

Tyler Weaver (he/him)

 tylerjw |  Tyler Weaver |  maybe@tylerjw.dev |  303.903.5681

SUMMARY

Back-end Rust Engineer with production experience building a cloud-based archive and playback application in Rust, open-source robotics consulting, and wireless signal processing.

WORK EXPERIENCE

Senior Software Engineer - SciTec

Apr 2024 - Now

IC on Archive and Playback Project in Rust

- Async Axum HTTP web server to interface with Yugabyte database and file storage
- ZMQ playback node to stream data for a single host within an event
- File importing of binary data as C structs and Protobuf messages
- Reporting metrics to Prometheus using pull and push patterns
- Unit and integration testing
- Logging using tracing with Perfetto outputs for profiling
- GitLab CI pipelines for automating releases

Staff Software Engineer - PickNik Robotics

Apr 2019 - Feb 2024

Assumed diverse responsibilities at fast-moving startup

- Authored Blog Series on Rust/C++ Interop: [Just the Basics](#), [CMake](#), [CXX](#)
- Maintainer of [Motion Planning Framework MoveIt](#) in the Robot Operating System (ROS) Ecosystem
- Author of Open-Source code-gen tool for ROS 2 parameters: [generate_parameter_library](#)
- Author of Library of C++17 Utilities: [ROS Support Library](#)
- Author and maintainer of documentation sites
- Author of feasibility studies for robotics startups
- Prepared and Led training on C++, Rust, Infrastructure, Testing, Debugging, SOLID, Functional Programming, Reading Code
- Technical lead for warehouse pick and place, onsite integration, hardware drivers, CI/CD, software/hardware testing
- Technical lead for fruit harvesting robot, onsite integration, localization, hardware drivers, CI/CD, optimization algorithm for registering vision results
- Developed Robotic truck refueling demo
- Developed Robotic satellite grapple demo for Space Force grant
- Developed Firmware for two surgical robotic controllers, onsite integration, Conan/Docker/QNX
- CI/CD systems for OSS and internal projects using GitHub Actions, Gitlab, CircleCI
- CI systems using multiple compilers and static analysis tools
- CD systems using packaging (Conda, Conan, Debian) and containers
- [Maintainer and contributor to many OSS libraries in ROS](#)

Firmware Engineer - Indiegogo funded project

May 2020 - Aug 2020

- [Thermal sensor for motorsports](#)
- Developed firmware for micro-controller application
- Math code written as a library that was also compiled and tested on the host
- CAN messaging to data-logger
- Optimized for code-space to fit on low-cost target

Software Engineer III - LGS Innovations

Apr 2014 - Mar 2019

- TS/SCI with polygraph
- Optimized C++ polyphase resampler and fir filter to run on ARM with NEON instructions
- Interface library for new SDR using Protobuf messaging and VRT over Ethernet
- Adversarial Research on 802.11b Physical Layer using an SDR
- Library for detecting oddly configured cellular basestations
- P25 scanner library - Goertzel algorithm tuned for quick reject based on energy in frequency window, FSW timing and frequency recovery, Viterbi, RS, BCH, and CRC Decoding
- SDR interface libraries - USRP N210, Sidekiq
- MPT1327 scanner library - IPP optimized fm demod, feedback timing recovery for MSK
- Ported Matlab library for unknown signal analysis into C++

Software Engineer - TecStar Consulting

Mar 2014 - Jun 2014

- Automation Testing using Selenium
- Visualization of Hadoop cluster jobs in JavaScript
- Google Glass Application

Colorado Army National Guard

Oct 2008 - Nov 2014

- Satellite Communication Systems Operator-Maintainer
- Afghanistan deployment 2013

EDUCATION

2014 Bachelor of Science (Computer Engineering Technologies) at DeVry University

- Stereo vision system for Colorado Robotics Challenge
- Worked as a tutor for other Engineering students
- GPA: 3.96/4.0

SKILLS

Programming Languages	Rust, C++20, C++17, C++14, C, Python, Bash
Build Tools	CMake, Makefiles, Cargo, Colcon, Bazel
CI/CD	Github Actions, Gitlab-CI, Jenkins, SonarCloud, Docker, pre-commit
Packaging	Pixi, Conda, Conan, Debian
Debugging	GDB, Valgrind
Testing	Selenium, Catch2, Gtest, Clang-Tidy, Clippy, ASan, TSan, MemSan
Libraries	Eigen, Boost, GSL, Expected, Span, Protobuf, ROS, MoveIt
Racing	Colorado Hill Climbs, Rally America, American Rally Association, World Racing League, National Auto Sport Association, Colorado Karting Tour