Systems Architecture and Software Consultant

John K. Stevenson

1931 E. Apollo AVE., Tempe AZ 85283 (480) 820-8388 js@nomadic.com

Experience in the full life cycle of project development: Compilers, Emulators, Simulators, Editors, Avionics, Telecommunications, Distributed-Processing, Data-Acquisition, Real-Time Operating Systems, Firmware and Device-Drivers. A broad background of projects provides me with a good high level systems level perspective. I bring creativity and the art of invention to design solutions. 2014_03_05

Programming Languages: C, C++, bash, Objective-C, FORTH, ColorForth, HTML, and ATLAS/ATSL (I wrote a Domain Specific Language Compiler "ATSL", derived from the "ATLAS" test specification).

Assemblers: TMS320C28355DSP, PowerPC, PIC, ARM 7/9, Xscale, MIPS, 68K, x86 and Z80.

Operating Systems: Linux/BSD/UNIX/OSX/AIX/Solaris, IOS, Android, RTOS and VxWorks.

Methods: Agile/Lean/Scrum, OOA/D/P, UML, TOC, Hatley/Pirbhai Real-Time Structured, PERT/CPM.

Utilities: Xcode, Eclipse, TI-CCS, FORTH, OKAD, SVN, GIT, CVS, ClearCase, RUP, RTRT, DOORS and XiLinx.

Hardware: Mac, GreenArrays, DSP, HA, SAN, CPCI, MVME, XiLinx, Scopes and Logic Analyzers.

Standards: SEI-Level-3, DO-178B (A), ANS-Forth, ITU, ARINC, DICOM/HL7, P1275 Mil-498 and InfiniBand.

EXPERIENCE

2014 June to Present: Stevenson Systems Research: Independent development projects: Patent Analysis, Embedded Automotive Bluetooth LE analyzer, Mobile Apps, TI DSP bread-boarding.

2012 September to May 2013: Contract for Resuscitation International: Tempe, Arizona. Software Developer, created motor control and diagnostic software in TI320C28355 DSP Assembler (20K lines) for a portable Cardio-Pulmonary Resuscitation unit.

2011 January to Present: Independent ongoing development: Documenting several Inventions. Development projects: iPhone, and iPad Apps, Using IOS with Objective C on the Xcode platform.

2010 July to 2010 November: Contract Systems Test, Belcan for Honeywell: Oversight Verification, Honeywell, Arizona: Verification and "check-listing" analysis of 787 Avionics Test results, analysis of MATLAB models, and HILITE compare results to Honeywell standards, CMMI-5, and DO-178B.

2009 October to June 2010: Independent development with several partners, multiple projects.

2009 April to August 2009: Contract Systems Analyst CEMSol for BAE: Final review of Avionics Systems upgrade documentation. Performed coordination of documents for DO-178B compliance.

2008 May to September 2008: Contract Systems Engineering for HighRely, Phoenix AZ: Aircraft component certification project. Documented a system to DO-178B level D, for a Helicopter secondary black box. Created: "Functional Test Plan" (FTP), "Software Verification Results" (SVR), "Software Accomplishment s Summary (SAS), "Software Configuration Index" (SCI), SCI Template, "Software Environment Configuration Index (SECI) and "Reliability Trace Matrix" (RTM). Commented on: "System Subsystem Specification" (SSS), "Software Load Application" (SLA), "Software Verification Plan" (SVP), Software Requirements Data" (SRD), "Planned Software Aspects of Certification" (PSAC), "Software Configuration Management Plan" (SCMP) and "Software Development Plan" (SDP). Performed Software Verification Cases and Procedures (SVCP) and Acceptance Test Plan (ATP).

2008 January to 2008 May: Analysis of a new Transputer-like architecture, Incline Village NV: Provided

Expanded Resume and References available on request.

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Systems Analysis and review of a new 18 Bit Low-Power, Embedded, Parallel-Computer chip. Programmed and tested the chip in ColorForth. Utilized the VLSI design tool "OKAD".

2007 July to 2007 November Contract Systems Analyst CEMSol for Rockwell Collins, Melbourne FL: Analyzed aircraft component standards compliance. Organized Telecommuting development with Geographically distributed team. Standards involved: DO-178B (A, B), ARINC, and JavaScript.

2006 April to 2007 May: Lead Embedded Systems Developer/Programmer, Orthoscan Inc: Developed a Digital Medical Fluoroscope, and wrote all the software: configuration, operations, applications, drivers and firmware. This included: the command executive, all state machines and drivers, X-ray Power control, alarms, custom graphics engine with anti-aliased font rendering, data entry editor, patient data configuration, diagnostics, remote management and configuration system, printer control and PACS DICOM interface. Used Linux, Mac-Mini, Xilinx Virtex4, EDK-7.1, I2C, PPC-405, C, PIC, and Bash.

2005 September to 2006 April: Contract Systems Engineering Analyst, CEMSol, for Boeing IDS: Analysis of Aircraft compliance with the C17 Global-Air-Traffic-Management Interoperability. Created HTML and Excel based data capture and reporting system for ARINC and RTCA standards. Provided reports based on Avionics Development Reports and USAF Deficiency Reports. Validated CPDLC operations with DO-258, and DO-219. Utilized: Doors, Office, Amus, DO-178 and Boeing Checklists.

2005 April to September: Contract Embedded Systems Programmer, MindLance for Intel: Development of drivers for post silicon verification testing and diagnostics in C, FORTH, and Assembler for the "Hermon" multi-processor cellphone system-on-a-chip. Ported the Linux kernel to the ARM side of the Hermon chip. Utilized: Custom Intel PSV Test chassis, triple monitor system, and logic analyzer.

2005 January to April: Contract Systems Analyst/Programmer, Technisource for Smiths Aerospace MI: Agile process Ada code verification for Avionics. Requirements developed in DOORS and ClearCase.

2004 May to October: Contract Embedded Systems Programmer, Linux Kernel, NCS Corp: Embedded systems programming for US ARMY Land Warrior Project at CSC/GD; Developed performance tools, Linux configuration and drivers, diagnostics and QT application interface with the Linux 2.6 kernel.

2003 April and Continuing: Writing projects, general software issues: Research and analysis, on "High Performance Team Programming", Agile examples of high performance software techniques.

2003 January to March: Contract Software Architect and Forth Programmer, SystemPros for VertexRSI GD: Designed system software architecture for FORTH based Nodal Satellite Multiplexer platform.

2002 Sept to 2003 January: Staff Programmer, Teksci for Bombardier and Honeywell: Verified test code with DO-178B (A), used Rational RTRT and manual analysis and testing procedures.

2002 March to June: Contract Embedded Systems Programmer for Itron: Developed a Linux based secure power grid monitor. Secure remote computer for monitoring a portion of the power grid by Telephone line. Utilized Redhat 7.2, Debian.

2001 May to 2002 February: Multiple clients. Developing secure embedded Linux network systems using Redhat 7.2. Administered Windows 2000/XP, Redhat Linux, Debian, and Suse Linux.

2000 to 2001 April: Systems Architect/ Staff Software; Telecom, Motorola Research and Systems Architecture Group: Designed Linux based Clustered-Computing systems, and SAN oriented Fibre-Channel based Oracle Parallel-Server Clusters. Wrote white papers on "HA Clusters", "Linux Oracle

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Clusters" and "Scalable Linux Development Environments". Provided analysis of Infiniband architectures.

1998 October to 2000: Staff Software/ Firmware Engineer; Motorola: Developed firmware for VME/ CPCI boards. Assisted Debian.org porting of the Linux kernel to Motorola MVME16/7x and 68K. Built and administered: cross-compiling Linux GNU/AIX tools. Built TCL Serial Fiber-Channel test system, Used PERL to Port Firmware Source Code from an AIX development chain to GCC tool-chain. "Cognizant engineer" for "Clariion Denali" test system. I created HTML web pages for several groups.

1997 August to 1998: Embedded Developer and System Administrator, Honeywell Satellite Systems: Developed "MDM Automated Test Environment (MATE) system. Wrote VxWorks startup and update code scripting for multiprocessor system, Systems Administrator for SunOS 1.4 and development tools. Designed and built an automated test system validation and installation package for spacecraft communications system, Mdm (Modulator and Demodulator) ATE (Automatic Test Equipment) simulator toolset, for distribution to countries involved in the International Space Station. We were certified CMMI level 3. Utilized: VXWorks, VME-RealSim, Software Through Pictures, MATRIXX, and Xbuilder.

1997 May to August: Systems Architect/Administrator and FORTH Programmer, IsoQuantic Technologies: Developed telephone Summa-Four switch embedded drivers, "SELDON", Decision Support Systems (DSS), and systems administrator for Linux, Solaris, and Mac OS9.

1997 April to May: Raytheon Missile Systems, Sudbury Mass: Committee Review of Sea Sparrow Missile Command Console development and verification for military and company standards.

1995 to 1997: Systems software consulting, multiple clients.

1994 to 1995: Contract Software Architect / Forth Programmer, VOLT for AG Communications Systems: Developed FORTH based Advanced-Intelligent-Network (AIN), component Service-Node-Intelligent-Peripheral (SNIP). Represented AGCS at several ITU standards meetings. Systems administration and installation of Linux desktops and test stands, Utilized: Object Oriented Forth, Solaris, Linux and Dialogic.

1993 to March 1994: Contract Systems Architect / Programmer / Analyst, Naval Systems, Westinghouse OH: Developed Systems Requirements and development of a geographically distributed high-speed data acquisition/test system using TCP/IP protocols, the FTMS "Flexible Test Measurement System". Our first customer was Westinghouse Power Generation; they also assisted in the design, for power turbine testing. Development of a common display host and remote VXI based multiple instrument platforms running high speed testing and temperature measurement. This system was used to test turbine blades overseas from the command console in Florida. Developed windows configuration, system build, systems integration, software distribution packaging and licensing, demonstration system generation, and windows administration. LabView based Instrument control software design and implementation. Utilized: HPUX, MAC Quadra, HP-1430, HP-1433, Exabyte, VXI/MXI, VME, VISE, LabView, C, and TCP/IP.

1988 June to April 1993: Consultant as Nomadic Software: Systems Analysis, Administration and Development, Multiple clients:

Unix and BSD 4.3 Network, Installation and tuning for operations.

Third Party developer at Ellery Systems, Inc.: Add-on product design for Distributed Database-Processing system. SQL query widget design. Utilized: Silicon Graphics 4d/35, HP-700, Dec 3100, HP 750, Sun Sparc, Astrophysics Data System (SAO/ADS), Knowledge Dictionary System (LRI/KDS), Ellery Open Systems (EOS) and WCL.

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Developed a DOS system emulator for Silicon Graphics based IRIX machines, which emulated an 8088, BIOS and MSDOS calls.

Cocom: Installed and trained workers and administered 12 user XENIX based financial System,

Developed Radio Telemetry for irrigation control and remote electric power meter reading

1987 November to June 1988: Contract Software Architect and FORTH Programmer, for IBM ASD; Boulder, Colorado: Developed System Architecture and Design of a Graphics / Database software product, IBMCAD 1.0. Reorganized software architecture, built documentation utilities, developed operating system utilities. Utilized: URFORTH, IBM-4300 VM/AIX/CMS, Script, Postscript, and Autocad.

1986 January to April 1987: Contract Systems Programmer, Compiler writer for GOULD, Ocean Systems Division; Euclid, Ohio: Developed a Domain Specific Compiler: "ATSL" for Acoustic array Testing Systems Language. The test set was partially automatic; the system interacted with Test Engineers and Torpedoes. Built Test stand software including Compiler, Configuration, Test Manager, Database System, Graphics Display system and safety interlocks and procedures. Wrote all Instrumentation software in Assembler and FORTH. Utilized: MK-48 Torpedo, crane, and Votrax Speech unit.

1985 June to December: Lead Systems Programmer, General Dynamics, Land Systems Division; Troy, Michigan: Battlefield Management System for Block II M1A2 tank. Managed and Developed System-Specification and Requirements for ERTOS, a Multiprocessor Real-Time Executive and 1553B Bus Controller programs using Real-Time Structured Development methods. Lead Programmer on the "Autonomous Land Vehicle", a battlefield reconnaissance, scouting and reporting system written in Symbolics Lisp. Assisted in the development of Tank Displays and BIT. Conducted Project planning and scheduling using the PERT/CPM methods. Utilized: Symbolics, Mil-1750, Mil-2167A, AF-190, Mac.

1985 January to June 1985: Systems Programmer, Philips Home Interactive Systems; Knoxville Tennessee. Developed "VideoWriter", Product specification, patent discovery, for windowing screen display text systems. Wrote disk operating system, diagnostic code, emulations, test code, configuring, updating, and hardware driver modules for a consumer product in C, Z80 (NSC-800) and 8048 assembler. Utilized: Z80, Emulogic, Applied Microsystems.

1984 November to December 1984: Systems Analyst to Bechtel Corporation; Huntsville, Alabama. Evaluated Airport code in FORTH. Wrote recommendations for management on source code developed for Airport Management, and reports including facilities management, security, system operations, communications, configurations, and reporting. Utilized: Airport, FORTH team, Otrona Attache.

1983 November to August 1984: Consultant to Matrix Associates; Portland, Oregon, and Mohawk Labs; Santa Barbara. Developed software for a portable medium resolution film based desktop typesetter in Z80 assembler and FORTH, including; a Z80 Executive, diagnostics, drivers, font management, 6 axis motor control, dual-processor management, serial communication, operation queues, test, integration, and configuration control procedures. Assisted Mechanical and Electrical developers. Participated in product demonstrations to the customer. Utilized: Prolog, Z80 Emulator, Logic Analyzer, and an Otrona Attache.

1983 March to September 1983: Consultant to Benchmark Systems; Beaverton, Oregon. Design and implementation of major software modifications to a commodity lumber billing system. Wrote users

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manual and trained personnel in use of modified system. Utilized: CADO minicomputer and CADOL.

1981 August to February 1983: Systems Programmer, Four-Phase Systems; Portland, Oregon. Developed marketing and training tools. Created Pascal programs to simulate an interactive typewriter, an editor using the concept of "Textlets", Configured batch compilations for machine time optimization. Utilized: Four-Phase IV-90, a Wavemate Bullet and Pascal.

1979 September to July 1981: Systems Programmer, Crawford Services Company; Portland, Oregon. Developed a Typesetter Simulator Display program. The system was 25,000 lines of 8080 codes for a 16K Ontel Terminal computer. The Ontel code and data portions swapped out programs and fonts, paging to the host as needed. This allowed robust font management, hyphenation, kerning, editing, and terminal functions to be transparent to the operator, and be a tiny system. A networked PDP-11/34 running RSTS-E was the host with 80 Megabytes of storage. We added a C language interface to the system to provide additional capabilities in the future. I redesigned a ten-person office for the Classified Newspaper operations to minimize noise, cable runs, and assist the collaboration of operators. We simulated a Compugraphics Universal Typesetter to cost out Display advertisement.

1977 October to July 1979: Consultant, Miscellaneous Clients.

Designed a text pagination system.

Modified Multi-Tasking-Basic in dis-assember, Business Basic, hard disk code, added prioritized task dispatching and input fields.

Designed and programmed interfaces between: Alpha Micro Computer, truck weighing scale, and concrete batch control system.

Designed and programmed a custom interfaces between a videodisk, videotape unit, and Apple II computer to create an "English as a Second Language" (ESL) integrated interactive educational workstation.

Developed product choices, sold computers, an outside sales person for the "Byte Shop" of Portland.

1976 June to October 1977: Manufacturers Representative, Pfanstiehl Record Care Accessories; My territory was from the Oregon border to San Luis Obispo California, from the Pacific to the Arizona border.