

MITCHEL ALLEN HUMPHERYS

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WORK EXPERIENCE

Qualcomm Inc.

San Diego, CA

Embedded Software Engineer

2012-current

Developed drivers for and made enhancements to the Linux kernel for Qualcomm MSM ARM SoCs. Made enhancements to Google's Ion memory management framework. Worked on the IOMMU driver. Wrote functional unit tests and performance regression tests for Ion and other memory components. Performed "bring-up" of new chips. Worked on the camera userspace HAL and kernel driver.

L-3 Communications, Linkabit Division

San Diego, CA

Senior Embedded Software Engineer

2011-2012

Developed software in C++ and C for a Satcom IP Modem. Made improvements to the over-the-air message format to optimize bandwidth utilization. Implemented new features and enhancements to the modem protocol code. Worked on porting a TCP accelerator module (based on the SCPS-TP protocol) from a modified FreeBSD system to VxWorks. Worked with Linux, FreeBSD, and VxWorks kernel modules and device drivers, as well as the internals of the FreeBSD network stack. Developed scripts in Python and Bash to automate the process of downloading new code to the target platform. Worked on a Wireshark dissector used to debug the over-the-air messages. Implemented an Ethernet software bridge in userspace with libnetfilter_queue and iptables using C and Bash to simulate the latency of the satellite network. Produced design documentation for several new features and conducted design reviews. Trained other team members on the git version-control tool.

Utah State University ECE Department

Logan, UT

Research Assistant

2010

Worked in a research lab in the ECE department to develop a wireless sensor network to monitor horse distress levels using an AVR-based ZigBee software/hardware stack, accelerometer, and tilt sensors. Built using a gcc cross-toolchain under Linux.

Utah State University Research Foundation

Logan, UT

Web Applications Developer

2007 - 2010

Developed dynamic web applications using Tcl, JavaScript, and PostgreSQL in a Unix environment.

Center for Self-Organizing and Intelligent Systems

Logan, UT

Research Assistant

2008 - 2009

Helped develop a platform for an Unmanned Aerial Vehicle project. Developed airplane-tracking software in C++ and OCaml for the UAV autopilot software. Worked with an embedded Linux environment on Gumstix development boards. Helped develop a vision-based navigation platform for the UAV using OpenCV and the Ivy Software Bus.

OTHER PROJECTS

Android Development

Developed and maintain two Android applications (currently available on the Amazon App Store). *Track That Thing*: a real-time location tracker which stores data to a Google App Engine cloud application with an accompanying web interface. *WikiPaper*: a live wallpaper that pulls random articles from Wikipedia and displays their summary in an auto-scrolling interface on the home screen.

EDUCATION

Utah State University

2004 - 2010

Graduated cum laude with a B.S. in Computer Engineering and a minor in Computer Science. GPA: 3.67.

SKILLS

Programming Languages: C, C++, Python, Bash, JavaScript, Emacs Lisp, PHP, TCL, Assembler (x86 and ARM), Java, C#.

Libraries, Tools, and Systems: GCC, Linux kernel, ftrace, Make, TCP/IP, Emacs, JTAG, GDB, RS-232, Vim, GNU Global, cscope, Git, Subversion, ClearCase, Gerrit, awk, sed, Boost, scapy, matplotlib, Wireshark, tcpdump, iperf, Sqlite3 (C and Python bindings), PostgreSQL, MySQL, HTML, CSS, Google App Engine, Django, Android SDK, VxWorks, FreeBSD, libnetfilter_queue, iptables, L^AT_EX, I²C, Eagle PCB Design, OpenCV.

Miscellaneous: Fluent in the Portuguese language.

ACTIVITIES

Futsal Club Committee Chair

Qualcomm Inc

2012 - current

Coordinated and organized Futsal games on Qualcomm campus, providing much-needed recreation and physical activity for 15-20 other players. Currently seeking official sponsorship and recognition by Qualcomm.

College of Engineering Ambassador

Utah State University

2008 - 2010

Served as a representative for the College of Engineering. Gave tours to potential engineering students. Also went on recruiting trips.

USU IEEE Council Webmaster

IEEE

2009 - 2010

Served on the USU IEEE Council as the webmaster. Was involved with planning activities and recruiting students for the IEEE and ECE. Also maintained the branch web site and a Sage Math compute server.

National Science Foundation Research Experience

Utah State University

Summer 2008

Participated in a summer research program sponsored by the National Science Foundation. Worked on an autonomous UAV project.

ACCOMPLISHMENTS

- Received the UCR Chancellor's Distinguished Fellowship.
- Wrote a grant proposal and received funding through Utah State University's URCO program to do research on Vision-Based Autonomous Navigation of UAVs.
- Completed a 2-year service mission in Campinas, Brazil.
- Finalist in the Fall 2007 USU Voices writing competition with a paper on using Linux as an alternative operating system to Windows on campus.
- Received the USU Presidential Scholarship.
- Eagle Scout.