ADAM SCHWALM

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EXPERIENCE

Star Lab / Wind River Systems
Hypervisor Product Lead — *Jan 2019 — Present*
Software Engineer — *Dec 2017 — Jan 2019*

- Lead team of developers to create security-focused hypervisor based on Xen. This work included designing/implementing new, customer-driven functionality with a focus on improving product security posture and performance
- Worked with a team to build and maintain Linux kernel product functionality. In particular, developed extensions for the Kernel Crypto API and implemented a block-level encryption solution
- Helped develop prototype anomaly detection product for embedded platforms using TensorFlow
- Interacted with customers to gather requirements and diagnose issues

Dynetics, Inc.
Software Engineer / Reverse Engineer — *May 2015 — Dec 2017*

- Worked with team to reverse engineer embedded, real-time systems
- Developed tools to facilitate reverse engineering efforts including programs to exploit defects in cryptographic implementation
- Worked extensively to extract information from closed-source embedded filesystems

Viasat, Inc.
Software Engineer, Intern — *May 2014 — Mar 2015*

- Designed and implemented high-performance QNX applications to enable improved user-interface creation
- Worked with a team to develop a modern HTML5 web frontend to replace a legacy interface for a widely used product

ADTRAN, Inc.
Software Engineer, Intern — *Jan 2013 — May 2013*
Support Engineer, Intern — *May 2012 — Auguest 2012*

- Developed automated test solutions for analog to digital telephony product
- Worked with Green Hills hardware probe to debug low-level issues
- Supported customers with complex network setups

TECHNICAL STRENGTHS

Languages	Rust, Python, C, C++, Javascript
Platforms	GNU Linux (CentOS/RedHat, Ubuntu, ArchLinux), QNX
Development	Git, Emacs, make, Docker, GitLab
Testing	Behave, cargo-test, gtest
Virtualization	Xen, QEMU, libvirt, VirtualBox

EDUCATION & PUBLICATIONS

Exporting IDA Pro Debug Information Link
RECON Montreal *Oct 2017*

Gave a talk describing a new tool I designed to assist in reverse engineering certain platforms. This tool effectively extract information from IDA Pro and converts it to the widely used DWARF debug format.

Stacking the Virtual Deck
DerbyCon *Sept 2015*

Gave a talk describing some attack vectors on common random number generators in various tools and languages as well as demonstrating some practical attacks using a new tool that predicts the output from these RNGs.

Mississippi State University Spring 2015

B.S. in Software Engineering

Summa Cum Laude

PROJECTS

Mythril Hypervisor Link

A type-1 hypervisor written from scratch in rust. This project is designed to help experiment with hypervisor design and low-level rust usage. It is currently capable of booting multiple multi-core Linux virtual machines, but is still very early in development.

Transient Link

A wrapper around QEMU to provide features like declarative virtual disk creation, shared folders and SSH support. This tool was designed to help test kernel and hypervisor features by allowing fast creation and destruction of virtual machines in parallel (and within Docker containers).

Foresight Link

A python library and command line tool to predict the output of random number generators across a variety of platforms including PHP, glibc, MSVC, Java, MySQL and others.