

Erik Hovland

I am a Systems Programmer with a wide range of experience including real-time programming, Unix system administration, threaded applications and systems programming. My systems background includes writing device drivers, integrating algorithms, network communications and software to control hardware in hard real-time situations. As a Senior System Administrator I have implemented and supported several aspects of the field including Internet services and backup/restore services. I have deep problem solving skills honed by experience in the field on active systems. I have strong scripting experience to compliment my systems programming experience. I work well in teams and have managed small teams.

Technical Skills

Operating Systems

Linux, VxWorks, Solaris.

Languages & Tools

C/C++, Perl, Unix Shells (BASH & tcsh mainly), ACE/TAO, Coverity Static Analysis, Grammatech CodeSonar, awk/sed, Python, Tornado, GNU tool chain (including cross toolchains), subversion, git, stgit, vim, Unix, LEGO robot prototype kit.

Standards & Protocols

TCP/IP, NFS, NIS+/YP, CORBA (using ACE/TAO and JacORB), Socket Programming, SMB, SSH, Jumpstart, RAID, SMTP, FTP, NTP, USB.

Server Applications

Samba, Apache, PostGRESQL, MySQL, License Servers, Sendmail, Postfix, majordomo, tcp wrappers, ipfilter, SunScreen, Amanda.

CPUs/ μ Controllers

PowerPC (in cPCI & VME based embedded systems), ARM, SPARC, 68HC11.

Education

M.S. in Computer Engineering, received 1999

from the University of Southern California. Concentration in robotics. Adviser: Dr. Monte Ung.

Masters focusing on aspects of robotics including Artificial Intelligence, Behavior based systems and standard control based systems. Basic work in processor design and implementation, operating systems design and implementation.

B.S. in Electrical Engineering, received 1994

from California State Polytechnic University, Pomona. Concentration in Instrumentation. Minor in Physics.

Professional Experience

2004-present

Senior Programmer, Jet Propulsion Laboratory.

Design and implement real time systems using VxWorks on PowerPC embedded computers to make optical interferometers for ground based and spacecraft based telescopes. Work involves implementing drivers for hardware (including interrupt control), classes to control hardware systems, classes to integrate control algorithms and supporting applications for testing and general infrastructure, all written in C++. Initiate and coordinate the software development of the testbeds, leading small teams to contribute to overall development of the project.

Contribute to and maintain as release manager and principal engineer of the in-house Real Time Control library used to facilitate making real time systems for interferometers and large optical systems. Writing documentation for users of system and users of in-house software library. Current project is the Space Interferometer Mission Lite (SIMLite). Working system is the Keck Interferometer at the Keck Observatory - Mauna Kea, Hawaii.

2000-2004

Contract Programmer, Columbus Technologies & Services (was User Technology Associates). Primary contract with the Jet Propulsion Laboratory.

Designed and implemented real time systems using VxWorks on PowerPC embedded computers to make optical interferometers for ground based telescopes. Work involved implementing drivers for hardware, classes to control hardware systems and supporting applications for testing and general infrastructure, all written in C++. Contribute to and maintain the in-house Real Time Control library used to facilitate making interferometers. Writing documentation for users of system and users of library code. Working system is the Keck Interferometer at the Keck Observatory - Mauna Kea, Hawaii. NOTE: This information is the same as above because I switched employers but not jobs.

Designed and implemented control systems and analysis systems using Solaris running on Sun SPARC based general purpose computers that search for near earth asteroids. Work involved implementing and maintaining software written in C++ and Perl to control telescopes and electronic cameras, providing data to analysis software and implementing parallel analysis of data. Working systems include the Oschin Telescope at the Palomar Mountain Observatory and the MSSS Telescope at the Air Force Observatory on Haleakala, HI.

1997-2000

Contract Senior System Administrator, User Technology Associates. Primary contract with the Jet Propulsion Laboratory.

Senior System Administrator for Unix (primarily Solaris) and Windows (primarily WinNT) based computers supporting Science and Engineering applications. Included installation, upgrades using Solaris Jumpstart and support of over 50 systems and over 200 users. Directed a team of administrators in tasks and managed their work flow. Devised and implemented security plan for workstations and servers using tcp wrappers, SSH and ipfilter along with other items to harden security. Designed, implemented and supported ethernet network for 3 separate locations on campus. Implemented and maintained unified user/host namespace using NIS+/YP. Implemented and maintained shared resources like disk space and computing cycles using technologies like NFS, AFS, FTP and PVM. Implemented and maintained mail servers and mailing lists for users using Sendmail and majordomo. Maintained commercial software using license servers. Implemented backup/restore procedures using Amanda and assorted native tools. Developed custom scripts to perform redundant tasks automatically using shell scripting or Perl.

1995-1997

Contract System/Database Administrator, Rapid Systems Solutions Inc. Contracts with GTE, Mykotronics, Unocal, McKesson Pharmaceuticals.

Designed, implemented and supported several projects including GTE's prepaid calling card service (DBA on Oracle 7), Mykotronics clipper chip and key escrow service for the NSA (C++ programming and DBA for Trusted Oracle 7), Fuel purchase point application for Unocal (implemented Veritas HA for Oracle 7) and Pharmaceutical Purchase Data Mining application (programming UI in VB, DBA on Oracle 7).

1994-1995

System/Database Administrator, Hughes Aircraft Corporation.

Designed, implemented and supported configuration management application for F-15 radar project, parts management for F-15 radar project using Oracle 6, Interleaf and VB. Designed and implemented Requirements Traceability application using Oracle 7 and VB.

1992-1993

System Administrator Intern, Fisher-Rosemount.

Implement and support systems running VMS and SunOS to support Research and Development of products to control manufacturing facilities. Worked with Senior System Administrator supporting more than 30 users and more than 40 systems. Implemented backup/restore system. Implemented new network architecture.

1988-1992 Telethon Operator, World Vision Inc. Provide customer service for Child Support program.

Training

Cognizant Engineer Training

Taken March of 2009. Class covers the requirements of being an engineering manager on JPL projects.

Workbench 2.6 for VxWorks

Taken February of 2008. Class instructor and materials provided by WindRiver. Class covered the technologies and work-flow of using Workbench with VxWorks 6.x

Learning Python

Taken January of 2005 over three days. Taught by Mark Lutz. Provides novice to intermediate lessons in how to use Python on Unix and Windows based platforms.

Awards

NASA Group Achievement Award

For successful completion of the Guide-2 Telescope test, demonstrating that SIM can track guide stars to better than 50 micro-arc-seconds with a 30-centimeter telescope.

Astronomy and Physics Directorate Team Award

Given for outstanding contributions to the Space Interferometry Mission (SIM) Guide 2 Telescope (G2T) Test Team.

NASA Group Achievement Award

For outstanding teamwork in implementing the Keck Interferometer Nuller, which combines light from two Keck telescopes, enabling characterization of dust orbiting nearby stars.

Astronomy and Physics Directorate Team Award

Given for successful demonstration of acquisition and tracking of 10- μ fringes using the twin Keck 10-m telescopes and the nulling mode of the Keck Interferometer. Principle involvement was development of the software to drive the 10- μ camera (KALI).

JPL Technical Excellence Award. 2001

Given for technical achievement as part of the Keck Interferometer Development Team that achieved "First fringes."

Asteroid Awarded, (15621) Erikhovland. 2001

Named because of the extensive work done for both the MSSS and Palomar Installations of the Near Earth Asteroid Tracking project (NEAT website <http://neat.jpl.nasa.gov/>). Asteroid discovered with system implemented at MSSS.

Division Team Award

Given because of participation in the development, integration and test of the Palomar Mountain Installation of the Near Earth Asteroid Tracking project.

NASA Group Achievement Award

Given because of participation in the development, integration and test of the Palomar Mountain Installation of the Near Earth Asteroid Tracking project. This installation is now the second most productive asteroid detection site in the world.

Nova Award. 2000

Given for excellence in System Administration support to the Optical Interferometer Section (383) @ JPL.

Presentations

How To Find Exoplanets

Presentation that discusses the current techniques for finding exoplanets and the engineering required to make them work. Given at Glendale Community College, March 2009.

Perl Could Save Your Life

Presentation for the new and intermediate Perl user based on real life examples used in the Near Earth Asteroid Tracking project's code base. Given to UUASC-LA, May 2001 and at JPL October 2001.

Publications

Real-time Interferometer Control System Toolbox Evolutionary Improvements

Co-author

Community Involvement

USCLUG

USC Linux User Group. Founding member and former president. Organized events and meetings. Facilitate other students in learning about Free Software and its benefit.

SCALE

Southern California Linux Exposition. Involved in Invited Talks committee. Organized the appearance of several noted Open Source developers at the only Linux focused exposition in Southern California.

handhelds.org

Linux on handheld computers. Regular contributor to several mailing lists (h5400-port, kernel-discuss, opie-devel and familiar) on a range of topics including Linux kernel development on arm based handheld computers, familiar distribution fixing, Opie code maintenance, driver development and porting of handheld computers to the Linux 2.6 kernel. I have produced at least two patches which have made their way into the official 2.6 Linux kernel. See Handhelds.org <http://handhelds.org/> and Hovland.org Familiar section <http://hovland.org/familiar>

Summer of Code

Participated as both a mentor and an administrator for 2005, 2006 and 2007 of the Google Summer of Code for handhelds.org.

Amarok

Open music player based on Qt and KDE. Several contributions to improve the stability and reduce defects in both the 1.4 and 2.x code base. See Amarok website <http://amarok.kde.org/>

LACBC

Los Angeles County Bicycle Coalition. Active member. Volunteered at various events. Member of initiative to improve cycling conditions in Glendale, CA.

JPL Bicycle Club

Member. Current Bicycle Commuter Coordinator. Bicycle Commuter of the Month, July 2001 and April 2005.

Solaris PDA Driver

(deprecated) Implemented a free driver for the USB HotSync cradle for PalmOS PDAs under the Solaris operating environment. See Hovland.org <http://hovland.org/solaris/>

References

Coding reference available at hovland.org <http://hovland.org/familiar>, several small pieces of code exist on-line in various public repositories.