(303) 818-0461
khellman@mines.edu

Keith Hellman

40 Everett Street
Lakewood, CO 80226-1260
USA

Professional Skills & Characteristics

- Leverage separate technologies into a single software solution
- Solve multi-faceted problems with logical solution systems
- Value honesty, integrity, and merit-based recognition
- Work responsibly in a collaborative environment
- Marshall limited resources
- Communicate complex ideas simply
- Motivated by challenging goals
- Original thinker

Languages & Domains

- Computer Simulation
- Design of Simulation Experiments, Analysis
- Unix Servers, Daemons, and Drivers
- Limited Computing
- Embedded Development
- C/C++, Python, SQL, JavaScript, Bourne shell
- Django Web Framework
- XML, HTML, HL7, DICOM
- I2C, Video for Linux 2
- TCP/IP, Bluetooth, HTTP, CGI/WSGI
- LaTeX 2ε, DocBook SGML

Development Environments

- GNU binutils, gcc, g++, gdb, gmake
- LLVM/Clang toolchain
- FreeBSD/Linux development
- Distributed VCS (bzr, hg, git)
- Client-Server VCS (svn, cvs)

Unix Administration

- FreeNAS & pfSense Admin
- openssl CA/X509 Management
- FreeBSD/Linux Install & Admin
- FreeBSD/Linux Kernel Builds
- Minimal FreeBSD/Linux Systems, LFS
- FreeBSD/Linux Firewall & Networking
- Windows 10 Pro non-DC Admin

Employment History

IT Services and Software, Data Consulting *September 2017 – Ongoing*
Monte Cristo Coding LLC
- Computer Simulations, Computational Methods and Data Analysis
- Software development, systems design
- Small business and non-profit IT services

Teaching Associate Professor *August 2021 – Ongoing*
Colorado School of Mines (Golden, Colorado)
- "Visiting instructor" 2021–2023 academic years
- CSCI423 *Computer Simulation* Fall 2016 — Ongoing
- CSCI499, CSCI425, CSCI598 *Compiler Design* Spring 2020 — Ongoing
- CSCI220 *Data Structures and Algorithms* Spring 2023 — Ongoing

Adjunct Instructor *August 2016 – May 2021*
Colorado School of Mines (Golden, Colorado)

Associate Teaching Professor (Lecturer) *August 2009 – May 2016*
Colorado School of Mines (Golden, Colorado)
- CSCI Special Topics *Compiler Design* Spring 2014, 2016.
- CSCI423 *Computer Simulation* Fall 2013, 2014, 2015.
- CSCI101 *Introduction to Computer Science* course development and instruction.
- CSCI474 *Introduction to Cryptography* Spring 2015.
- CSCI Special Topics *Linux Programming* Fall 2014.
- CSCI274 *Introduction to Linux*.
- CSCI262 *Data Structures*.
- CSCI261 *Introduction to Programming in C++* course coordinator.
- Department undergraduate outreach committee.
- Academic Readmissions Committee.

Adjunct Instructor *August 2006 – May 2007*
Colorado School of Mines (Golden, Colorado)
- Two sections of *Calculus I* and *II* in the fall and spring, respectively.

Research Assistant *May 2006 – August 2006*
Colorado School of Mines (Golden, Colorado)
Simulation programming in Python, statistical analysis, manuscript preparation.

(303) 818-0461
khellman@mines.edu

Keith Hellman

40 Everett Street
Lakewood, CO 80226-1260
USA

Software Engineer *May 2002 – July 2004*

CorAccess Systems (Golden, Colorado)

Responsible for Linux kernel configurations; OSS package configuration and builds; original device driver development; C/C++system level libraries; application level plug-ins and utilities; build system scripting.

Projects

- Implemented crash telemetry system to log remote software failures.
- Redesigned remote-update facility with a mere 7s 'critical zone' for failure.
- Rewrote build system to support cross architecture builds and automatic dependencies.
- Wrote build system for factory installed device images, remote update images, and plug-in publishing.
- Key designer in software plug-in capability for device configuration.
- Ported and configured Video 4 Linux 2 drivers to device motherboard.
- Ported and configured NSC graphics driver to device motherboard.
- Designed zero context-switch video server from V4L2 hardware to peer devices.
- Designed door-entry intercom system with IP based video feed and VoIP audio.

Senior Software Engineer *October 2000 – May 2002*

Colorado MEDtech/RELA (Boulder, Colorado)

Team based software development for varying client projects and internal programs.

Projects

- Lead engineer of a five member development team using embedded Linux.
- Configured and maintained GNU toolchain and μClinux C libraries for our platform.
- Co-ported uClinux 2.4 series kernel to our platform from an initial 2.0.38 implementation.
- Co-ported Linux bluez applications to vfork() embedded implementations.
- Wrote L2CAP interfacing Bluetooth layer for Axis Bluetooth stack in Linux 2.0.38 for tunneling serial transmission between two embedded devices.
- Co-wrote and maintained Palm OS 3.2+ Handspring device driver and PDA application.
- Reviewed and configured Handspring module toolkit for AMD flash chips and developed build script (CYGWIN/bash) for module ROM images.

Database Administrator and Research Assistant *July 1996 – October 2000*

University of Colorado Hospital & Health Sciences Center (Denver, Colorado)

Worked closely with doctors, nurses, and researchers in an adult cardiac catheterization laboratory. Developed Microsoft Access database to meet the needs of the clinical, research, and administrative staff. Responsible for a small multimedia lab and development of software for hemodynamic research studies. Performed Linux, Solaris, and SGI system administration.

Projects

- Developed and implemented a secure, multi-user, Access database that supports patient history data forwarding, dynamic (relational) lookup tables, electronic sign-off, automated report generation, interventional device inventory control, and Email messaging.
- Rewrote angiographic review software for Windows 95/NT, providing DICOM CD reading, MPEG video and still frame exporting, as well as ad-hoc layout of independent angiographic sequences for export.
- Independently developed a dual linear regression technique for analysis of left ventricular relaxation time for the Mitsubishi MCC-135 clinical trial; hemodynamic core lab programming in C for Solaris, Linux, and Windows '95/NT.
- Deployed a CGI based interface for transmission of angiographic images from a Phillips Cathlab to an SGI workstation for 3D Coronary Analysis.

(303) 818-0461
khellman@mines.edu

Keith Hellman

40 Everett Street
Lakewood, CO 80226-1260
USA

Additional Project Highlights

- Developed angiographic review software for Linux and Solaris workstations providing biplane dual projection review, MPEG video remote rendering, and still frame exporting.
- Wrote the Lundbrauder Burn Area Calculator as an AutoCAD DPMI loadable module for the University of Chicago Burn Unit.
- Developed hemodynamic analysis software and statistical reports for multiple research studies.
- Created cross platform (DOS, AIX, Linux) Stanford Photon Counter software for a University of Chicago biochemistry lab using GPIB interface.
- Spearheaded the software development for *The Multimedia Textbook of Coronary Arteriography*.
- Managed technical aspects of editing and publishing the *Multimedia Review of Invasive Cardiology*, a CD-ROM based quarterly journal with a circulation of over 3,000.
- Developed a search engine using only JavaScript for the *Asepsis and Sterile Technique CD* published by the *Association of Surgical Technologists*.

Education

Phd Candidate (part-time) Mathematics & Computer Science *August 2009–December 2014*
Colorado School of Mines (Golden, Colorado)

Phd Candidate Mathematics & Computer Science *August 2007–August 2009*
Colorado School of Mines (Golden, Colorado)

- Graduate Teaching Fellowship, CSCI261 (*Introduction to Programming in C++*).
- CSCI261 course coordinator spring 2009.

M.S. Mathematics & Computer Science *August 2004 –May 2006*
Colorado School of Mines (Golden, Colorado)

- Thesis: *Learning to Live — A Wireless Sensor Network Protocol Using Reinforcement Learning*.
- Middle-School Teaching Fellowship (principal investigators Dr. Skokan and Dr. Moskal, CSM).

Graduate Student at Large *1995–1996*
University of Illinois Circle Campus (Chicago, Illinois)

- Medical Imaging, Pattern Recognition

B.S. in Applied Mathematics *1990*
The University of Chicago (Chicago, Illinois)

- Concentration in statistics
- Passed Society of Actuaries Exam 100

Interests

- **Social Dancing**: Many different forms including: swing, Argentine tango, Viennese waltz, and Contra. Taught East Coast Swing for seven years at Denver's *Mercury Cafe*.
- **Cycling**, **Chess**