

## Summary:

Experienced in applications, drivers, design, implementation and testing; and system administration. Strengths include strong analytical capabilities coupled with the ability to rapidly learn, retain, and apply new technology effectively.

## Critical Skills:

- Make, C, C++, Perl, Java
- Solaris 7 and 8, Linux and Linux Kernel upgrades (all stable kernels from 1.2 and later), FreeBSD, Google Android

## Additional Skills:

- Java, Xlib, GLX, OpenGL, glut, GTK, RCS, Subversion, make, Bourne shell scripting (sed, awk), Python, Assembly Languages (68000, i386, AMD64, PowerPC and SPARC)
- lex (flex), yacc (bison)
- Windows 2000, XP administration
- Cryptography, Combinatorial Search, Compiler Design

## Experience:

### Open Source Involvement, (2013 to present)

- Android (2016 to present)
  - Examined an Android device with minimal Open Source support and figured out hardware differences to allow full support
  - First person to successfully build a fully working, fully Open Source kernel for the H990 variant of the LG V20
  - Working with Android community attempting to bring LineageOS support to LG H990
- DebWRT (2012 to present, Debian variant targeting wireless routers)
  - Major rewriting of many core pieces of DebWRT
  - Enhanced build system based on patching against OpenWRT to account for multiple revisions of OpenWRT; thus allowing for patches to be updated against newer OpenWRT releases, while continuing to keep older builds functioning
  - Successfully adapted OpenWRT kernel patches for Linux v3.2 and v3.16 to apply to Debian kernel source, allowing taking advantage of Debian's security updates while running on Linux routers
  - Cleanup of numerous DebWRT packages
  - Uncovered and reported kernel security hole in OpenWRT's kernel infrastructure for configuring switch chips
- Debian (Major Linux Distribution)
  - Continuing history of finding many novel bugs in the Debian Linux distribution not found or reported by others
  - Specialty knowledge solved a very difficult bug being encountered by many others that had been thought to be completely unsolvable
- Maniana (2013 to 2014, Android To-Do app)
  - Implemented Ant-based builds for better consistency with any new developers who joined the project in the future
  - Added support for To-Dos with due dates and To-Dos that repeat
  - Added support for backups to SD card, instead of online-only backups

### Member of Technical Staff, Hooked Wireless, Los Altos Hills, California (2008 to 2012)

- Testing
  - Designed and implemented system to spread testing cycle among multiple machines concurrently, thereby reducing test cycle time and greatly increasing testing frequency
  - Identified missed test cases and implemented corrections to include them in reports
  - Enhanced system by adding the ability to do image comparison
  - Mitigated potential hangs caused by crashes, and other conditions
  - Designed and implemented recording and playback of user input sequences in order to provide better test coverage
  - Generalized test system to enable testing of multiple projects

- Build
  - Designed and implemented system to assign spread build tasks among multiple computers capable of handling some builds, and dealing with builds restricted to other computers.
  - Updated an existing build system previously verified with GNU Make 3.80 to work with 3.81.
  - Diagnosed subtle Makefile problems that caused parallel-Make builds to fail.
- Debugging
  - Identified and addressed potential security bugs.
  - Analyzed long-standing API bugs in order to fix them without breaking historical code.
  - Tracked down performance bugs, producing major gains.

### **Software Engineer, *Originate Labs, San Mateo, California (2007)***

- Wrote embedded software for use on cellular devices
- Wrote driver to access specialized features of a wireless modem
- Enhanced existing test suite
  - Rewrote a large block of the test suite, increasing flexibility
  - Merged two distinct overlapping test suites into one
  - Added tests for previously untested functionality
- Updated code designed for earlier software releases to work with current versions
- Fixed many out of date pieces of code to fix consistency with current standards
- Worked with network protocol implementations to ensure they worked correctly

### **Software Developer, *Tech Soft America, Berkeley, California (2006)***

- Wrote test cases as part of software development process
  - During validation discovered novel bugs in previously tested functionality
  - Wrote test cases for addition to permanent test library
  - Wrote test cases which reproduced customer bugs
- Answered support requests from customers spread worldwide
- Isolated bugs requiring very specific software configuration
- Identified limits on interoperability
- Improved customer visible documentation
- Managed operation of internal network
- Member of team which relocated office

## **Additional Relevant Experience:**

### **Student/Continuing Studies**

- Full-time student: Earned Bachelor of Sciences/Computer Sciences
- Consultant and tutor for members of the Portland State University Computer Action Team and the Portland Linux Users Group
- Continuing independent HCI/graphics API research and design, including coding for GTK, Xlib, OpenGL, Java, and Glib
- Identified and fixed bug in oidentd's configuration file parser

### **Lead Unix Administrator, *College of Engineering, Portland State University, Portland, Oregon***

- Managed a network of 120 SPARC, UltraSPARC-based Sun workstations/servers networked using Cisco routers and switches. Responsibilities also included problem resolution and tracking.
- Updated and optimized legacy and existing administration and Solaris JumpStart scripts to simplify network and workstation maintenance, and to ensure Solaris 8 compatibility with the network and older workstations.
- Team leader for task group that upgraded 32-bit-only firmware, kernels, and software (notably compiler suite) to support 64-bit mode.
- Streamlined and optimized subnet boot/root servers, thereby eliminating three setup tasks, and reduced the number of centralized tasks needed to set up new systems and reload existing systems.
- Found and fixed security vulnerabilities in systems and system configurations.
- Updated, built, installed, and maintained programs and libraries including:

- SSH through version 1.2.31+patches, and OpenSSH
- OpenSSL versions 0.9.3 through 0.9.7
- Apache version 1.3 including migration from BenSSL to modSSL, PHP
- GCC version 2.7 through 3.0
- Cadence 2000
- Opmaxx V2

**Computer Sciences Tutor/Lab Monitor, *Department of Computer Science, Portland State University, Oregon***

- Tutored and assisted first through third year computer science students. Responsibilities included helping students debug basic through advanced programming assignments across several languages and operating systems; assisting students unfamiliar with the systems and operating systems provided by the university, and system administration.

**Education:**

**Bachelors in Computer Science**

**Portland State University, Portland, Oregon**

Includes academic and commercial application of C, C++, Java, Sun SPARC Assembly, lex/flex, yacc/bison, Bourne shell, Cryptography, Combinatorial Search, Computer Graphics, and Compiler Design on Solaris, MS/Windows, and Linux environments.

**Professional Development/Memberships**

- Contributing member of the [Portland State University Computer Action Team](#) (CAT)
- Contributing member of the [Portland Linux User Group](#)
- Supporting member, Portland State University ACM International Collegiate Programming Contest ([ICPC](#)) Team.

**Independent Studies and Application**

- Linux, FreeBSD, Xlib, OpenGL, glut, GLX, GTK, RCS, Python
- Attended 2004 [O'Reilly Open Source Convention](#)
- Attended 2003 [O'Reilly Open Source Convention](#)

**Awards:**

- Deans list, Portland Community College