

RESUME

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EDUCATION

B.S. Computer Science, University of Illinois at Urbana-Champaign, 1984

AREAS OF EXPERTISE

- Real-time and embedded systems
- Parallel and distributed processing systems
- Systems programming (OS and low-level hardware interfacing, e.g. device drivers)
- PC applications software development
- Portfolio risk management and trading support systems

LANGUAGE, OS, API AND APPLICATION EXPERIENCE

C, C++, UNIX/Linux, Python, VxWorks, Windows, OpenGL, MS Visual C++, MS SQL Server, MySQL, SNMP, AMX, MS-DOS, various assembly languages (80x86, i860, 680x0, Z80), Raima Data Manager, FORTRAN. Have used Subversion, ClearCase, Visual SourceSafe, and PVCS version control systems. Experience with virtualization technology (VMware and VirtualBox).

PROFESSIONAL EXPERIENCE

May 2005 to present: Gentex Visionix (a division of Gentex Corporation – www.gentexcorp.com), Aurora IL. Responsibilities have included:

- Specification, design, implementation, and debugging of real-time software/firmware for head-mounted video display systems, on Linux and VxWorks.
- Customization of Open Source software for inclusion in Gentex Visionix products.
- Work with systems engineering team to resolve system integration issues.
- Testing and debugging of custom hardware.
- Work with customers and potential customers to define requirements and facilitate systems integration.
- Give product demos and assist with marketing presentations.
- Management of IT and software development infrastructure for Gentex's Aurora office (Windows and Linux based servers, SSH, Apache, Subversion, MediaWiki, VMware/VirtualBox, etc.)

October 1996 to May 2005: Self-employed (independent software consultant). Clients and projects included:

- Tellabs Inc., Bolingbrook IL – Development of software/firmware for cable telephony systems. Areas I was involved with included the Element Management System (Visual C++ & SQL Server on Windows NT), firmware for several embedded devices (C running under various real-time environments), and other miscellaneous tools.
- Westell Inc., Aurora, IL – Development of software/firmware for ADSL modems and associated systems in C, using VxWorks and AMX real-time environments. Projects included development of SNMP network management interfaces, drivers for various devices, implementation of Ethernet bridge logic, "flash" firmware download support, optimization of data packet handling routines, and general integration, troubleshooting, debugging, and "fire-fighting".
- Quantitative Analytics, Inc., Chicago IL – Financial databases and analysis systems, using Microsoft Visual C++ and SQL Server.
- Andrew Corporation, Orland Park, IL – Custom real-time data collection and SPC (Statistical Process Control) system for coax cable production lines, using Microsoft Visual C++ and SQL Server.
- Arrendale Associates, Cornelius, NC – Various tasks associated with development of medical records transcription systems, using Visual C++ and ODBC (MS Access and Oracle databases).
- Extreme Computing, Chicago IL – Ported parallel processing library (originally developed at Fermilab) from 32-bit to 64-bit architecture.
- Trade Edge Solutions, Chicago IL – Developed a custom report generator module for a portfolio risk management system; ported options pricing models from UNIX to Windows; developed C++ utility classes to price equity options.

June 1991 to October 1996: Fermi National Accelerator Laboratory, Batavia IL.

- Primary responsibility for system software on ACPMAPS – a large, tightly coupled parallel supercomputer containing approximately 600 CPUs, designed and built at Fermilab. Maintain and enhance existing tools, and implement new tools

as required. Was responsible for front-end hosting tools (on UNIX system), as well as many aspects of the firmware running on the distributed nodes (which ran a proprietary OS), and end user documentation.

- Extend parallel processing tool set (Canopy) to support multi-threading, to improve system efficiency.
- Ported the Canopy tool set to the Intel i860 RISC processor, as part of the ACPMAPS CPU upgrade.
- Ported the Canopy tool set to the Cray T3D parallel supercomputer system.
- Designed and implemented a complete suite of diagnostic tools for the ACPMAPS system, including memory, CPU, communications, I/O device diagnostics, and multi-processor execution profiler.
- Assisted with testing and debugging of an object persistency package, used for data-mining applications.
- Assist hardware maintenance staff in troubleshooting of malfunctioning hardware modules in ACPMAPS.
- Assist users with troubleshooting of applications code.

March 1988 to June 1991: David Bruce & Co., Chicago IL. Type of business: Development of systems for financial portfolio risk management and trading support.

- Technical oversight of software projects; provide technical guidance to team of five developers.
- Design, implementation, maintenance, and support of real-time, multi-user, portfolio risk management and trading support systems. As the senior technical person at David Bruce, was involved in all aspects of these systems, with particular emphasis on analytical modules, and interfaces to real-time market data sources.
- Evaluated feasibility of using a parallel processing architecture (Inmos Transputers) to enhance the performance of analytical software. Performed trial port of core analytics to the Transputer as part of the evaluation.
- Designed and implemented an interactive 3-D surface plot (graphics) subsystem.
- Designed and implemented numerous in-house tools, including an automatic MAKE-file generator, screen and window management routines for C applications, utility library to augment the functionality of a third-party database management product (DB-Vista), DOS program overlay manager, multi-thread support library, and miscellaneous libraries and software development tools.
- System installation and client support.

July 1987 to March 1988: Rockwell Telecommunications, Downers Grove, IL. Type of business: automatic Call Distribution Systems.

- Design, coding, and testing of enhancements to a third-party real-time operating system (OS-9) for the 68000 processor family.
- Designed inter-processor communications protocol, to be used in a distributed processing architecture.
- Designed and implemented routines for enhanced shared run-time library support under OS-9.

March 1986 to June 1987: FUJITSU-GTE Business Systems, Northlake, IL. Type of business: PBX telephone and data switching systems.

- Testing and debugging of firmware for devices attached to a packet-switched data network (X.25 protocol).
- Specification and design of an Electronic Message Center, based on networked IBM PCs, and development of a rapid prototype of this system.
- Design, coding, and testing of new features for a PBX telephone system.

July 1984 to March 1986: Community Technology, Inc., Champaign, IL. Type of business: Emergency services dispatching systems.

- Design, implementation, testing, documentation, and maintenance of a proprietary multi-tasking operating system for the Motorola 68000 processor.
- Implementation of Bisynchronous data communications protocol drivers for the 68000 and the IBM PC-AT.
- Customer support and on-site troubleshooting.
- Administration of in-house UNIX development system.

July 1981 to July 1984 (summer job while in college): Composition Software, Inc., Chicago, IL. Type of business: development of PC-based typesetting (desktop publishing) software. Was responsible for coding, testing, and documentation of software packages for typesetting.