

# Dan Helfman

## Current Address

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## Experience

### General Dynamics

*Senior Programmer*

Seattle, WA  
May 2009 to Present

Developed desktop map editing software as a contractor for the National Oceanic and Atmospheric Administration. Using Python and OpenGL, created a hardware-accelerated application for tiling and rendering large raster nautical charts with editable vector bathymetry data displayed on top. Optimized the software to remain responsive even when loading and editing shoreline polygons with hundreds of thousands of points. Where necessary, wrote Python extensions in C and Cython to speed up performance-critical areas of code such as rendering, tessellation, and bitmap operations.

### Luminotes.com

*Senior Software Engineer / Founder*

Seattle, WA  
May 2007 to May 2009

Designed and implemented web-based personal wiki software in Python and JavaScript with a PostgreSQL back-end. Developed multi-user collaboration features including wiki sharing, revision tracking, and conflict notification. Built a visual WYSIWYG wiki editor with transparent server persistence. Integrated with an e-commerce provider for recurring subscription billing. Deployed and maintained a production application server running Linux and Apache. Developed a cross-platform desktop port of the wiki software.

### CoCo Communications

*Software Development Engineer / Team Lead*

Seattle, WA  
July 2004 to April 2007

Led a team of software developers through five major releases of a VoIP communications suite. Designed and built applications in C++ and Python for use with a mesh networking protocol, including a conferencing system allowing emergency responders with cell phones, land-mobile radios, and PDAs to talk together in a single call. Spearheaded the implementation of a streaming audio library and API with support for RTP, GSM, Speex, loss concealment, adaptive jitter buffering, and subtraction mixing. Instrumental in the requirements gathering, design, and development of a cross-platform SIP-based VoIP client supporting seamless call handoff between 802.11 and cellular data networks. Designed a graphical network management application supporting distributed service discovery.

### TrustCommerce

*Senior Software Engineer*

Pasadena, CA  
May 2002 to July 2004

Developed software in C to run a geographically distributed network of high-performance, fault-tolerant credit card processing nodes. Led the design and implementation of a credit card fraud detection system in C++. Created a multi-threaded credit card batch processing system in Python, handling several million dollars in transactions per week with round-the-clock availability. Integrated with Amazon's SOAP/XML merchant services API.

### Jim Henson's Creature Shop

*Software Developer / Systems Administrator*

Burbank, CA  
October 2000 to May 2002

Led the design and implementation of a 32-node Linux render farm cluster using Sun's Grid Engine, including custom render tracking software to split up and reassemble rendering jobs to allow parallel processing. Programmed embedded animatronics software and drivers in C and C++ to support synchronous RS-232 communication for use in various Hollywood movies. Implemented analog-to-digital drivers in C for use with the Real-time Linux kernel. Ported a rendering application from DirectX to OpenGL.

### Linuxcare, Inc.

*Software Developer*

San Francisco, CA  
June 2000 to October 2000

Implemented TCP/IP-based network discovery and remote system management servers for Maxtor SAN devices running embedded Linux. Extended the Linux kernel to allow live disk drive repartitioning for an embedded Linux SAN product.

## Skills

### Computer Languages

Proficient in Python, Cython, C, and JavaScript. Working knowledge of C++ and Bash shell. Passing familiarity with Lisp and Haskell.

### Computer Software

Skilled in Subversion (svn), Mercurial (hg), GNU Compiler Collection (gcc), GNU Debugger (gdb), Vim, OpenGL, NumPy, GDAL, PROJ.4, PostgreSQL, L<sup>A</sup>T<sub>E</sub>X, and wxWidgets.

### Computer Systems

Experienced in the administration and operation of Debian GNU/Linux and Ubuntu. Familiar with Red Hat Linux, Windows XP, and Mac OS X.

## Education

### University of California, Los Angeles

B.A. in Philosophy, 2002