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Experience

Tampa Microwave Clearwater, FL

Senior Software Engineer 2019 – present

- Created base platform for all future products from a legacy PIC24 firmware to a from-scratch Yocto embedded Linux on a new board with an i.MX6UL CPU. Developed the bootloader, device tree, kernel, OS, and the port of the legacy firmware into a Linux application. Performed schematic review and board bring up. Architected application to eliminate #ifdef hell by creating a single firmware that supports many product variants using a pointer to implementation design facilitating easy addition and removal of models with code re-use. Setup software department infrastructure and instituted industry best practices.

Hivelocity Tampa, FL

Senior Software Engineer 2018 – 2019

- Architected software and infrastructure for rapidly deployable bare metal servers. Mentored teammates on programming best practices, advanced Python skills, and efficiencies. Absorbed many new technologies including a JavaScript/React customer portal; legacy Flask and Django REST API servers; and Docker, Mantl, Jenkins, and other deployment stack tools.
- Developed paramount profit/loss and inventory analysis reports used daily by the executive team to access trends, insights, and business needs in existing and developing markets.

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 custom Android OS digital signage products. Created Python REST integration API. 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.

**Persysoft Software
Tampa, FL**

**Senior Software Engineer
2008 – 2010**

- Created the Linux OS for Persysoft Solo: software to perform file-level repair for Windows systems as well as full local and network disk imaging. Ported a legacy Windows library to Linux, everything from XML support to low level disk and partition access, error handling, logging, and more.

**Older Work & Locations
Seattle, San Jose, Philadelphia, Tampa**

**Software Engineer
1996 - 2008**

- Architected software for nuclear, biological, and chemical weapons detectors. Setup the software department infrastructure. Added complex gas flow control algorithm to legacy gas chromatography-mass spectrometer. Wrote graphical data analysis application in Python.
- 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 head-end HDTV MPEG video encoders for Dish Networks.
- Worked on online servers and networking core for the video game 'URU: Ages Beyond Myst'.
 - Implemented efficient game patch difference algorithm reducing patches up to 75%.
- Created software in C/C++ for controlling up to 100,000 distributed fiber optic Ethernet switches.
 - 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, Shell Scripts, Java, SQL, PL/SQL, sed, awk, Android, Qt
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 & Tools:	Emacs, Android Studio, GDB, Mercurial, Git, CMake, GCC
Operating Systems:	Linux, Mac OS X, VxWorks, OSE, Windows
Knowledge Tools:	MS Visio, ScreenSteps, ScreenFlow, Balsamiq Mockups, OmniGraffle
Linux Distributions:	Android, Yocto, Open Embedded, Buildroot, Ubuntu
Other:	Linux Kernel, U-Boot, threads, SysV IPC, SSH

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 and CoderNight Meetups, 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