David McNeil

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Profile

I am seeking a full time position applying the Rust programming language to the development of reliable and efficient software. I am an advocate of iterative design ensuring the continuous delivery of tested, documented, robust software. One of my greatest strengths is the ability to take a problem or technology, study it in general, focus in depth on relevant aspects, and distill this knowledge into a practical solution. Examples where I have applied this process include: machine learning, web development, and containerization frameworks.

Experience

2016 - Present
Three Years

n~ask incorporated - MEMBER OF THE TECHNICAL STAFF - AURORA, COLORADO
- Active Top Secret/Sensitive Compartmented Information (TS/SCI) clearance.
- Designed, developed, and maintained an operational system which ingests terabytes of data a day processed by several DSP and geolocation algorithms producing millions of results. The system runs using a containerized architecture consisting of hundreds of processes distributed on tens of machines located across the world. The system produces millions of metrics a day allowing for efficient monitoring and diagnostics. I created several web clients for management and visualization of the system as well as a native client used extensively by analysts.
- Developed a canvas based mapping library for efficiently rendering millions of features.
- Designed and developed the frontend for mission management software.
- Created a test harness for running hundreds of system tests in an analytics framework.
Technology: C, C++, Docker, Go, InfluxDB, Java, Nomad, MongoDB, Python, Qt, React, Rust, TypeScript

2014 - 2015
Three Months

Indesign, LLC - FIRMWARE ENGINEER INTERN - INDIANAPOLIS, INDIANA
- Developed an embedded system which interfaced with numerous sensors and actuators.
Technology: C, Current Sensor, Hall Effect Sensor, MSP430, RFID, Servo Motor

2014 - 2015
Nine Months

Naval Surface Warfare Center - SENIOR DESIGN PROJECT - CRANE, INDIANA
- Designed and developed a system to predict location based on RF spectrum data.
Technology: GPS, Python, Software Defined Radio, SQLite

2013 - 2014
Three Months

Garmin Ltd. - LOW LEVEL SOFTWARE ENGINEER INTERN - OLATHE, KANSAS
- Developed software for operating system profiling during route execution.
- Updated, maintained, and debugged extensive C/C++ code base.
Technology: C, C++, Hardware Debugger

2012 - 2013
Three Months

Cetani - SOFTWARE DEVELOPMENT INTERN - CARMEL, INDIANA
- Developed a server for issuing hospital notifications and pushing real-time changes to front end user interfaces.
- Maintained and implemented new features in a Ruby on Rails application.
Technology: C#, HTML, CSS, Javascript, Node.js, Rails, Ruby, SQLServer

2011 - 2012
Three months

Oasis Digital - SOFTWARE DEVELOPMENT INTERN - CHESTERFIELD, MISSOURI
-Designed a work management system with a Node.js backend and responsive frontend.
Technology: Backbone.js, CSS, HTML, Javascript, Node.js, PostgreSQL

Projects & Coursework

2018
Eighty Hours

Courier
- A pub/sub service with an HTTP, JSON API and web based statistics and management page.
-Clients for C++, Go, Python, and Rust.
Technology: Inferno.js, Rust, Typescript

2017
Forty Hours

The Rusty Web
- One of the first complete resources detailing how to integrate Rust, compiled to asm.js or WebAssembly, into a web application.
- Benchmarked implementations of the k-means clustering algorithm in different browsers.
Technology: asm.js, JavaScript, Rust, WebAssembly

2015 - 2016
One Year

Master's Thesis
- Developed a custom RISC instruction set architecture with assembler, compiler, and simulator.
Technology: Bison, C++, Flex, LLVM

2015 - 2016 *Thirty Weeks*	**Machine Learning** - Developed a sunset image classifier, optical character recognition software, resistor classifier, and voice recognition software. - Certification in machine learning from Stanford University. **Technology:** Lua, MATLAB/Octave, Neural Networks, Python, Support Vector Machines, TensorFlow, Torch
2015 - 2016 *Ten Weeks*	**Artificial Intelligence** - Study of search algorithms, reinforcement learning, machine learning, and applications. **Technology:** Natural Language Processing, Python
2015 - 2016 *Ten Weeks*	**Compiler Construction** - Developed a Java subset to LLVM bytecode compiler. **Technology:** ANTLR, Java, LLVM
2015 - 2016 *Ten Weeks*	**DSP System Design** - Study of finite word length effects in DSP systems. - Implemented single sideband communication system. **Technology:** LabVIEW, MATLAB
2015 - 2016 *Twenty Weeks*	**MEMS Modeling and Fabrication** - Optimization of heat actuator process flow. **Technology:** Etchants, Electron Beam Evaporator, Photoresist Spinner, Mask Aligner
2012 - 2015 *Ten Weeks*	**Data Structures and Algorithm Analysis** - Intensive study of space and time trade-offs of using various data structures and algorithms. **Technology:** Java
2012 - 2015 *Ten Weeks*	**Programming Language Concepts** - Studied syntax, semantics, and design of programming languages. - Implemented a Scheme interpreter. **Technology:** Scheme
2012 - 2015 *Ten Weeks*	**Computer Networks** - Developed an HTTP server dealing extensively with sockets and network communication state machines. **Technology:** C, C#, Wireshark
2012 - 2015 *Ten Weeks*	**Operating Systems** - Created a bare metal operating system with: interactive shell, process scheduling and execution, and basic file manipulation. **Technology:** Bochs Emulator, C, Mips, x86
2012 - 2015 *Twenty Weeks*	**Computer Architecture** - Study of RISC architectures, DSP architectures, and modern, out-of-order processors. - Designed and implemented a multicycle processor and assembly language. **Technology:** gem5 simulator, MIPS assembly, Spartan-3 board, Verilog, x86 assembly,
2012 - 2015 *Thirty Weeks*	**Signals and Systems** - Study of continuous and discreet time signals and systems. - Design and analysis of filters and sampling methods. **Technology:** Electronics lab bench equipment, LabVIEW, Matlab
2012 - 2015 *Twenty Weeks*	**Embedded Systems** - Developed digital systems using PIC microcontrollers interfacing with digital and analog peripherals. **Technology:** C, PCB Design Software, PIC Assembly
2010 *One month*	**Ants AI Challenge** - Placed 323 out of nearly 8000 contestants in an international programming contest to implement an algorithm controling a virtualized colony of ants. **Technology:** Python

Education

2015 - 2016 *Ome Year*	**Rose-Hulman Institute of Technology** - Terre Haute, Indiana Master of Science in Electrical Engineering with a focus on computer architecture.
2012 - 2015 *Three Years*	**Rose-Hulman Institute of Technology** - Terre Haute, Indiana Bachelor of Science in Computer Engineering, Minor in Computer Science.