

Sr. Software EngineerAccess Solutions International
N. Kingstown RI

1993-1996

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 EngineerKodak, Health Sciences Division
(Under contract through J. T. S. Computer Services, Rochester NY)

1991-1992

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 EngineerSierra Research Corporation
Buffalo, NY

1982-1991

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**, **pHILE** 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**.

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

Systems AnalystIndependent Consultant
Buffalo, NY

1981-1982

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/AnalystMennen Medical
Clarence, NY

1980-1981

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. **FORTTRAN** and **Assembly Language** on **PDP-11, RSX-11M**.

Programmer/AnalystCalspan
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 **FORTTRAN, 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)**. **FORTTRAN** 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. **FORTTRAN, PL/1** and **assembly** language.

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/1, 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