

# MITCHEL ALLEN HUMPHERYS

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## WORK EXPERIENCE

### Qualcomm Inc.

San Diego, CA

*Senior Software Engineer*

*2012-current*

Developed drivers 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. Created development tools to boost productivity (Emacs extensions, shell scripts, web applications, etc.) that gained widespread use within the company.

### L-3 Communications, Linkabit Division

San Diego, CA

*Senior 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<sup>A</sup>T<sub>E</sub>X, I<sup>2</sup>C, 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. Became an official company-sponsored club. Organized tournaments with 50+ players.

### **College of Engineering Ambassador**

**Utah State University**

*2008 - 2010*

Served as a representative for the College of Engineering. Gave tours to potential engineering students and went on recruiting trips to high schools in the region.

### **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.
- Was a finalist in the Fall 2007 USU Voices writing competition.
- Received the USU Presidential Scholarship.
- Eagle Scout.