Mitchell Johnson

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Work Experience

Software Developer – Paragon Recruiting / DENSO
Grand Rapids, MI
Fall 2020 – Present
- Created firmware for proof-of-concept UWB phone-as-a-key automotive systems
- Mentored junior developers, refactored existing software, and architected new features
- Utilized both hardware and software debugging skills to diagnose and fix complex system bugs

Senior – Ernst and Young
Grand Rapids, MI
Spring 2019 – Fall 2020
- Tested connected products for security flaws
- Crafted proof-of-concept exploits to demonstrate system vulnerabilities to clients
- Reverse engineered hardware and software systems for purposes of vulnerability research

Security Researcher – GRIMM
Grand Rapids, MI
Fall 2016 – Spring 2019
- Assessed automotive and general embedded systems for security issues
- Created tools to disassemble and analyze software targeted to uncommon processor architectures
- Designed open-source tools to replace expensive proprietary diagnostic products

Senior Developer – Modustri
Grand Rapids, MI
Fall 2015 – Fall 2016
- Lead development of an Ember.js and Ruby on Rails webapp used to inspect heavy machinery
- 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 clients in multidisciplinary teams on a wide variety of projects
- Created an embedded Linux platform and control applications for industrial laundry equipment
- Wrote embedded control software and user-facing Windows GUI for a pipeline inspection tool

Software Developer – Lasalle Technology Group, LTD
Hancock, MI
Summer 2009 – Spring 2012
- Wrote software to manage FIX dictionaries and monitor financial trading communications
- Created desktop Eclipse applications as well as network inspection applications in C
- Responsible for ports including Solaris and Linux

Education & Honors

Michigan Technological University
Houghton, MI
- B.S. Computer Science, Computer Engineering
- Cum Laude
- Member Upsilon Pi Epsilon Honor Society

Blue Marble Security, Michigan Tech Enterprise Program
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

Personal Projects

- Fast Ethernet to 100-BaseT1/BroadR-Reach media converter
- LPC5514-based USB-HS CAN-FD adapter
- Binary Ninja architecture plugins for Renesas V850 and PowerPC VLE support
- Binary Ninja plugin to add memory mapped peripheral annotations based on ARM CMSIS-SVD files
- Rust+STM32-based SNES to CD-i controller adapter

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, Xtensa, and V850
- Familiarity with FreeRTOS and embedded systems
- Experience building custom Linux board support packages with Yocto
- Design, drafting, layout, and assembly of moderately complex electronics
- Using lab equipment such as soldering irons, hot-air rework stations, oscilloscopes, and logic analyzers