

Tucker J. Polomik

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EXPERIENCE

- **INFICON** Syracuse, NY
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 Memory Map over HTTP:** Write web server that exposes FPGA's memory map as addressable over HTTP. 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.
 - **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 technical screenings for potential software & embedded 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 serial packets.
 - **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, Python, JavaScript, VHDL, x86 and ARM assembly.
- **Tools & Frameworks:** GNU tools, CMake, git, Yocto, Visual Studio, Atmel Studio, Vivado, Jenkins
- **OS/Platforms:** Linux, Windows, FreeRTOS, Bare-metal.
- **Hardware:** Comfortable reading schematics & using oscilloscopes, logic analyzers, multi-meters, etc.

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*