable funding platform (business model) for open technology.

KipOpen Crawler and Search Server

*Software Development* *Nutch, Solr, Bash, Java, XML*
Open Implementation of a crawler, indexer and search engine for directing users to relevant information about open projects.

Android Quotes Display Apps

*Software Development* *Java, Android API*
Development of multiple Android applications to display personal/book quotes in your mobile device. A quote a day?

Water Filtration System

*3D CAD Modeling* *3D Printing, FreeCAD*
Designed a low cost, low maintenance water filtration system with a stackable architecture and multiple filtration stages.

SipText - Text Simple Planner

*Software Development* *Linux, Bash*
Designed a text based planner. No fancy apps, plain and simple, just text.

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## Volunteer Experience

**STARS Tutoring Program** April 2015 - June 2015
*Lake Avenue Community Foundation*
Helped low-income middle and high school students complete their homework and succeed in classes.

**Note-taker for Disability Resources for Students** January 2011 - December 2011
*University of Washington*
Volunteered as a note-taker for electrical engineering students with disabilities.

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## Memberships

**Tau Beta Pi Engineering Honor Society** April 2011 - June 2013

**Society of Hispanic Professional Engineers** September 2009 - June 2013