

LELAND D. HAMILTON

Sr. Systems Analyst

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Sr. Software Engineer

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Po Box 214, La Fayette, NY 13084-0214

Experienced Sr./Principal Software Engineer and Systems Analyst in various applications, especially **embedded real-time** systems and **device drivers** and **board support** including **x86**, Power PC, and a number of other platforms using a variety of languages, primarily C, C++, ADA, and assembly. Performed full **software life cycle**, including **requirements analysis**, **system design**, **detailed software design**, **development**, **unit testing**, **integration testing**, hardware and software **trouble-shooting** using various **debuggers**, **ICEs**, **logic and protocol analyzers**, other **HW/SW tools**, various **real-time operating systems**, **Linux**, **UNIX**, **UML**, **version control systems** and **IDEs**. Commercial and Military standards, such as DO-178B. Filled the "holes" in many projects. Talent for **solving** complex design and **troubleshooting** problems, including several that had plagued others for over a year. **Productivity enhancements** earned me the name "**Utility Man**". Avid reader and self-learner.

Sr. Firmware Engineer Integrated Medical Devices 2013
Liverpool NY

Firmware specialist for medical heart monitoring devices, porting to TI TMS320C5505 embedded platform and incorporating replacements for obsolete devices.

Sr. Systems Analyst Lockheed Martin MS2 (Global Contract Professionals contract) 2012
Owego NY

Designed and implemented unit test software for embedded VxWorks multifunction processor board support package to qualify for Software Safety RTCA DO-178B Level C 100% statement coverage. Created low level requirements and traceability to high level requirements and design using FAA DER approved criteria.

Sr. Systems Analyst Linkabit division of L3 (Aerotek Contract) 2010
Victor NY

Designed, implemented and tested voice and data radio upgrade to use Ethernet data instead of specialized data adapter, including system and application changes and new software to support “alternate” Ethernet data stream using an existing complex Data API with limited documentation and uncommented code. Started to implement some optimizations to reduce data fragmentation. Project transferred to Linkabit personnel who were waiting for funding of other projects.

Sr. Systems Analyst ENSCO, Inc 2004-2008
Endicott NY

- Apply customer change requests to existing **real-time embedded** aircraft Flap Control Unit. Used **logic analyzer** for timing analysis. Troubleshooting with **in-circuit emulators**. Developed tests for **Hardware Software Interface (HSI)**. Peer reviews.
 - Developed a **MIL-STD Secure Erase** for a **Solid State Drive** in a **Linux embedded** system.
 - Implementation of a **J-Message MIL-STD-6016C** message routing system.
 - Develop unit tests for **Joint Strike Fighter (JSF) Full Authority Digital Electronic Control (FADEC)** embedded real-time systems. Peer reviews
 - Formal Unit testing to **DO-178B SEAL 1** for **JSF Multi-Function Display** embedded software using LDRA. Requirements analysis and decomposition for testing requirements, including **Black Box**, **White Box**, and **assembly language testing**.

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- Real-time embedded software analysis and documentation, design, development, implementation, testing and troubleshooting of Flash and FPGA download to embedded hardware through multiple network layers of Ethernet RPC & NFS, **DeviceNET**, and **CANBus** on Windows PC, **PowerPC**, **VxWorks** with **Tornado**, and **TI DSP TMS320**.
- Real-time embedded software design, development, implementation, testing and troubleshooting of environmental testing diagnostics for new **Space Shuttle** display interface computer. **Solved** software timing related bugs that had been causing problems for over a year. **PowerPC**, **VxWorks**

Principal Software Engineer Sepaton 2001-2002

Southborough MA

Real-time embedded software design, development and implementation, testing and troubleshooting for high speed ESCON products, concentrating on **hardware diagnostics** of custom boards with custom ASICS. Improvements to Linux host based diagnostic driver utility. (Formerly Sangate)

Sr. Software Engineer Teradyne 2000-2001
Boston MA

High level and detailed software design for Automated Test Equipment (ATE) system embedded real-time system to perform **DSP** processing on distributed custom hardware, transferring data via proprietary interfaces to individual equipment boards and test host computer. Software optimizations to improve memory access bandwidth by manipulating input buffer cache. Suggested changes to ASIC design with major usability improvements during consultations with hardware ASIC team.

Sr. Software Engineer Moore Research 1998-1999
(Under contract through Ajilon, Buffalo NY)

Software development projects including translation of **IBM AFP**, and other **print streams** for use in Moore's printing systems, creation of IBM standard label tapes and Moore proprietary print stream tape formats. **UNIX AIX/RS6000** and **Windows NT** using Microsoft **Visual C++** and IBM **Visual Age C++** and **C**.

- **Ported** several **IBM 3490 SCSI tape drive** output applications from OS supported **UNIX I/O** to **Windows NT SCSI ASPI**, since IBM does not provide Windows drivers.
- Extensive support for **Elixir's Opus** Moore proprietary MIDAX output applications, including **detailed step-by-step** hardware and software installation, setup and operations related **documentation** for bank statement and utility billing systems in several foreign countries. **Simplified** method for monthly customer updates of application.

Sr. Software Engineer Kodak, Rochester NY 1996-1998
(Under contract through Long & Associates)

- Analysis, Design and Implementation of Y2K and customer interface upgrades for Kodak Computer Output to Microfilm systems using Sun Solaris UNIX C, shell scripts, VxWorks 68K, and IBM mainframe assembly language. Quickly identified intermittent hardware problem utilizing logic analyzer that was thought to be software (after other software consultants had spent over a year trying to troubleshoot "software" problem).
- Software design, development, testing and troubleshooting on IBM Mainframe to support AFP for Optical Report Storage and Retrieval system. Updated SAS/C C and assembly language routines to support additional features. Achieved I/O reduction of 50%.

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Sr. Software Engineer Access Solutions International 1993-1996
N. Kingstown RI

Product reliability improvements in embedded real-time software for IBM Channel Bus & Tag to SCSI converter for optical disc juke box storage system. Motorola 68K Software development using pSOS+/pROBE+/XRAY+ with C and assembly language, MicroTec cross compiler and debugger. Completed design and implementation of IBM ESCON to SCSI converter. Software updates to IBM mainframe report storage and retrieval application implemented in COBOL, C++ and IBM Basic Assembly Language. (Formerly Aquidneck Systems International.)

Software Engineer Kodak, Health Sciences Division 1991-1992
(Under contract through J. T. S. Computer Services, Rochester NY)

Embedded real-time Software development for a series of printers used to create x-ray like film output from various medical imaging devices. C and assembly language development on a DEC VAX cluster targeting the Motorola 68K processor using pSOS and pROBE. Designed, developed, and tested product enhancement modifications. Reengineered portions of existing system that was not maintainable.

Implemented a time saving Motorola S Record download from software development VAX cluster using Ethernet TCP/IP streams, improved download times of under two minutes compared to serial download times near ½ an hour. Utility development to simplify software development and maintenance. Created symbolic debugger support routines for pROBE debugger. C, assembly language.

Software Engineer Sierra Research Corporation 1982-1991
Buffalo, NY

Flight Inspection Systems: development of real-time data acquisition, evaluation, data reduction and analysis, report and plot generation with a variety of hardware interfaces. Requirements analysis, systems analysis, system design, detailed design, development, unit testing, integration, system version controlled releases, EPROM programmer procedures, team leadership, mentoring and training of engineers and technicians. Supported extended debugging and software/hardware trouble shooting efforts for software teams. Developed interfaces to avionics instruments and navigation aids. Real-time device drivers including SCSI, real-time updates to serial and parallel drivers, and 32 bit support for 16 bit card mounted HPIB (IEEE-488) driver using EPROM programmer copy and assembled patches. Finished system integration testing, and implemented custom modifications (from design through integration testing) by myself. Authored manuals for commercial, DOD and foreign government flight inspection customers. Support utilities, tools and procedures. FORTRAN, C and Assembly language on a VAX cluster using a Motorola 68K cross compiler and linker with pSOS, pROBE, pFILE and pRISM.

Saved many hours with development and documentation utilities. E.g.: • Developed software download to "boot tape" capabilities, including modifying SUN UNIX C device driver. Reduced download time from over 90 minutes serial download to 4 minutes to create boot tape and less than 2 minutes to boot from tape. Dual processor download would have been over three hours via serial link, but just 8 minutes to create tape and 4 minutes to boot. Disk boot capability reduced time to less than 20 seconds. • A documentation aid to print source and object listings to DOD specifications - saved over two thousand hours in first two months plus continued savings over labor intensive cut and paste.

Designed and implemented a radar simulation to test target acquisition algorithms prior to hardware implementation. Authored final report. Data General FORTRAN.

Estimated software costs for proposals.

"Station Keeping" RF Digital Data link software design, development, and testing. Intel µP assembly language including device drivers and antenna angular speed and alignment control.

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Designed and implemented **simulation** of multi-channel multiple function **digital communications control** panel for a major proposal mockup. **FORTRAN** and **x86 assembly** language.

Analyzed requirements, designed, implemented, and tested utilities for data interchange between engineering design systems and **CAD** systems.

Toll Road administration system: Technical proposal preparation, hardware and software specifications and selection, system administration, driver development, hardware and software trouble-shooting, and, design and development of application software and support libraries for PDP-11/34 & 11/44 RSX-11M+, FORTRAN and assembly language.

Provided systems analysis and software implementation of **real-time "run time support"** for state notation system including **I/O device drivers** - for State Systems of Kalamazoo, Michigan. **PDP-11 RSX-11M assembly** language.

Performed system analysis, resource requirements analysis, and, hardware and software **configuration analysis** for **inter-computer communication** and **numerical controller downloading** projects. Mentoring of college interns implementing projects.

Hardware **trouble-shooting** and repair of non-functional PDP-11 computer systems.

Programmer/Analyst Mennen Medical 1980-1981
Clarence, NY

Developed user display interfaces, **stand-alone real-time waveform processors**, and **software library** for large **hospital patient heart monitoring system**. Stand-alone system received inputs from hundreds of patient monitors and directed to output channels selected by host computer and real-time heartbeat anomaly detection system with a time delay for centralized monitoring of cardiac events. **FORTRAN** and **Assembly Language** on **PDP-11, RSX-11M**.

Programmer/Analyst Calspan Buffalo, NY 1969-1980

Real-time scenario driven "live" EW environment system (REDCAP). Design, development, testing and integration of **radar, radio, antenna, digital datalink** and other **electronic environment models** and **live equipment control**. IBM mainframe assembly language with real-time channel programs. Post processing analysis applications using **FORTRAN, SAS** and IBM **assembly** language (**BAL**). TSO, **Librarian** and other utilities used on this and many other projects.

Design, development, integration testing and operation of **Real-time data collection and presentation** systems and post **analysis reporting** for **acceptance test** and **evaluation** of several Navy shipboard **radar development** projects including contractor land based and live shipboard sea tests **Independent Validation and Verification (IV&V)**. **FORTRAN** and **assembly** language on TI 960 with **custom data acquisition** boards requiring custom **device drivers**. Custom software interface to Librarian “punch” tapes for software updates between development system and IBM software repository. **UNIVAC 1230/AN-YUK assembly** language with patched **NTDS** data collection.

Re-entry vehicle **radar signature analysis algorithm development** to detect nose cone for alignment of multiple radar returns, **automating** an otherwise tedious labor intensive task resulting in **significant time** and **cost savings**, including graphical alignment adjustments and plotting routines. Automated tape format detection **saved** significant time by eliminating reruns due to improperly labeled data tapes available in various formats. **FORTRAN**, **PL/1** and **assembly** language.

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Design, programming, testing, **software development support utilities**, and, **hardware trouble-shooting** for an experimental shipboard **integrated ECM environment generation** system. **UNIVAC 1230 assembly** language, including development system custom **device driver** interface to IBM mainframe channel. Compiler upgrade to accept input and output listings on IBM channel interface. Significant **time saving** over paper tape TTY I/O.

Development and testing of **automobile manufacturing real-time inventory** and **assembly line monitoring** system. **PDP-11 RSX-11D, FORTRAN**

Design, implementation and integration of a nuclear power plant zone based **controlled access security system**. **PDP-11 RSX-11, FORTRAN, assembly language**.

Real-time control of scanning microscope for analysis of microfilms requiring accurate positioning and multiple strip scanning. **FORTRAN control** and analysis with **assembly language device drivers** on Perkin Elmer/Interdata.

Hospital patient tracking administration system (Honeywell assembly language), text parser for document production (**Snobol**), and various other assorted projects requiring requirements analysis, design, development (**FORTRAN, assembly languages, PL/I**, etc.), unit testing, integration, troubleshooting.

EXPERIENCE SUMMARY**SYSTEMS**

- Real-time operating systems including **Integrity**, **TargetOS**, **pSOS+**, and other **RTOSES**
- **PowerPC**
- Intel **x86** with **RTOS**, **Windows 7**, **Vista**, **XP**, etc. and **standalone** (no O/S)
- **Linux**, **UNIX**
- **TI TMS320 DSP**
- Motorola **68K**, including **68020/6888x**, **68070**, **68040**

LANGUAGES

- **C**, **C++**, **ADA**, and **FORTRAN** languages
- **Assembly languages** for **INTEL x86**, **Power PC**, **Motorola 68K**. Previous experience with about two dozen **assembly languages**.
- Previous experience with many **higher-order languages** including **SAS**, **PL/M**, **PL1**, **SNOBOL**, **COBOL**

UTILITIES and STANDARDS

- **real-time debuggers** & in-circuit-emulators, Integrated Development Environments (IDEs) including **GNU tools**, **Eclipse**, **Tornado**, **Visual C++**, **Code Composer Studio**. **PC utilities** including **MS Office Word**, **Excel**, **Access**, **MKS Integrity**, **Code Collaborator**, **CVS**, **WINCVS**, **Subversion**, **Razor**, **SYNERGY**, **PVCS**, **Rational Clearcase**, **LDRA**, and a long list of editors and other **utilities**
- **Linux and UNIX utilities and shells (bash, C, Bourne, etc.)**, **GNU tools**
- **DOORS**, **Rational Rose UML**, **Cadre**, **SUPERcase**, and other software development tools.
- **RTCA DO-178B**, **MIL-STD 2167A**, and other commercial and government standards.

EDUCATION

- Erie Community College AAS Data Processing
- Purdue University 2 years of Electrical Engineering studies with concentration in Computer Sciences
- Continuing education: training and self-study including **C/C++**, **OOD**, **UML**, **UNIX**, Software Configuration Management, and **ADA**. Self-education for many languages and utilities. Some company sponsored in-house training.
- Avid manual reader