NICK STEVENS

Brooklyn Center, MN

(651) 402-1610

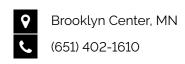nickastevens83@gmail.com

github.com/nastevens

INTRODUCTION

Experienced software engineer with deep knowledge of network-connected embedded devices and associated back-end cloud services. Linux expert. Knowledgable in hardware and PCB design for embedded product development.

SKILLS

- Rust
- Yocto
- Python
- C/C++
- Shell

- Lua
- JavaScript
- Terraform
- Java
- Groovy

- AWS
- Android
- LaTeX
- Git

EXPERIENCE

2016 – 2023

Samsung SmartThings   Senior Staff Software Engineer

```
Rust / C / Python / Yocto / Shell / Lua / AWS + Terraform
```

- Designed and implemented secure firmware update server and client for Hub products, written in 100% Rust. Server was extremely efficient, running at a fraction of the cost of other SmartThings cloud services, while maintaining very high uptime with no unplanned outages in 6 years.
- Wrote Yocto recipes for building the Hub firmware operating system, including advanced classes for automating firmware image encryption and signing.
- Performed board bring-up for Hub 2018 model, including U-boot and Linux kernel customization work.
- Implemented full-disk encryption and hardware-backed secure boot setup for Hubs.
- Created a streaming log encryption and compression tool for securely retrieving logs from hubs. Open-sourced the encryption envelope format as Saltlick at github.com/saltlick-crypto
- Replaced outdated and buggy Hub manufacturing tools with streamlined tool created in Python for Hub 2015 and 2018 models.
- Overhauled CMake build of primary Hub application to provide easy cross-compilation of mixed C, C++, and Rust codebase.
- Wrote numerous Hub system utilities in Rust and Shell.
- Stood up containerized infrastructure in AWS Elastic Container Service (ECS) with Jenkins CI to run heavyweight Yocto builds automatically.
- Created in-depth technical proposals and documentation for all of the above.

2014 – 2016

Digi Wireless Design Services   Senior Software Engineer

```
C / Python / Yocto
```

- Developed Yocto-based Linux board support package for Freescale ARM7 board.
- Wrote Linux kernel RS-485 driver for Freescale i.MX28 processor.
- Back-ported Linux Bluetooth drivers from kernel 3.17 to 3.14.
- Submitted Linux kernel bug patch for MCP3021 analog to digital converter (SHA 347d7e45).
- Wrote platform-independent implementation of `expect` library in Python with full support for Unicode and binary data.

| 2012 – 2014 | **QiG Group (c/o Greatbatch)** | **Firmware Engineer** |

`C / C++ / Java / Groovy`

- Participated in cross-functional hardware/firmware team working to re-certify an implantable medical device acquired by QiG group from a defunct company. Specifically responsible for a full code audit of the C/C++ firmware code base.
- Created proof-of-concept Android application for communicating with custom USB hardware to retrieve data from the implanted device and upload that data to a cloud data collection service (written in Python).
- Developed Android application for emulating a limited Hayes command set and Point-to-Point Protocol (PPP) implementation to allow a legacy device to communicate over a cellular modem as if talking to a Bluetooth dial-up modem.

| 2012 – 2013 | **FPX** | **Software Engineer (Contractor)** |

`C++ / Java`

- Performed 32-bit to 64-bit conversion of 70,000-line cross-platform (RedHat Linux and Windows) C++ application as part of three-person team.
- Rewrote build system based on Borland tools using GNU Make and MinGW.

| 2009 – 2012 | **ProMetric Systems** | **Software Engineer** |

`LabVIEW / C / Java / Verilog`

- Created serial communication wedge using Verilog and a Spartan 3 FPGA to bridge a standard PC USB port to five serial busses (Two I^2C busses, a One-Wire bus, and two proprietary serial busses).
- Worked on an agile team implementing and maintaining LabVIEW-based test platform for simultaneous testing up to 450 rechargeable batteries.
- Wrote and validated Java library for Yokogawa SL1000 DAQ instrument.

| 2006 – 2009 | **Boston Scientific Cardiac Rhythm Management** | **Electrical Engineer, Manufacturing Test** |

`LabVIEW / Java / Python`

- Developed Java desktop application for easily reading and displaying data from pacemaker memory dumps.
- Worked with team of developers to create a LabVIEW-based high voltage test system for implantable cardiac leads.
- Wrote and distributed Excel macros and Python scripts for processing field return data.

EDUCATION

| 2001 – 2006 | **Rose-Hulman Institute of Technology** | **Bachelor's Degree** |

`GPA: 3.89`

- Co-op student for Johnson & Johnson Consumer Products for a total of 12 months.
- Teacher's assistant for Digital Design I and II.