David McNeil

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Profile

I am a graduate of Rose-Hulman Institute of Technology with a bachelor's in computer engineering and a master's in electrical engineering focusing on machine learning and computer architecture. I am currently employed at n∼ask incorporated designing, developing, and implementing digital signal processing applications, analyst tools, and supporting architectures for the intelligence and defense communities.

Experience

2016 - Present — *Current*
n∼ask incorporated - Member of the Technical Staff - Aurora, Colorado
Design, develop, and implement digital signal processing applications, analyst tools, and supporting architectures for the intelligence and defense communities.
Technology Used: C, C++, Python

2014 - 2015 — *Three Months*
Indesign, LLC - Firmware Engineer Intern - Indianapolis, Indiana
Developed an embedded system which interfaced with numerous sensors and actuators.
Technology Used: C, MSP430, Hall Effect Sensors, Current Sensors, RFID, Servo Motors

2014 - 2015 — *Nine Months*
Naval Surface Warfare Center - Senior Design Project - Crane, Indiana
Developed a system to predict location based on RF spectrum data.
Technology Used: Python, SQLite, GPS, Software Defined Radio

2013 - 2014 — *Three Months*
Garmin Ltd. - Low Level Software Engineer Intern - Olathe, Kansas
Developed software for operating system profiling. Updated, maintained, and debugged extensive C/C++ code base.
Technology Used: C, C++, Lauterbach Debugger

2012 - 2013 — *Three Months*
Cetani - Software Development Intern - Carmel, Indiana
Developed a server for issuing hospital notifications and pushing real-time changes in generic data to front end user interfaces.
Technology Used: Ruby, Rails, C#, Javascript, Node.js, SQLServer, HTML, CSS

2011 - 2012 — *Three months*
Oasis Digital - Software Development Intern - Chesterfield, Missouri
Developed a work management system from the ground up.
Technology Used: Node.js, Javascript, Backbone.js, PostgreSQL, HTML, CSS

Projects & Coursework

2015 - 2016 — *One Year*
Master's Thesis - Terre Haute, Indiana
Developed a naturally extensible, custom instruction set architecture and the corresponding assembler, compiler, and simulator.
Technology Used: C, C++, Flex, Bison, LLVM

2015 - 2016 — *Ten Weeks*
Compiler Construction
Developed a Java compiler.
Technology Used: Java, ANTLR, LLVM

2015 - 2016 — *Ten Weeks*
Advanced Microcomputers
Developed systems which integrated FPGA and microprocessor components.
Technology Used: C, Verilog

2015 - 2016 — *Ten Weeks*
Intro to Random Process Estimation
Study of techniques to analyze and characterize random processes.
Technology Used: MATLAB

2015 - 2016 — *Ten Weeks*
DSP System Design
Study of finite word length effects in DSP systems. Implemented SSB communication system.
Technology Used: MATLAB, LabVIEW

2015 - 2016 — *Ten Weeks*
Artificial Intelligence
Study of searching algorithms, reinforcement learning, machine learning, and cutting edge applications.
Technology Used: Python, Natural Language Processing

2015 - 2016 — *Ten Weeks*
Mixed Signal Test and Product Engineering
Developed software capable of testing comparators, digital to analog converters, and analog to digital converters.
Technology Used: C, Automated Test Equipment

2014 - 2016 **Machine Learning**

Thirty Weeks Developed a classifier for detecting sunset images, optical character recognition software, resistor classification software, and voice recognition software. Certification in machine learning from Stanford University.

Technology Used: TensorFlow, MATLAB/Octave, Neural Networks, Support Vector Machines

2014 - 2016 **MEMS Modeling and Fabrication**

Twenty Weeks Optimization of heat actuator process flow. Study of advanced processing techniques.

Technology Used: Photoresist Spinner, Electron Beam Evaporator, Mask Aligner, Chemical Etchants

2012 - 2015 **Computer Architecture**

Thirty Weeks Designed and implemented multicycle processor and corresponding assembly language. Study of RISC architectures, DSP architectures, and modern out of order processors.

Technology Used: Verilog, Spartan-3 board, MIPS assembly, x86 assembly, gem5 simulator

2014 - 2015 **Programming Language Concepts**

Ten Weeks Studied syntax, semantics and design of programming languages and implemented a Scheme interpretor.

Technology Used: Scheme

2014 - 2015 **Digital Systems**

Ten Weeks Designed combinational and sequential logic circuits using FPGAs. Developed system which interfaced over VGA to play simple game.

Technology Used: Verilog

2013 - 2015 **Signals and System**

Thirty Weeks Study of continuous and discreet time signals and systems. Design and analysis of filters and sampling methods.

Technology Used: Matlab, LabVIEW, Electronics lab bench equipment

2013 - 2014 **Data Structures and Algorithm Analysis**

Ten Weeks Intensive study of space and time trade-offs of using various data structures and algorithms.

Technology Used: Java

2013 - 2014 **Embedded System Design**

Ten Weeks Developed digital systems using PIC micro-controllers. Interfaced with both digital and analog peripheral devices. Studied PCB layout and design.

Technology Used: C, Assembly Language, Eagle PCB Design Software

2012 - 2013 **Operating Systems**

Ten Weeks Created bare metal operating system with interactive shell and process scheduling algorithm. OS provided basic file manipulation and script running capabilities.

Technology Used: C, x86 assembly, Bochs Emulator

2012 - 2013 **Computer Networks**

Ten Weeks Developed an HTTP server. Dealt extensively with sockets and network communication state machines.

Technology Used: C, C#, Wireshark

2012 - 2013 **Circuit Design and Analysis**

Forty Weeks DC/AC Circuits, Electronic Device Modeling, Analog Electronics. Learned and put into practice circuit analysis and construction techniques.

Technology Used: Electronics lab bench equipment, SPICE

2010 - 2011 **AI Challenge**

One month Placed 323 out of nearly 8000 contestants in an international programming contest. Implemented algorithm to control a virtualized colony of ants.

Technology Used: Python

Education

2015 - 2016 **Rose-Hulman Institute of Technology** - Terre Haute, Indiana

Ome Year Master of Science in Electrical Engineering with a focus in computer architecture and machine learning.

2013 - 2015 **Rose-Hulman Institute of Technology** - Terre Haute, Indiana

Three Years Bachelor of Science in Computer Engineering, Minor in Computer Science.