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

November 2021 – Present

Software Control Solutions
Melbourne, FL – **Software Engineer**

Providing engineering and development services for real-time and mission critical embedded software systems. Actively working with space scientists to prototype / develop novel bare-metal software solutions to meet mission requirements for new sensor capabilities. Utilized technologies: Linux, Microchip/Atmel SAMV71Q21B, GoogleTest, C, SPI with DMA, PWM with DMA, GitLab, Git.

June 2020 – November 2021

Leonardo DRS
Electro-Optical & Infrared Systems, Melbourne, FL – **Software Engineer**

Provided software development and test support of a pre-production military-focused product that utilized embedded software supporting an updated hardware design. Support included realization of new hardware/software interfaces to realize Intra-Soldier Wireless (ISW) protocols for video displays and remote controls. Utilized technologies: Xilinx Zynq, C, FreeRTOS, Doors, JIRA, Code Collaborator, SVN.

June 2016 – June 2020

Thales USA, Inc
Aircraft Software Engineering, Melbourne, FL – **Software Architect**

Provided software architecture and technical planning support for aircraft communication and connectivity solution software development. Technical highlights include:

- **FlytLINK** – Provided software architecture, technical planning, requirement decomposition, and oversight of feature development for an Iridium satcom terminal (ARINC 771). Effort relied on supporting a 30-person software engineering team. Utilized technologies: DO-178C DAL-D, ARINC 429 (Communications bus), ARINC 615A/665A (Software Dataload), ARINC 739 (MCDU/TCP), JAMA, Atlassian suite (JIRA, Bitbucket, Confluence), C++, Git.
- **FlytNET** – Provided software architecture, technical planning, requirement decomposition, and support of feature development for a consumer-focused, aircraft Internet connectivity and entertainment system. Effort relied on supporting a 40-person software engineering team. 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 and an Ethernet datalogger. 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). Relevant technologies: Java, Java Swing, Jess Rule Engine, C++, IDL, Python, Perl, SQL, XML, Red Hat Linux, Eclipse, NetBeans, NetBeans, CVS, Mercurial.

April 2005 – October 2008

Avanex Corporation

Transmission Business Unit, Melbourne, FL – **Software Engineer**

Performed 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** – Helped develop 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++, HCS12, VB6, SQL, ClearCase.
- **RF Converter Enterprise** – Ported and refactored an embedded 8051 firmware solution into a new digital design. The resulting binary solution was used in five unique hardware designs. Included 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, 8051, C, VB6, ClearCase.