

Summary of Qualifications

Goal-oriented embedded software engineer with a proven track record of successful, fielded designs. Extensive experience developing for a variety of hardware and software platforms, featuring Microcontroller/FPGA-based products in addition to Windows GUIs and Linux server-based products. Strong documentation skills applicable to CMM/CMMI and ISO 9001 organizations. Familiar with a variety of software tools including C/C++, Python, Java, VHDL, SQL, Perl, Django, Linux, and multiple version control systems including Mercurial.

Education

August 2000

Bachelor of Science in Computer Science
University of South Florida, Tampa, FL

Work Experience

February 2011 – Present

APIC Corporation

Melbourne Design Group, Melbourne, FL – Software Engineer / Technical Manager

Developing and overseeing development of embedded command & control applications, Windows GUIs, Web Applications, and supporting documentation for fiber-optic reference designs and test beds. Technical highlights include:

- **Digital Transmitter Controllers** – Developed multiple FPGA/MCU embedded firmware solutions (Microsemi/Actel SmartFusion A2F200) that provide active control of proprietary tunable fiber-optic transmitters. Features include: multiple software PID controls, interfaces to SPI peripherals, implementation of an Ethernet datalogger, and redundant command & control interfaces (I2C, Ethernet, and UART). Utilized technologies: FreeRTOS, ARM-Cortex, FPGA, Libero, SoftConsole (Eclipse), VHDL, C, Python, wxPython, Mercurial.
- **Analog Transmitter Controller** – Developed an MCU embedded firmware solution Analog Devices ARM7 (ADuC7023) that provides active control of a proprietary fiber-optic transmitter. Features include: multiple software PID controls, runtime calibration of ideal modulator bias settings, and an I2C command & control interface. Utilized technologies: ARM7, Rowley Crossworks, C, Python, wxPython, Mercurial.
- **TestRecords Web-Application & Database** – Oversaw the development of a web-application (Django) and database (MySQL) used as a central storage of test data throughout optics product manufacturing. Utilized technologies: Django, Python, MySQL, Mercurial.

November 2008 – February 2011

Northrop Grumman Corporation

Advanced Analytics Group, Melbourne, FL – Software Engineer

Performed diverse software development tasks including: design, implementation, maintenance, and test of proprietary software products running on a variety of target platforms (e.g. web-services, Windows GUIs, Linux-based database services). Technical highlights include:

- **Triton Communications Analysis Tool** – Key participant in the development of an atmospheric analysis end-user tool used to model optimal placement of communications nodes in a given scenario, taking dynamic weather patterns and broad geographic regions into account. Utilized technologies: Java, Java Swing, Jess Rule Engine, XML, NetBeans, CVS.
- **Assorted Proprietary Programs** – Participated in development and maintenance of assorted proprietary tools used by a variety of end customers. Relevant Technologies: Java, C++, IDL, Python, Perl, SQL, Red Hat Linux, Eclipse, NetBeans, CVS, Mercurial.

April 2005 – October 2008

Avanex Corporation

Transmission Business Unit, Melbourne, FL – Software Engineer

Performed full-lifecycle software design, implementation, and maintenance of embedded command & control applications, Windows GUIs, and supporting documentation. Technical highlights include:

- **Small Form Factor, 10-Gigabit MSA 300-Pin Tunable Fiber-Optic Transponders** – Key participant in the development of an embedded firmware solution for an ARM7-TDMI microcontroller (STR711) implementing a portion of the 300Pin MSA specification (<http://www.300pinmsa.org>). Requirements included I2C Command & Control, dynamic laser control, dynamic optical receiver control, and peripheral device control. Utilized technologies:

April 2005 –
October 2008
(continued)

IAR Embedded Workbench, C++, Python, CVS.

- **Large Form Factor, 10-Gigabit MSA 300-Pin Tunable Fiber-Optic Transponders** – Developed an embedded firmware solution for a Freescale HCS12 microcontroller (MC9S12E128) implementing a portion of the 300Pin MSA specification (<http://www.300pinmsa.org>). Requirements included system-level I2C Command & Control, dynamic laser control, dynamic optical receiver control, and peripheral device control. Utilized technologies: Metrowerks CodeWarrior, C++, Python, CVS.
- **10-Gigabit, MSA XFP, Fiber Optic Transceivers** – Developed an embedded firmware solution for an Analog Devices ARM7 (ADuC7020) microcontroller that implementing a portion of the XFP MSA specification (<http://www.xfpmsa.org>). Requirements included system-level I2C command & control and dynamic control of optics via peripheral components. Utilized technologies: IAR Embedded Workbench, C++, CVS.
- **MTA, Microwave Transmitter Assembly** – Developed an embedded 8051 firmware solution for a UART command & control interface resident in an emulated 8051 microcontroller (Roman Jones-PB8051) inside a XILINX Spartan-3 project. Utilized technologies: SDCC, C, CVS.

March 2001 –
April 2005

Harris Corporation

Government Communication Systems Division, Palm Bay, FL – Software Engineer

Performed design, implementation, and technical leadership of embedded applications, Windows GUIs, and supporting documentation. Technical highlights include:

- **10-Gigabit MSA 300-Pin Tunable Fiber-Optic Transponders** – Developed an embedded firmware solution for a Freescale HCS12 microcontroller (MC9S12A256B) implementing a portion of the 300Pin MSA specification (<http://www.300pinmsa.org>). Also developed extensive calibration routines in Visual Basic 6 that utilized database back-ends (SQL), polynomial fitting, and GPIB test equipment interfaces. Utilized technologies: Metrowerks CodeWarrior, C++, VB6, SQL, ClearCase.
- **RF Converter Enterprise** – Ported and refactored an embedded 8051 firmware solution into a new digital design. Part of the migration included a migration from a Dallas 8051 to a Triscend CSoC (also an 8051 derivative). The resulting executable was used in the command & control interface in five unique hardware designs. Also responsible for the integration with a variety of SPI devices including PLLs and RF attenuators. Worked closely with system engineers to implement calibration routines that could provide seamless linear control of a non-linear RF attenuator. Utilized technologies: Keil, C, VB6, ClearCase.
- **Lambda Lock Tunable Optic Filters** – Assisted in the development of a firmware solution on a Phillips 87C51 (8051) that implemented a tunable optic filter. Responsible for the development of dynamic calibration routines that performed polynomial fitting (inside the microcontroller) of real-time data to identify the optic's Free Spectral Ranges. Utilized technologies: Keil, C, VB6, ClearCase.

References and Code Samples

References and Code Samples are available upon request.