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Experience

Med X Change Bradenton, FL

Senior Software Engineer
2017 – 2018

- Brought expertise to a Windows .NET team to complete an all-new Linux-based 4K medical video recorder. Built using OpenEmbedded (Yocto), Python, Qt, and gstreamer. Used Qt QML for the user interface with embedded python to handle business logic. Combined the development speed and ease of Python with the rapid GUI creation of Qt QML. Architected video encoder backend to seamlessly support both new and old video capture devices automatically in order to avoid future technical debt. Provided knowledge and training to the team for technologies new to them.

Real Digital Media St Petersburg, FL

Senior Software Engineer
2013 – 2017

- Created Ubuntu-ARM and Android digital signage products based on an existing x86 design. Built a custom Android OS image. Created Python REST integration layer for customers. Fixed bugs in a Ruby on Rails site. Added and pushed features to ngrok, an open source tunneling software. Added multicast network auto-discovery for cooperative playback.

3GFP Consulting St Petersburg, FL

Senior Software Engineer
2011 – 2014

- Created hand-held vision scanner software: main application (embedded Qt, SQLite), operating system (Open Embedded), and cross-platform desktop apps (Qt). Wrote Python applications to validate file system integrity, monitor processes, and perform rule-based data synchronization.
- Ported pieces of an electric company's billing software from 1980s PowerBASIC to WxWidgets.

Ndeka St Petersburg, FL

Senior Software Engineer
2010 – 2011

- Developed a large online card game network including game servers (Linux/C++), client application (Windows, C++, WTL), automatic updater, and server-interface code (PHP).
 - Setup and managed software tools (source control, bug tracking, builds) and one-step build process.

Persysent Software Tampa, FL

Senior Software Engineer
2008 – 2010

- Created the Linux operating system for Persysent Solo: software to perform file-level repair for Windows systems as well as full imaging both locally and over the network. Ported a legacy Windows library to Linux, everything from XML support to low level disk and partition access, error handling, logging, GUIDs, and more. Assembly level debugging of BIOS and Grub4Dos while creating NTLDR (boot loader) replacement.

Constellation Technology Largo, FL

Consulting Computer Engineer
2005 – 2008

- Developed nuclear scanning portal software for the Department of Homeland Security.
- Architected software infrastructure for combination Nuclear, Biological, and Chemical weapons detectors. Wrote a stable, well-tested, base code library that reduced development time.
 - Setup software department tools, network, infrastructure, and code library including Source Control, Bug Tracking, Internal Wiki Website, and VPN. Wrote robust, re-usable communications, timer, and event handling code library (135,000 lines of code).

- Added complex gas flow control algorithm to legacy Visual Basic application for a compact GCMS, gas chromatography-mass spectrometer.
- Created graphical import/plot/analysis software in Python to process, view, and analyze chemical saw sensor data.

Older Work & Locations

Seattle, San Jose, Philadelphia

**Software Engineer
1996 - 2004**

- Created a distributed test framework for Video-on-Demand servers that imitated multiple brands of consumer set-top boxes and analyzed over 1.5 terabits per second of MPEG video. Used C++, Python, Kqueues, CORBA, and XML. Feedback from QA was overwhelmingly positive.
- Designed C/C++ software for controlling and operating head-end high definition MPEG video encoders. Dish Networks and DirecTV still continuously use this software for every national channel.
- Continued development of the online servers and networking core for the video game 'URU: Ages Beyond Myst'.
 - Implemented a more efficient binary difference algorithm for game patches that resulted in space savings of up to 75% and a lower bounded memory usage.
- Supervised and wrote software in C/C++ for controlling up to 100,000 distributed fiber optic Ethernet switches which handled voice (VoIP), video, and data.
 - Created a simple, flexible, and fast in-memory embedded database server in C and helped develop complex algorithms for internal packet switching and blade redundancy for enterprise switches.
- Wrote C programs that assimilated data from and controlled, via a radio link, a telescope that studied cosmic microwave background radiation.
- Designed and built a PCI data acquisition system that read up to 256 16-bit channels, all simultaneously at a frequency of 1.2 kHz.

Technology Experience

Languages & APIs:	C, C++, Python, Unix Shell Scripts (expert), Java, SQL, PL/SQL, sed, awk, Android, Qt, GTK, wxWidgets, wxPython, FLTK
Protocol Expertise:	Low-level socket programming, UDP, TCP, deep protocol knowledge (SNMP, VLAN, Ethernet (Layer 2), TCP/IP (Layer 3/4)), extensive use of Wireshark.
IDEs, Debuggers, Source Control:	Emacs, Android Studio, GDB, Mercurial, Git, Subversion (SVN), CVS, Make, GCC, G++
Operating Systems:	Linux, Mac OS X, VxWorks, OSE, Windows
Knowledge Tools:	MS Visio, ScreenSteps, ScreenFlow, Balsamiq Mockups, OmniGraffle
Linux Distributions:	Android, Open Embedded, Buildroot, Ubuntu, Gentoo, RedHat, TimeSys
Other:	Linux Kernel, U-Boot, threads, SysV IPC, SSH, NTFS, kexec, Grub4Dos

Education, Awards, Interests, & Personal Notes

- University of Pennsylvania, B.S.E. Computer Science Engineering, Electrical Engineering – 1999
 - Fred Ketterer Memorial Award for Outstanding Creativity in a Senior Design Project
- Co-Organizer of Tampa Bay Android Meetup, Python learning and meetups, reading technical websites, managing a personal Internet server since 1999.
- Family life, Cub Scout Pack Leader, Eagle Scout, Cycling, Cooking, Backpacking
- Proposed at the summit of Mount Kilimanjaro
- Began programming in BASIC on a Commodore 64 and an Apple II in the late 80s and early 90s