Jason Manning
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github.com/manno23

Objective: To continue my career in development and analysis of digital systems by moving to wherever the opportunities present. I wish to work in an environment that allows me to utilize my development experience as well as my passion to work with others, exhibit professionalism, and take on daily challenges.

EMPLOYMENT HISTORY

BIOS Firmware Contractor *Core Control Systems* *September - Present*

- Create customised boot firmware based on the open source Coreboot project.
- Each firmware I customised to the clients needs including such modifications as custom boot animations, disabling harmful CPU features, varying payloads and configurations. I also included hardware modifications to increase security and control of the machines.
- Contributed to the Coreboot projects in the open source community efforts.
- Created methods for flashing the ROM chip on motherboards, using a PIC microcontroller and interactive python script PyBusPi (available on my Github).
- Developed and implemented niche marketing strategies.
- Educated prospective clients to the benefits of freedom respecting firmwares as they apply to laptops containing sensitive information.

Embedded Software Engineer *Frigbot* *May – August 2015*

- Designed and Implemented a bootloader solution for use in an M2M embedded micro-controller (16bit PIC device).
- The bootloader had capabilities to switch to a new program that had been updated remotely.
- Built the testing framework which the main programs could be tested against with the emulator in the Microchip IDE.
- I was involved with reverse engineering communication protocols of the fridge motor control unit using a logic analyzer and my own oscilloscope.
- Created software tools and procedures to manipulate the compiled binaries and make them ready to load onto the device.
- Worked with the electrical engineers in the architecture of the main state machine program. Devised compression and error checking techniques for the remote communications.

RELEVANT SKILLS

Embedded Electronics Design, debugging signals and timings with oscilloscope, C/C++ (gcc, constructing object files with the linker, modifying default stack and heap initialisation, relevant language abilities __attribute__), cooperative multitasking, interrupt handling, minimal Linux builds with busybox and custom kernels, Yocto

Android / Java OO Patterns, OS knowledge (IPC with Binder interface, services, broadcast listeners, activity lifecycle etc..), building with Ant and Maven, Debugging in Intellij IDE, Test Harnessing

Reverse Engineering IDA Pro, radare2, x86 asm, pci architecture and initialization, linux and windows OS principles, BIOS, qemu, gdb

Web Design Python, Django, Javascript, SQL

OS Windows, Linux, OpenBSD, configuring firewalls (iptables, pf), routing, traffic controls, scripting with bash, package management, secure boot, BIOS design, kernel security (Grsec, apparmor, selinux), systemd administration

OPEN PROJECTS

HydraHead – *Wireless LAN based interactive music system*
github.com/manno23/HydraHead github.com/manno23/Hydra

Cross-platform server (written in multi-threaded python) 'HydraHead' with a GTK frontend.
The server responds to and arbitrates events between connected virtual midi ports (which are connected to some music sequencer software) and the attached android clients.
The idea is that the 'Hydra' android application created can be used by multiple people in an audience to interact with a live music performance, with full control given to the music creator in his sequencer software.

EDUCATION

Computer Science Curtin University *2014*

Electrical Engineering University of Western Australia *(2 years completed)*

REFERENCES

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