Jim Leonard

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Summary

Programmer with 17 years of professional experience programming client/server, network and systems software seeking a software development position in the Pittsburgh area. Solid experience working primarily in Python and C/C++ on Linux as a lead/senior developer in a small group environment.

Skills

Platforms: Linux, VMS, Win32
Languages: Python, C, C++, Javascript, JQuery, Perl, SQL
Tools: CVS, SVN, Emacs, Eclipse, GDB, Adobe Photoshop, Gimp

Experience

University of Pittsburgh   2011 – present
Research Programmer

Responsible for writing software for research projects, working almost exclusively on the HERMES vaccine supply chain simulation framework project. This involved building a supply chain simulation engine and later building a graphical front end for entering and editing data and visualizing results. The simulation engine is written in Python around the SimPy library and the graphical (web) interface uses an HTML/Javascript/JQuery front end connecting to a Python web server accessing an SQL database.

- Software has been used by the team to model the vaccine supply chains of at least 10 developing countries, providing support for updates to their supply chains.
- Converted the input system from using tens of spreadsheet pages per model to a database schema that can be used with MySQL or SQLite and represented in Python with SQLAlchemy.
- Created a fairly powerful web based editor for manipulating the supply chain allowing you to drag and drop elements, make local, sectional and global changes, run validations on the inputs and (to a limited extent) handle multiple users.

HighRes Biosolutions Inc, Woburn MA   2008 – 2010
Firmware Engineer

Responsible for writing and integrating embedded systems to control and provide interfaces for laboratory automation devices. Each device included a device specific network server, written in C, to provide the primary automated interface to the device along with a web interface and utilities, written in C, C+?+, Java, Javascript and HTML, to support users and integrators.

- Wrote firmware for 4 new devices and updated code for several others for changes in hardware and to provide better functionality.
- As the first "user" of the devices, worked closely with the mechanical engineers and had significant participation in the design and debugging of both the hardware and the software.
- Ported or helped port several devices from the original embedded x86 platform to an ARM platform.

ITA Software, Cambridge MA   2005 – 2008
Software Engineer

Programmer, primarily responsible for maintaining ITA's Global Distribution System (GDS). This software was written primarily in Common Lisp with other modules/servers written in C++, Perl and Python on Linux with a backing Oracle database.

- Integrated GDS software to support several additional airlines. This included negotiating network configurations and writing modules to support individual dialects of the full stack of airline specific communications protocols (MATIP, HTH, AIRIMP and EDIFACT) and additional business rule requirements of the airlines.
- Oversaw the acceptance testing, certification and introduction into the production systems to compete the certification process.

- Worked as primary or sole maintainer for ITA's GDS, including software fixes and operational support.

Starbak Communications, Waltham MA   2000 – 2004
Senior Software Engineer

Senior programmer responsible for developing all aspects of Starbak's video streaming servers.
- Implemented video streaming servers used in Starbak's appliance servers and licensed to third parties. The servers were developed in C under Linux through reverse engineering (Windows Media) and in compliance with published protocols (RTSP/RTP/MPEG/Quicktime/HTTP).
- Led the redesign and implementation of Starbak's RTSP/RTP based video streaming server permitting usage to scale to thousands of clients on commodity hardware. Implementation was completed in C, Lex and Yacc and included conversion to asynchronous I/O and extensive caching of streaming data.
- Enabled Starbak's web interface and third party applications to control the streaming servers and update the SQL backend by coding XMLRPC interfaces.
- Improved presentation of recorded video conference streams in Quicktime and RealPlayer by creating modules to rewrite the RTP and h.261/h.263 framing to correct timing and audio/video synchronization issues and to compensate for lost packets.

H&R Block / Compuserve, Columbus OH   1997 – 2000
Software Engineer

Programmer for the group responsible for maintaining H&R Block's electronic filing servers.
- Updated efile server applications and hardware to comply with annual changes to tax law and business needs. The applications were written for VMS clusters and heavily used VMS system services and custom databases.
- Integrated TaxCut into Block's existing electronic filing system to remove dependency on a third party filing system. In the first year this system handled 1 million income tax returns saving $2 million. Preprocessing, reporting and tracking modules were coded in C and Perl for VMS and Win32.
- Supported real time operation of the electronic filing system during tax season, including on call duty, custom report generation and creation of one-off programs to fix larger scale problems.
- Improved reliability of Block's interface with the IRS, state departments of revenue and partner banks by coding a replacement communication system supporting IP and dialup protocols that annually handled over 15 million tax returns as well as their associated loan applications and check authorizations. The project was coded in C and DCL and included customizing transfer protocols to handle antiquated IRS systems.

Advanced Communications Services, Durango CO   1999
Consultant
- Enabled the replacement of the current voicemail system by writing high-level voice modem device drivers in Perl/Perl XS.
- Permitted expansion of core business functions by writing fax drivers and low-level call center functionality.

Ohio Federation for the Blind (non-profit)   1998
Donated coding skills
- Automated the process of parsing and marking up job listings for a text to speech program.

Personal
Technical hobbies include:
- Image editing using tools ranging from Photoshop type image editors to scriptable tools like Image Magick to writing my own applications in C and Perl.
- Programmatic puzzle solving. See http://xuth.net/jimslide/ for an example.