

Steven A. Finney
Linux/UNIX Systems Programmer
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OBJECTIVE: Permanent or contract position in Linux/UNIX systems programming or design (kernel or application level). Technical training (e.g., kernel internals), cognitive or ergonomic research, and writing positions are also of interest.

PROFESSIONAL BACKGROUND

Nov 2005-Feb 2007: Senior Software Engineer, Health Hero Network, Redwood City, CA.

Responsible for maintenance, enhancements, updates, and bug fixes for the boot loader, kernel, device drivers, and root file system on the "Health Buddy" home medical appliance (Linux 2.6 on a Samsung S3C2410 w/NAND flash, STN LCD, and a USB hub). Designed the low-level software architecture for a new hardware platform. Modified kernel and user code to support communication with medical devices over USB infrared, serial, and Bluetooth adapters. Designed, implemented, and executed validation procedures for the boot loader, Linux kernel, and root file system. Added single-bit error correction for NAND flash to the U-Boot boot loader. Developed user space diagnostic tools for flexible manipulation of LCD parameters.

2004-2005: Consultant, Open Source Risk Management, New York City.

Developed prototype Python-based source code analysis tools for risk assessment of the Linux 2.6 kernel and other open-source projects.

2002-2004: Senior Software Engineer, Spirent Communications (formerly Adtech), Honolulu, HI.

- Lead software engineer developing low-level Linux systems software for proprietary network test boards using the Broadcom 1125 MIPS processor, including device drivers and significant modifications to the Linux kernel and the CFE bootloader. Helped bring up MontaVista Linux (2.4 kernel) on multiple prototype boards (both ARM- and MIPS-based), working closely with hardware engineers to debug hardware and FPGAs. Implemented a high-performance, zero-copy user-space network driver for the Broadcom 1125 MAC. Configured small flash-based file systems and boot images.
- Participated in porting proprietary RTOS-based software to a Pentium-based Linux system, focussing on kernel issues related to the PCI bus, large address space peripherals, and boot-time requirements.
- Implemented memory-mapping support library for controlled user-space access to physical addresses on multiple processor architectures.
- Participated in formulating high- and low-level firmware architecture for next generation network test equipment.
- Prepared and presented in-house lectures on Linux kernel internals.

PROFESSIONAL BACKGROUND (continued)

1992-2002: Graduate Student (Brown University) and Post-Doctoral Research Fellow (Ohio State University) in Cognitive Science.

Research areas included auditory feedback and motor behavior, and psycholinguistics. Software work including writing data analysis and data collection programs in C and Python for SGI and Macintosh computers, and porting my real-time MIDI experiment package from Irix to Linux and making it publically available (<http://csml.som.ohio-state.edu/ftap>). See academic Vita for further details on activities and research, 1992-2002.

1991-1992: Consultant, 88Open Consortium, San Jose, California.

Developed verification software for the UNIX Remote Procedure Calls (RPC) facility.

1985-1991: Consultant, The Santa Cruz Operation, Santa Cruz, CA.

- Implemented an asynchronous raw I/O disk facility in the UNIX kernel for database server support, leading to a significant improvement in multi-user server performance. This included a protection system for allowing non-superuser memory locks as well as follow-up benchmarking, documentation, and SCO MPX (multi-processor UNIX) support.
- Implemented a high-resolution kernel profiler driven by the real-time clock.
- Wrote a technical document describing the details of XENIX paged memory management on the Intel 80386 chip.
- Helped develop, test, and debug Unipath-3270 (SNA-3270 emulation under XENIX), working with both 3270 display emulation and SNA network protocols.
- Extensive work on the SCO Integra database system, working primarily with the SQL server and SCO ISAM. Enhanced, optimized, and internationalized ISAM, and brought it up to X/OPEN conformance. Wrote a technical document describing the SQL server internals.
- Investigated and benchmarked various aspects of STREAMS and TCP/IP performance using the socket interface.

1979-1985: Technical Staff, The Santa Cruz Operation, Santa Cruz, CA.

Extensive UNIX and XENIX kernel work, including disk drivers for the IBM PC, the Victor 9000, and the Apple LISA, as well as modifications to the serial driver. Worked on the original UNIX implementation of MicroFocus COBOL, including full responsibility for the file interface, GSA testing, and the Animator screen debugger.

COMPUTER LANGUAGES AND OPERATING SYSTEMS

Linux (2.4 and 2.6 kernels, various distributions), Linux TCP/IP stack, U-Boot, RedBoot, and CFE boot loaders, UNIX (Version 6 through System V), C, Python, basic assembly language for various processors. Familiar with object-oriented concepts; capable of learning new languages and willing to do so.

HARDWARE

Samsung S3C24XX ARM processors, Broadcom/Sibyte 1125/1250 MIPS processors, Pentium, Xscale, and PPC processors, USB (serial and network adapters, hubs), PCI, Bluetooth, IrDA, I2C and MDIO busses, Intel 825XX Ethernet NIC family, NAND and NOR flash, STN and TFT LCDs, JTAG debuggers.

EDUCATION

B.A., Computer and Information Science, 1980.
University of California, Santa Cruz

B.A., Linguistics, 1990.
University of California, Santa Cruz

Ph.D., Cognitive Science, 1999.
Brown University, Providence, RI

SOFTWARE-RELEVANT PUBLICATIONS

Finney, S.A. (2001a). FTAP: A Linux-based program for tapping and music experiments. *Behavior Research Methods, Instruments, and Computers*, 33, 65-72.

Finney, S.A. (2001b). Real-time programming in Linux: A case study. *Behavior Research Methods, Instruments, and Computers*, 33, 167-173.

SELECTED OTHER PUBLICATIONS

Finney, S.A. and Palmer, C.P. (2003). Auditory feedback and memory for music performance: Sound evidence for an encoding effect. *Memory and Cognition*, 31, 51-64.

Finney, S.A. and Warren, W. H. (2002). Delayed auditory feedback and rhythmic tapping: Evidence for a critical interval shift. *Perception and Psychophysics*, 64, 896-908.