

Tyler Weaver

SOFTWARE ENGINEER · SIGNAL PROCESSING · EMBEDDED DEVELOPMENT

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Summary

Highly motivated software engineer with experience leading long-term software projects for wireless communication on SDR hardware. Embedded electronics hobbyist who enjoys using software and hardware to automate and solve problems. Interested in joining a fast paced development team working on exciting products. TS/SCI

Skills

Programming C/C++, Python, Matlab, JavaScript, Perl, Groovy, Processing, Java
Tools GCC, GDB, Make, Valgrind, SublimeText, Git, SVN, GPG, Bash
Embedded Arduino, RPi, Mbed, ARM, SPI, I2C, GPS, CV, IMU

Work Experience

LGS Innovations

Westminster, CO

SOFTWARE ENGINEER II

Jun. 2014 - PRESENT

- Wireless network pattern of life analysis library
 - Detection of mis-configured cells
 - Alerts for base-stations with odd behavior on network
- P25 scanner library
 - Prototyped in python, Implemented in C++
 - FFT narrow band energy window detect for fast scanning
 - FSW search used for timing and frequency offset correction
 - Viterbi, Reed-Solomon, BCH, and CRC Decoding
 - Framing and Message Parsing for all Broadcast messages
- Radio interface libraries for scanner application
 - Epiq Sideiq with Placeiq GPS
 - Ettus USRP N210 and B210 with support for hotplugging
- MPT1327 scanner library
 - Prototyped in matlab, Implemented in C++
 - Goertzel based fast reject for fast scanning
 - IPP Parallelized FM demodulator
 - Feedback timing recovery algorithm for MSK
 - CRC checker and Bit/Message parsing
- Ported matlab library for unknown signal analysis into C++
 - Arbitrary PSK and FSK input signals
 - Implemented complicated algorithms in C++ based off matlab code written by PhD
- Hacked on physical layer implementation of 802.11b with SDR
 - Prototype C++ code using USRP to test RTS/CTS ranging technique
 - Debugging using Wireshark to observe call and response

TecStar Consulting

Broomfield, CO

SOFTWARE ENGINEER

Mar. 2014 - Jun. 2016

- Selenium automation testing of websites with Python and Java
- Android app development for Rachio sprinkler controller

Colorado Army National Guard

5/19th SFGA

SATELLITE COMMUNICATIONS SYSTEMS OPERATOR/MAINTAINER (25S)

Oct. 2008 - Oct. 2016

- Deployed in support of Special Operations Task Force East in Afghanistan (2013)
- Developed software to automate extracting and converting geo locations from Google Earth files

Education

DeVry University

Westminster, CO

B.S. IN COMPUTER ENGINEERING TECHNOLOGY

Aug. 2010 - Mar. 2014

- Weather balloon payload navigation project
- Paid tutor for engineering program students

Rally reconnaissance computer

WEAVING RALLY TEAM

- Arduino based computer for preparing stage notes
- Measuring distance based on GPS and ABS wheel sensors
- Measuring corner severity using steering angle
- Developed for use by Rally.Build race shop and affiliated teams

[Westminster, CO](#)

Nov. 2017 - PRESENT

Prototyping hardware for Decawave DMW1000

WEAVING RALLY TEAM

- PCB design for prototyping in KiCad
- Ranging using TOA technique on IEEE 802.15.4
- Mesh networking of embedded devices
- Developing to sell prototyping board to hobbyists

[Westminster, CO](#)

Oct. 2017 - PRESENT

rallyscores.com

WEBSITE FOR ORGANIZING AND DISPLAYING RALLY RACING SCORES

- Hosted on AWS EC2
- Client written using React, React Router, Express, Semantic UI, and Webpack in Javascript
- Server written using NodeJS, MongoDB, and SocketIO in Javascript
- Backend written in Python using Scrapy to gather data

[Westminster, CO](#)

Jul. 2017 - PRESENT

splintermail.com

MACOS DAEMON INSTALL SCRIPT AND TESTING

- Encrypted/Anonymous email service
- Local daemon and CLI written in Python
- Encryption of all email metadata on server using public key
- By-directional re-mailer for preventing websites from tracking based on email as a unique id

[Westminster, CO](#)

Oct. 2017

Automation for Airbnb using Smartthings controller

FORK OF OPEN SOURCE DOOR LOCK SMART APP

- iCal parser and event logic for setting lock codes for each guest based on phone number
- Push notifications to phone app when guest uses their code for the first time

[Englewood, CO](#)

Aug. 2017

Co-driver computer for race car

WEAVING RALLY TEAM

- Embedded system for assisting co-driver during competition
- GPS tracking and timing on Arduino microcontroller with 7-segment display
- Competed in Rally Colorado 2017

[Englewood, CO](#)

Jul. 2017

Software for identifying ideal rental properties

AUTOMATED INVESTMENT ADVISOR

- Scrapy scrapers for Realtor to find new listings
- Automated AWS EC2 Proxy instances for defeating Realtor.com tracking of bots
- MongoDB database for storing listings for analysis
- Airbnb scraper for finding similar properties listed for short term rental
- Daily PDF report generated using latex
- Developed locally and then deployed onto AWS
- Attempted to sell reports to Realtors

[Englewood, CO](#)

Mar. 2017 - Jun. 2017

Colorado Robot Challenge

COMPUTER VISION ON EMBEDDED HARDWARE

- Real-time firmware for 3d stereo vision sensor on XMOS and Nvidia hardware
- Custom BCB prototyping with surface mount components

[Golden, CO](#)

Oct. 2013 - Mar. 2014