

## About Me

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I am a passionate software engineer with 11 years experience who can be found evangelizing Linux, making excuses to refactor code, and taking on way too many side projects than I have time for. I specialize in C and C++ in low-level driver and embedded performance-critical applications.

## Education

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**Colorado School of Mines** *Golden, CO* (1998-2002)

- Bachelors in Mathematics and Computer Science
- Minor in Electrical Engineering

## Skills at a Glance

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### Programming Languages

#### Core Languages

C, C++

#### Scripting / Utility / GUI Languages

Perl, Python, Bash, GNU make, VIM macros, sed, awk, GTK+, QT, Tkinter

#### Programming Environment

Linux kernel programming, Linux device drivers, Embedded board bringup, Performance-critical data systems

### IBM Mainframes

**Hardware:** S/390, pSeries

**Software:** VM/MVS, LTS, SAK, IVORIE test systems, PSF print server

#### Channels Peripheral

**Communication:** FICON on Fibre Channel, ESCON, Parallel Channel, TCP/IP

### Linux/Unix OSes

**Linux:** Gentoo, Puppy, Ubuntu, OpenSuSE, SLES, Fedora, MontaVista, Arago

**Unix:** Solaris, AIX, IRIX

#### Code Revision Control

Git, CVS, SCCS, IBM's CMVC

### Embedded Platforms

**VxWorks:** Version 6.6 Katmai BSP with Wind River Workbench 3.0 and VxWorks ICE tool

**Embedded Linux:** UBL, UBOOT, MontaVista, Arago, TI's DVSDK, RidgeRun SDK, Custom NAND flash tools

**Hardware:** ARM9 with DSP, PowerPC 440SPe, TI Davinci and OMAP processors

### Networking

**Sockets Programming:** Multi-threaded client/server design and implementation.

**Special Protocols:** IPv6 sockets porting, DHCPv6 compliance code.

**Other:** Custom C network management code.

### PCI Express

Driver integration with 8-lane custom PCB with Xilinx Virtex 5 FPGA with PLDA EZDMA. Agilent NX2 PCIe Protocol Analyzer

### Microcontrollers

**Arduino:** ATmega 328p, Arduino UNO, LilyPad, Adafruit Trinket, gcc-avr, avrdude, avr-libc

**Parallax Propeller:** Unique 8-processor chip, proprietary Spin language

#### Low-level Communications

SPI, I2C, UART, RS-232, MDIO/MII

### Video

#### Capture/Encode/Stream

#### Streaming Video Protocols:

RTSP, RTP, MPEG2 TS, Raw UDP with H.264 elementary stream

#### Video Ingest Formats:

RAW Bayer RGB666, Digital YCbCr 422

**Linux Video Stacks:** Appro, Live555, wis-streamer, gstreamer, V4L2

### My Websites

bradgrissom.com, gingermatney.com, sogee.com, Arduino.US, uwhockey.org

**Web Tech:** PHP, MySQL, JavaScript

**Other Interests:** Underwater video systems, RF communications, Welding, CNC Machining, Laser cutters

### **Redgarden Engineering      Engineering Consulting Company**

**Embedded Software Engineer** *Boulder, CO* (June 2014 - Present)

Provide embedded software engineering for various consulting projects.

### **Airborne Innovations      Startup Company: Camera Systems for Drones**

**Embedded Software Engineer** *Lakewood, CO* (April 2012 - May 2014)

- The only Software Engineer in a 3 person company; responsible for all software tasks
- Embedded Linux board bringup for custom ARM based TI Davinci video processing board
- Custom UBL, UBOOT, linux kernel drivers speaking to SPI, I2C, NAND, MDIO/MII, DSP devices
- Appro low latency video capture and compression/encode stack
- H.264 video compression and RTSP/RTP, MPEG2 Transport Stream, raw UDP low latency streaming video
- Oscilloscope debugging and bringup of clock chips, ethernet switches, UART-2-SPI chips
- Video board bringup: HDMI/DVI, direct digital, standard and high definition converter video chips
- Realtime video performance tweaking with custom imaging drivers
- Responsible for the entire stack including custom Javascript web interface

### **IBM / RICOH      Network Group / Custom Hardware Group**

**Software Engineer** *Boulder, CO* (October 2007 - April 2012)

- Maintainer of 300,000 line FICON device driver which interfaces with IBM mainframes
- Primary contact for all FICON customer issues worldwide
- ESCON and Parallel Channel (Bus & Tag) debugging for customer print problems
- Developed Linux DMA driver for custom PCIe image compression card
- Researched IPv6 RFCs and ported network software for IPv6 compatibility
- Subsystem owner: Central multiplexer software for the primary printer controller unit

### **Verizon      Network Traffic/VoIP Data Processing**

**Software Engineer** *Denver, CO* (January 2006 - October 2007)

- Redesigned and developed C++, socket-based client/server for streaming VoIP mediation traffic.
- Developed (from ground up) performance critical C application for correlating VoIP traffic.
- Created C and C++ data handling libraries for SIP logs.
- C and C++ user-space application debugging in MDB and dbx for Solaris.

### **Sun Microsystems      Network Storage Division**

**Software Engineer** *Broomfield, CO* (May 2005 - January 2006)

- Debugged and fixed SCSI disk drivers in Solaris.
- Added DMA features to pseudo-disk driver in Solaris.
- Performed front-line Solaris kernel debugging for a group of engineers.
- Debugged and fixed Solaris disk format and partition utility.

### **Vexcel Corp / Microsoft Research      Satellite Ground Systems**

**Software Engineer** *Boulder, CO* (July 2002 - May 2005)

- Developed Linux drivers in the 2.4 and 2.6 kernels for PCI cards.
- Developed Linux drivers for SBCs (Single Board Computers) for wireless data collection requiring precision timing.
- Designed base classes in C++ for use as hardware interface libraries.
- Developed, installed, and tested a virtual remote ground station at MIT (Massachusetts Institute of Technology).
- Deployed an Embedded wireless sensor network of Linux SBCs (Single Board Computers) on Columbia Glacier in Valdez, Alaska.
- Researched and tuned Linux for I/O intensive, performance critical deployment.