Micah T. Boswell

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Education

Bachelor of Science, Computer Engineering, August 2012
Virginia Tech, Blacksburg, VA

Associate of Science, Engineering, January 2009
Virginia Western Community College (VWCC), Roanoke, VA

Software Skills

Programming:
C, C++
Qt, Boost, OpenCV
Matlab, Simulink
Verilog
Python, django
PHP, Perl
Oracle PL/SQL, MySQL
Parallax Propeller, BS2
HTML 5, CSS3
Javascript, jQuery

Engineering:
Altera+Xilinx FPGAs
Cadsoft Eagle PCB Design
PIC, AVR, Arduino
TI MSP430

Development Tools:
Linux: CentOS, Debian, Angstrom
GCC, Visual Studio, Eclipse
SVN, Git, Mercurial, PVCS
Microchip MPLAB

Information Technology:
Windows Server, Windows XP/7
OS X Mountain Lion
Office 2010 Windows/Mac
Apache, MySQL

Other:
Full portfolio at LinkedIn:
http://www.linkedin.com/in/micahtboswell/
Latest version of this resume available at:
http://www.micahtboswell.com/

Relevant Experience

Management/Training/Organizational Ability

- Managed team of 20+ engineering students for six consecutive semesters
  - Led team of 6 at two international Autonomous Underwater Vehicle (AUV) competitions
- Co-managed a local autonomous robotics competition for three years
- Maintained inventory management database for over 500 computers

Engineering/Technical

- **Engineering Design:** Directed construction of two AUVs (Autonomous Underwater Vehicles) bound for international competition, working with mechanical, aerospace, and computer engineering students
  - Designed electronics system for vehicle, with computer, sensors, and motor drivers
- **Verilog, Altera FPGA:** Implemented Pac-Man video game level in **Verilog** on an Altera **FPGA**
  - Designed sprite implementations with animation/scaling and 32-bit color
  - Used VGA for output/display, PS/2 keyboard input for control of game
  - Implemented same NPC behavior as original game with state machines
- **PIC MCU, Cadsoft Eagle:** Engineered infrared sensor system to detect model trains
  - Designed printed circuit board (PCB) with attached **PIC microcontroller** to read sensors
  - Sensors used signal modulation and independent sampling to reduce noise/interference

Programming

- **C++, Qt, OpenCV:** Developed software for Autonomous Underwater Vehicle
  - Object-Oriented design using cross-platform libraries
  - Embedded design: Hardware Interfaces/drivers
  - Wrote thousands of lines of code, using many different design patterns and technologies
- **C++, Qt, Git:** Wrote cross-platform software for automated version control and synchronization
- **TI MSP430, C:** Implemented elliptic curve cryptography algorithms on MSP430 microcontroller
- **Matlab, Simulink:** Control Systems, Computer Vision

Selected Work History

Software Developer, Heliotext Inc., Blacksburg, VA
June 2013 – Present
- Develop software for future web-based service

Tutor (Math and Engineering), Virginia Western Community College, Roanoke, VA
February 2013 – Present
- Tutor students in a variety of subjects including algebra, pre-calculus, chemistry, and C++

Intern (Kaizen and I.T.), Yokohama Tire Corp., Salem, VA
June 2012 – February 2013
- Worked with Kaizen group to optimize measurement of manufacturing machine failures
- Automated reporting processes for kaizen analysis
- Wrote forms and reports for primary manufacturing Oracle database, after performing analysis of needs
- Mapped industrial Wi-Fi network performance for 20 acre section of manufacturing facility

Helpdesk Technician, I.T. For Admin. Services, Virginia Tech, Blacksburg, VA
August 2011 – May 2012
- Manned helpdesk tech support for department with 400+ computers, 50+ printers, and mobile devices
- Collaborated with other technicians via ticketing software and inventory database
- Performed new hardware deployments, including processing and deploying 20+ computers in two weeks
- Integrated new Apple OS X computers into Windows domain

Web developer, Wireless @ VT REU Program, Virginia Tech, Blacksburg, VA
May 2011 – August 2011
- Designed website to attract students to educational program, following branding guidelines
- Installed CMS to facilitate website content modifications and updates

Lead Engineer, Virginia Tech Autonomous Underwater Vehicle Team, Blacksburg, VA
September 2008 – April 2011
- Managed team of 30+ undergraduates during Fall/Spring semesters, 6 full-time workers during summer
- Designed AUV structure and systems, and supervised design and construction by other students
- Designed and implemented electronics system, which included a single-board-computer, attitude and heading sensors, cameras, pressure sensor, power distribution, and high-power motor controllers
- Wrote software for vehicle systems, including
- Designed and supervised manufacturing of chassis and pressure vessel, including seals for electrical wiring, buoyancy calculations and optimization, thruster mounts and placement, ballast, and torpedoes
- Managed team budget and fundraising, including annual trip to San Diego, CA for competition

Teacher's Assistant (Robotics), Virginia Western Community College, Roanoke, VA
Spring 2007 – Fall 2009
- Co-managed college-sponsored autonomous robotics competition (open to college and 6th grade and up)
- Taught teams about robotics and programming, assisted with robot technical issues
- Assisted with competition events, have served as judge at each competition since

Web Developer, VisualCMG, Roanoke, VA
June 2006 – March 2007
- Managed and developed software for 40+ e-commerce web sites

Academic Projects

Embedded Systems – Model Train Tracking – Team Project
- Co-designed a system for tracking and displaying the positions and speeds of model trains on a Digitrax LocoNet controlled layout
- Produced microcontroller-based portions of design, including sensors, signal processing, and PCB design/manufacture

Digital Design – Pac-Man on an FPGA with Verilog
- Implemented the first level of the popular Pac-Man game on an Altera DE-2 FPGA development board
- Programmed in Verilog, using the VGA output and PS/2 keyboard input on the DE-2
- Achieved only perfect grade for final project that semester