

# JAKE GARRISON

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## EDUCATION

University of Washington - Seattle, WA

Sept 2011 – Present

B.S. Electrical Engineering (DSP and Communications), Math Minor, Computer science, Art and design coursework

M.S. Electrical Engineering (Ubicomp Lab)

**Specialties:** DSP, Computer Vision, Machine learning, AI, Full Stack Dev, Audio Processing, Communications, Networking & Security, Power Electronics

## RELEVANT EXPERIENCE

**Haiku Deck Developer** (<https://www.haikudeck.com/>) - Seattle, Washington

June 2016 – Present

A presentation iOS and Web app startup used by millions. It features Zuru, an AI platform for automation

- Full stack developer and R&D for Zuru and its new features. Using Node.js and React.js

**Urban Parking App (City of Seattle)** - Seattle, Washington

Jan 2016 – Present

Project to help route drivers to open parking spots based off historical data. Entrepreneurial capstone project

- Uses machine learning (boosting via python) to predict parking trends based on 45 million historical transactions

**Image Classification App** - Seattle, Washington

Sept 2015 – Present

Project involving image recognition and sharing on an iOS platform. One of three working remotely on it

- Uses convolutional neural network (trained on ImageNet) and other image processing techniques

**Driver Awareness System** (<https://uwecocar.github.io/UW-Infotainment/>) - Seattle, Washington

July 2015 – June 2016

Founded and lead a team designing a system and UI that monitors and logs metrics that contribute to bad driving

- Displays distraction, phone usage, sleep and happiness metrics using C++, Python, Node.js and D3.
- Won Most Innovative use of Data and Best Travel Hack in DubHacks and 3<sup>rd</sup> Place in EcoCAR Consumer Appeal

**Tesla Motors Systems Integration** – Palo Alto, California

June 2015 – Sept 2015

Integration intern on a small team focused solely on the development of the Model X falcon doors

- Created software and contributed to controls, firmware, sensing, processing, testing and validation

**EcoCAR Competition ADAS and Electrical Lead** (<http://www.ecocar3.org/>) - Seattle, Washington

Sept 2011 – Present

First Electrical Team Lead, now Assisted Driving (ADAS) Lead. Involved in EcoCAR 2 and 3 since freshman year

- Computer vision and autonomous vehicle controls research
- Embedded BSP Linux development with bash/python scripting and C/C++ programs
- Modeling high and low voltage Li-Ion battery systems in Simulink, Matlab and NX CAD
- Project management and collaboration with multidisciplinary students, faculty and industry

**Bankroll Bitcoin Miner Startup** - Palo Alto, California

June 2014 – Nov 2014

- One of three involved, worked on PCB, firmware, schematic and enclosure design No longer maintained

**Tesla Motors Power Electronics** - Palo Alto, California

June 2014 – Sept 2014

Power Electronics intern focused on the high voltage electric powertrain for the Model S P85D Insane mode

- Testing and validation on existing parts (temperature and current cycling)
- R&D for future technology (specifically high voltage fuses, contactors and charging plugs)
- Creating professional CAD, drawings, schematics, and pcb designs

**Electric Car Conversion** (<http://electricgti.blogspot.com>) - Spokane, WA

Jan 2010 – May 2012

Personally designed, funded and converted a gas powered Volkswagen GTI to fully electric

- Designed and hand built the high voltage motor controller along with several metal/wood components
- Awarded engineering scholarship, admission to UW and invited onto the team

**Ion Beam Research Assistant** – Seattle, Washington

May 2013 – Feb 2014

Research Assistant for Professor Bruce Darling, UW Electrical Engineering

- Learned to simulate and design circuit boards using NI LabView Multisim and Ultiboard Work

**Custom Music Equipment Designer** (<http://www.verellenamplifiers.com>) - Seattle, Washington

July 2011 – Present

Personally designed, built and sold guitar pedals and other music gear

- AC and DC Circuit analysis and troubleshooting experience including tubes, transistors and amplifier circuits

## SCHOLARSHIPS AND AWARDS

4.0 in two capstones (UW), 2<sup>nd</sup> place Autopilot and 3<sup>rd</sup> place Consumer appeal (EcoCAR 3I – San Deigo, CA

Spring 2016

Most innovative use of data (from GE) and Best travel hack award (from Concur) at DubHacks – Seattle, WA

Fall 2015

1<sup>st</sup> place Electrical presentation and 3<sup>rd</sup> place Mathworks presentation (EcoCAR 3) – Seattle, WA

Spring 2015

2<sup>nd</sup> place Overall, Battery Pack Design and Electrical presentation (EcoCAR 2) - San Diego, CA

Spring 2013

Washington Society of Engineers - Spokane, WA

Spring 2011

## AREAS OF TECHNICAL EXPERTISE

Platforms: Windows, OSX, Linux, Android, iOS, Raspberry Pi, Arduino, NXP, Electron, Xcode, QT, CATIA, NI Multisim, NX, LabView  
Language: C, C++, Bash, Python [OpenCV, Numpy, Scikitlearn], JavaScript [Node, React, D3], HTML5/CSS3, Matlab, Java  
Protocols: CAN, SPI, UART, GPS, Bluetooth, TCP/IP, UDP, HTTP, FTP, SSH, Bitcoin