

Nathan Domin

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Summary of Qualifications

Goal-oriented engineer with a proven track record of successful, fielded designs. Extensive experience planning for and developing a variety of hardware and software deliverables including embedded firmware and software applications. Development experience features Microcontroller/FPGA-based and Linux server-based products. Strong documentation skills applicable to CMM/CMMI, DO-178C, and ISO 9001 organizations. Familiar with a variety of software tools including C/C++, Python, Java, VHDL, Linux, and multiple version control systems.

Education

August 2000

Bachelor of Science in Computer Science

University of South Florida, Tampa, FL

Work Experience

June 2016 - Present

Thales USA, Inc

Aircraft Software Engineering, Melbourne, FL – Software Architect

Providing software architecture and technical planning support of software development for cockpit communication systems and consumer-focused, aircraft connectivity solutions. Technical highlights include:

- **FlytLINK** – Providing software architecture, technical planning, requirement decomposition, and oversight of feature development for a cockpit and cabin Iridium satcom terminal (ARINC 771). Product provides communication solutions for cockpit and cabin applications. Utilized technologies: DO-178C DAL-D, ARINC 429, ARINC 615A/665A, ARINC 739, JAMA, Atlassian suite (JIRA, Bitbucket, Confluence), C++, Git
- **FlytNET** – Providing software architecture, technical planning, requirement decomposition, and support of feature development for a consumer-focused, aircraft Internet connectivity and entertainment system. Utilized technologies: DO-178C DAL-E, JAMA, Atlassian suite (JIRA, Bitbucket, Confluence), C++, Python, CentOS, Git

February 2011 - June 2016

APIC Corporation

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

Developed embedded command & control applications, Windows GUIs, and supporting documentation for fiber-optic reference designs and test beds. Technical highlights include:

- **Digital Transmitter Controller** – Developed an FPGA/MCU embedded firmware solution (Microsemi/Actel SmartFusion A2F200) that provides active control of a proprietary tunable fiber-optic transmitter. 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: ARM-Cortex, FPGA, Libero, SoftConsole (Eclipse), VHDL, C, Python, wxPython, Mercurial.
- **Digital Receiver Controller** – Developed an FPGA/MCU embedded firmware solution (Microsemi/Actel SmartFusion A2F200) that provides active control of a proprietary fiber-optic receiver. Features include: a software PID control, an Ethernet datalogger, and redundant command & control interfaces (Ethernet and UART). Utilized technologies: ARM-Cortex, FPGA, Libero, SoftConsole (Eclipse), VHDL, C, Python, wxPython, 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.

November 2008 –
February 2011
(continued)

- **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 open 300Pin MSA specification. Requirements included I2C Command & Control, dynamic laser control, dynamic optical receiver control, and peripheral device control. Utilized technologies: 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 open 300Pin MSA specification. 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 implements a portion of the open XFP MSA specification. Requirements included system-level I2C command & control and dynamic control of optics via peripheral components. Utilized technologies: IAR Embedded Workbench, 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 open 300Pin MSA specification. 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.

References and Code Samples

References and Code Samples are available upon request.