

Tucker J. Polomik

Email: tuckerpo@buffalo.edu

Phone: (845) 381-8007

GitHub: <https://github.com/tuckerpo>

LinkedIn: <https://linkedin.com/in/tuckerpo>

Website: <https://tuckerpo.xyz>

EXPERIENCE

- **INFICON** Syracuse, NY
R&D Software Engineer *October 2018 - Present*
 - **Full-Stack:** Full-stack responsibilities ranging from front-end web development to bare-metal assembly code, and everything in between. Custom Linux kernel modules, board bring-up, multi-threaded application level programs, custom network layers on top of TCP/IP, and FPGA interfacing.
 - **Kernel TTY Line Discipline:** Implemented a TTY line discipline kernel-mode driver, allowing a custom serial protocol to be used over any TTY. C, Linux.
 - **Kernel Char Device Driver:** Implemented a kernel-mode char driver for communication to a DSP chip memory mapped to the kernel through an FPGA. C, Linux.
 - **FPGA Registers Over HTTP:** Wrote a web server that would expose an FPGA's memory map through USB over HTTP. Removed the need for bloated FPGA tooling and allowed for rapid firmware prototyping and debugging. Handled 4k req/s. C++, Linux.
 - **FPGA Programming Library:** Wrote a platform agnostic library for programming Intel and Xilinx FPGAs over USB by bit-banging the FPGA bitstream image over the FPGA's passive serial interface. C++, Linux, Windows, LibUSB, LibFTDI.
 - **Security:** Wrapped a legacy protocol networking layer on top of TCP/IP in an SSL tunnel. C++.
 - **ModBus TCP:** Extended the ModBus TCP API for one of our instruments. NodeJS, Python.
 - **Legacy Porting:** Lead a successful effort to port a 650kLOC project from C++98 to C++17.
 - **GUI Programming:** Wrote customer-facing and internal tooling GUIs using a variety of different technologies. Electron (JS, HTML, CSS), wxWidgets (C++, Python), .NET WPF (C#).
 - **Yocto:** Wrote Yocto BSPs and recipes for embedded Linux deployments on x86 and ARM boards.
 - **Technical Screening:** Responsible for in-person technical screenings for potential software engineer hires.
 - **Intern Mentor:** Serve as a mentor for summer software engineering interns.
- **KGB AVIATION SOLUTIONS, LLC.** West Seneca, NY
Student Embedded Engineer *January 2018 - May 2018*
 - **FDR Interfacing Tool:** Worked with the company CEO and several other interns to build an interfacing system for flight data recorders (FDRs).
 - **Reverse Engineering:** Sniffed an RS-422 bus to determine propriety hand-shaking signals.
 - **FTDI:** Interfaced to a FTDI USB to serial chip from a Pine64 SBC to mock hand-shaking signals to flight data recorders, allowing data extraction. Concurrently update a GUI over MIPI DSI.
 - **Shipped Product:** Managed to take an idea from the planning stages and progress to a tangible, secure, shippable embedded system in four months time.

PROGRAMMING & TOOLING

- **Languages:** C++, C, JavaScript, Python, VHDL, x86 and ARM assembly
- **Tools & Frameworks:** GNU tools, CMake, git, Yocto, Visual Studio, Atmel Studio, Quartus, Vivado.
- **OS/Platforms:** Linux, Windows, FreeRTOS, Bare-metal.
- **Hardware:** Comfortable analyzing circuits and reading schematics. Comfortable using oscilloscopes, logic analyzers, and multi-meters.

EDUCATION

- **University at Buffalo, School of Engineering** Buffalo, NY
Bachelor of Science, Computer Engineering *Awarded September 2018*
- **Linux Foundation** Syracuse, NY
Linux Foundation Certified Engineer - Linux Kernel Internals *Awarded December 2019*