Mitchell J. Johnson

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Job Experience

Security Researcher – GRIMM
Grand Rapids, MI
Fall 2016 – Present

- Assessed embedded and automotive systems for security issues
- Reverse engineered hardware and software systems for purposes of vulnerability research
- Created tools to disassemble and analyze software targeted to uncommon processor architectures such as PPC VLE and Renesas V850
- Wrote open-source software and firmware to use off-the-shelf development boards in lieu of expensive proprietary tools
- Crafted proof-of-concept exploits to demonstrate system vulnerabilities to clients

Senior Developer – Modustri
Grand Rapids, MI
Fall 2015 – Fall 2016

- Lead development of a rich Ember.js and Ruby on Rails web application used to manage inspection of heavy-duty machinery
- Implemented and tested features in an Objective C iOS mobile application
- Worked with product teams to help shape new features and improve quality

Developer & Maker – Atomic Object, LLC
Grand Rapids, MI
Spring 2012 – Fall 2015

- Worked directly with customers in multidisciplinary teams on a wide variety of projects
- Created an embedded Linux platform and corresponding applications for a next-generation controller of industrial laundry equipment
- Wrote embedded control software and user-facing Windows GUI for a pipeline inspection data logging tool
- Implemented rich JavaScript clients and corresponding web services in a variety of frameworks
- Implemented and deployed hybrid applications for iOS and Android

Software Developer – Lasalle Technology Group, LTD
Hancock, MI
Summer 2009 – Spring 2012

- Developed and maintained software for financial markets
- Created desktop applications in Java on the Eclipse framework as well as network inspection applications in C
- Responsible for POSIX system ports and support, including Solaris and Linux

Education & Honors

Michigan Technological University
Houghton, MI
Fall 2008 – Spring 2012

- B.S. Computer Science, Computer Engineering
- Cum Laude
- Member Upsilon Pi Epsilon Honor Society

Blue Marble Security, Michigan Tech Enterprise Program
Fall 2010 – Spring 2012
Teams: Decepticam, Motor Controller, Autobot

- Worked in a variety of small interdisciplinary groups
- Responsible for low-level software drivers and software of Autobot, a robot for the AUVSI Intelligent Ground Vehicle Competition
- Designed hardware and software for a brushed DC motor controller

Skills

- Outstanding troubleshooting and diagnostic skills
- Competency with C, Python, Ruby, JavaScript, HTML/CSS, C#, .NET, Java, and other languages
- Skilled in the use of disassemblers such as Binary Ninja and objdump
- Literate in various assembly languages, including ARM, PowerPC VLE, x86, and V850
- Familiarity with FreeRTOS and embedded systems
- Experience building custom Linux board support packages with Yocto
- Networking experience with Linux and Windows
- Building and debugging electronics
- Adroit with lab equipment such as soldering irons, hot-air rework stations, oscilloscopes, and logic analyzers
- Proficiency administrating and operating Linux, Windows, and macOS

Hobbies

- Tearing down and dumping firmware from IoT widgets
- Amateur radio (Amateur Extra class, AC8ZM)
- Fiddling with software-defined radio
- Working with open-source software
- Playing with functional programming languages
- Reading fiction
- Listening to music
- Watching bad movies