

**PROFESSIONAL OBJECTIVE**

Seeking a hands-on software development position as an independent contributor, in a senior, lead, or architecture role. Proven track record of designing and implementing highly-reliable, robust software systems. Have brought several start-up and early stage projects to successful, timely completion. Defined software architectures; performed initial hardware/software bring-up; built software and SQA teams; implemented software engineering processes, including source code management, release engineering, and defect management; built and managed software development and SQA labs.

**BACKGROUND SUMMARY**

**•** Expert level experience programming in C, C++, Java, Python, Perl, Tcl/Tk, and Expect.

**•** Expert level experience developing and delivering systems on Linux, UNIX, NetBSD, FreeBSD, Solaris, AIX, and HP-UX.

**•** Extensive experience building high-performance, concurrent, multi-threaded, "hard" real-time and embedded systems.

**•** Extensive network programming and network management system experience.

**•** Experience working in iterative/agile software development environments.

**•** Excellent debugging and troubleshooting skills.

**•** Excellent communication skills.

**•** Technical leadership experience.

**•** BA in Computer Science.

**BACKGROUND HIGHLIGHTS**

Embedded Systems • Real-Time Systems • Java Technologies • Object-Oriented Design & Analysis • Network Management

Systems • Voice over IP • Optical Networking • Robotics • SNMP • XML Technologies • J2EE • Web 2.0 Services

**PROFESSIONAL EXPERIENCE**

**Senior Software Engineer: Coyote Point Systems, Millerton, NY. (Nov 2011 – Dec 2012)**

**•** Application Delivery Controllers: Developed software for network load balancing and global server load balancing products, on physical and virtual systems.

**•** Responsible for: L3 (ICMP), L4 (TCP/UDP), L7 (active content verification) monitoring, and server load balancing subsystems.

**•** New feature design and development included: health checking and load balancing features that interacted with server side agents, VMware ESXi hypervisor, and SNMP agents.

**•** Shared responsibility for: disaster recovery and failover: active/passive, active/active, and N+1 configurations; and configuration management.

**•** Built the NetBSD-based products using cross-compilation on Mac OS X.

**•** This was a telecommute development environment.

**•** Skills: C, assembler, Tcl, Python, Perl; NetBSD, Mac OS X, FreeBSD, Linux; VMware ESXi, vSphere, and Fusion; Net-SNMP, OpenSSL, pfSense, DNS, Doxygen, Eclipse, Perforce, Bugzilla, Intel x86.

**Consultant: Proliphix, Westford, MA. (Sep 2011 – Nov 2011)**

**•** Developed software for an Internet-managed energy control system (IP thermostat, HVAC, and building control), running embedded Linux and embedded Java on ARM processors.

**•** Responsible for updating entire platform: energy control application and features, Linux kernel, driver development, embedded database, RFS, U-boot, and boot ROM.

**•** Skills: Java, C, assembler, Perl; Timesys Linux; Eclipse, Jira, Mercurial, CruiseControl, Atmel ARM.

**Principal Software Engineer: Lantiq Broadband HoldCo Inc., Bedford, MA. (Apr 2011 – Sep 2011)**

**•** Developed System-on-Chip (SoC) software for a G.HN Home Networking protocol engine, running embedded Linux and

ThreadX RTOS on MIPS virtual processing engines.

**•** Responsible for Linux kernel porting (2.6.32); driver development; U-boot; and boot ROM.

**•** Stabilized the board support package (BSP) software development team by: establishing source code management disciplines; standardizing software release procedures; preparing and tracking software schedules; coordinating efforts with multiple sites; implementing defect and project milestone tracking; and implementing a continuous integration environment.

**•** Skills: C, C++, assembler, Tcl/Tk, Expect, ThreadX, Eclipse, Jira, Mercurial, CruiseControl, MIPS34Kc, Lauterbach Trace32.

**Consultant: Constitution Medical, Inc., Boston, MA. (Jan 2011 – Apr 2011)**

**•** Developed user interface components in Java for an integrated hematology instrument.

**•** Skills: Java, Eclipse, Jira, FogBugz, Mercurial.

**Technical Director, Consulting Software Engineer, Principal Software Engineer: Cedar Point Communications, Inc., Derry, NH. (Apr 2005 – Apr 2011)**

**•** Developed VoIP software subsystems for embedded platforms, in C and assembler.

**•** Developed IMS software subsystems for off-the-shelf servers, in Java.

**•** Debugging, troubleshooting, and performance analysis for Voice over IP products.

**•** Implemented an IP Multimedia Subsystem (IMS) and PacketCable 2.0 lab and development environment.

**•** Proactively isolated performance issues for our products and our development environment, and provided timely support of development and test teams, working closely with software and hardware developers, on both embedded systems and EMS.

**•** Skills: Java, C, Python, Perl, Tcl/Tk, Expect, XML, XSLT, Enea OSE, MySQL, Eclipse, JBoss, JUnit4, Ant, Log4j, Cisco IOS, Juniper JunOS, SonicWall firewall, DNS, LACP, OSPF, DHCP.

**Consultant: Quintron Systems, Inc., Santa Maria, CA. (Dec 2004 – Apr 2005)**

**•** Developed Java code that integrated Facial Biometric Devices for an Access-Control System. Developed plug-in modules supporting distributed facial biometric devices. Implemented use cases for subject enrollment, standalone identification, and verification in conjunction with card readers.

**•** Developed multi-threaded application, device drivers, and Java SWT/JFace GUI interfaces, with a persistent store managed with

Hibernate.

**•** Cross-platform access control system supported Windows and Linux, and was database-independent, supporting SQL Server, Sybase, Oracle, MySQL, embedded databases, and more.

**•** This was a telecommute development environment.

**•** Skills: Java, SWT/JFace, Hibernate, HSQLDB, SQLServer, Eclipse, JUnit, Apache Ant, Apache Log4j.

**Consultant: Cellular Specialties, Inc., Manchester, NH. (Dec 2004 – Apr 2005)**

**•** Developed embedded software for a Digital Repeater (Bi-Directional Amplifier) for in-building wireless solutions. Developed SNMP MIB and agent; event reporting protocol; inter-process communication, command line interpreter; low-level hardware interfaces for SPI, I2C, PCMCIA, USB, A/D, digital I/O.

**•** Introduced software engineering practices; source code control; software defect management; software life cycle management;

mentored team members.

**•** Skills: C, Tcl, Expect, Perl, SNMP, Embedded Linux, User-Mode Linux, Linux From Scratch, Red Hat Linux, CVS, Bugzilla, MySQL.

**Consultant: Envisn, Incorporated, Bolton, MA. (May 2004 – Sep 2004)**

**•** Developed a framework for integrating new applications with the Cognos ReportNet Enterprise Business Intelligence (BI) product. The solution comprised servlets, XML, XSLT, JavaScript, DHTML and the ReportNet Java SDK, for improved data exploration and integration with Cognos Connection, Report Studio and Query Studio.

**•** Skills: Java, J2EE, J2SE, Servlets, JSPs, XML, XPath, XSL, XSLT, Eclipse, MyEclipse, JavaScript, DOM4j, DOM, SAX, SOAP, WSDL4j, CSS, DHTML, HTML, HTTP, JAXRPC, JSTL, JUnit, SAAJ, Apache Ant, Apache Axis, Apache Commons Discovery, Apache Commons Logging, Apache Log4j, Apache Tomcat, Apache Xalan, Apache Xerces, Apache XML Commons, Cognos ReportNet, Sun iPlanet LDAP Server, Microsoft SQL Server 2000.

**Principal Software Engineer: Brightline Technology, Incorporated, Rye, NH. (Apr 2003 – Mar 2004)**

**•** Architect for an enterprise-quality Java application server for IBM/Lotus Domino customers.

**•** The "Brightline Application Server - Enterprise Edition" allows customers to host existing J2EE applications in a Domino environment, scale Domino-based web applications through J2EE technologies, add Notes and Domino functionality to J2EE applications, add J2EE functionality to Notes and Domino applications, and use the Domino security model in J2EE applications.

**•** The server technology includes an extensible software backbone that provides all standard J2EE services to Domino, administration and deployment tools for managing J2EE servers and applications from either a Notes Admin client or web browser, and a fully transactional, enterprise-ready data store to complement NSF (Notes Storage Facility).

**•** Skills: Java, JavaScript, Expect, XML, XSLT, XSL, XSL-FO, Red Hat Linux, SuSE Linux, Lotus Domino & Notes, SSL & OpenSSL, LDAPv3, SSH & OpenSSH, SMTP, IMAP, J2SE, J2EE, Eclipse, JBoss, Apache Tomcat, Apache Ant, Apache Log4j, Apache Xalan, Apache Xerces, Apache HTTPD, Saxon, Apache Axis, Apache Cactus, Apache Watchdog, AWT, CSS, DOM, ECPerf, EJB, HTML, HTTP, HttpUnit, JAAS, JAF, Java IDL, JavaBeans Component API, JavaMail, JAXP, JCA, JCE, JDBC, JFC/Swing, JMS, JMX, JNDI, JSP, JSTL, JSW, JTA, JTS, JUnit, JUnitEE, OTS, RMI, RMI-IIOP, SAX, Servlets, SOAP, TagUnit, WSDL, XHTML, XLink, XML Schema, XPath, XPointer, PostgreSQL, MySQL, Oracle, Microsoft SQL Server, Hypersonic HSQLDB, Adobe FrameMaker, CVS, Jira Issue Management, Jive Forums, ZeroG InstallAnywhere.

**Consultant: Confluent Photonics Corporation , Salem, NH. (Aug 2003 – Feb 2004)**

**•** Developed software for the Lightchip RAM-20-200-PSM/PSD Rack Mountable Intelligent 200 GHz DWDM Mux/Demux. The monitoring and control features include optical power detection, traffic-direction LEDs, visual alarms, and craft interface that provides access to the unit's identification data. The product is a bi-directional dense wavelength division multiplexor (DWDM) with power loss detection on the primary fiber that can trigger alarm LEDs and relays. Integrated power taps allow monitoring of incoming and outgoing signals in the primary fiber.

**•** Skills: C

**Software Director, Optical Wavelength Management Group, Network Management Systems: Digital Lightwave, Incorporated , North Chelmsford, MA. (Oct 1999 – Apr 2003)**

**Manager, Software Quality & Infrastructure, Systems Engineering Group: Lightchip, Incorporated, Salem, NH. (Oct**

**1999 – Apr 2003)**

**•** Software Quality Assurance: Responsible for defining SQA needs, implementing a lab environment for testing multiple products, platforms and releases using a collection of highly configurable optical instruments, GPIB instruments and network interfaces. The SQA Lab was a showcase and was considered an essential stop when showing customers our product and engineering capabilities.

**•** Release Engineering: Responsible for all source code control, release engineering, builds and DCOs.

**Principal Software Engineer: Lightchip, Incorporated, Salem, NH. (Oct 1999 – Apr 2003)**

**•** Software architect for the Optical Wavelength Manager (OWM), utilizing StrongARM processors running VxWorks. The OWM monitors power, wavelength and signal-to-noise ratio for multiple channels on dense wavelength division multiplexed networks with programmable alarm thresholds and data logging. Configuration is done remotely or locally through a command line interface (telnet and RS232), SNMP, TL1 and/or Java based graphical user interface.

**•** Developed the Board Support Package for two StrongARM processor boards, using logic analyzers to debug assembler and "C" source code. Worked with technologists at Intel and Wind River to resolve problems encountered with early releases of silicon.

**•** Designed a comprehensive SNMPv1/v2c MIB for the OWM, including device traps, advanced row creation features, and integration with OEM customers' existing enterprise MIB trees. This MIB was advertised as "the world's first Optical MIB".

**•** Developed a Java GUI for the OWM; a patent application was filed for the GUI.

**•** Evaluated and selected real-time operating systems, prototype hardware systems and software development tools for bleeding- edge target (Intel StrongARM processor) hardware.

**•** Skills: Java, C, Expect, Tcl, Perl, bison & flex, VxWorks, Linux, FreeBSD, Solaris, Microsoft SQL Server, SNMPv1/ v2c, HP OpenView, SNMPinfo SMICng, InterWorking Labs SilverCreek, SimpleSoft SimpleTester, MG-Soft MIB Browser, Ethereal, SNTP, PPP, SLIP, Microsoft Visual SourceSafe, Concurrent Versions System (CVS), Adobe FrameMaker, ZeroG InstallAnywhere, Rational Team Test, National Instruments Lab Windows/CVI, Apache Web Server, Avensoft PerfectTracker, Intel StrongARM, HP Logic Analyzer, TestPoint for GPIB, RS232, RS485, USB 1.1, PCMCIA.

**Principal Software Engineer, Alcatel Internetworking, Voice Over IP: Alcatel Internetworking , Salem, NH. (Aug 1998**

**– Sep 1999)**

**•** Principal architect for a Voice over IP Gateway for the Enterprise market. The VoIP Gateway supported digital (T1/E1) and analog interfaces. A typical configuration would connect to one or more PBXs to the PSTN and to an enterprise network. Capabilities included fax relay, modem, voice and data.

**•** Integrated software components for the VoIP blade into existing Alcatel switches.

**•** Developed VoIP configuration interfaces for signaling, coding, network, dialing plan and hardware.

**•** Selected and purchased software development tools, telephony products and test equipment.

**•** Performed system and network administration for a Sun 450 Enterprise Server in the Salem, NH office. Installed and configured development tools and coordinated the build process with teams in Calabasas, CA.

**•** Coordinated development between teams in the U.S. and Alcatel headquarters in Colombes, France, building an IP-based PBX

and other packetized voice products.

**•** Advised Network Management development team on Java design topics.

**•** Skills: Java, C, bison, flex; PowerPC 860, TMS320C5xx, SPARC; H.323, ISDN, Q.921/LAPD, Q.931/Call Control, HDLC, RTP, RTCP, UDP, TCP; VxWorks, EST visionICE/visionCLICK, Solaris, Windows/NT; Alcatel IP PCX 4400.

**Principal Software Engineer / Software Systems Architect: NBX Corporation , Andover, MA. (May 1997 – Jul 1998)**

**•** Designed the system software architecture for an Ethernet based telephone system (NBX 100) with high performance telephony, messaging, and computer integration via a single infrastructure. The NBX system provided a voice and data management platform merging packetized audio with an Ethernet LAN.

**•** Designed object-oriented architectures for Call Processing, Voice Mail, Automated Attendant, TAPI Service Provider, Web- based System Administration, and system services layers.

**•** Selected software tools and components for product development and deployment, including embedded real-time operating systems and object-oriented software development tools.

**•** Designed reliable messaging protocols for system controller and DSP-based telephony devices.

**•** Pioneered development from ObjecTime models to Windows NT (Microsoft Visual C++) simulation environment and Tornado/ VxWorks (Cygnus GNU C++) target environment.

**•** Developed a Java-based telephone simulator that interfaced with the NBX100, to support development prior to availability of telephone set hardware.

**•** Skills: Java, C++, C, ObjecTime, ROOM (Real-Time Object-Oriented Modeling), Tornado/VxWorks, IEEE 802.2 Logical Link

Control (LLC), IEEE 802.3 CSMA/CD (Ethernet), TCP/IP, H.323, GNU C++, Microsoft Visual C++.

**Technical Lead, Advanced Systems, New Technologies & Software Engineering Teams: Oxford Health Plans, Incorporated, Trumbull, CT. (Jun 1995 – Apr 1997)**

**•** Developed intranet and Internet applications and infrastructure including a "Back-End Server for Intranet Applications" that enabled access to Oracle enterprise databases from web-oriented technologies. The server was implemented in object-oriented Tcl ([incr Tcl]) with Oracle SQL\*Net client libraries and handled high-volume database transactions through pooled TCP/IP socket- based connections. The CGI client interfaces were implemented using Java, JavaScript, Perl5, Tcl, C, C++ and Korn Shell.

**•** Developed a secure Internet infrastructure for Electronic Commerce and Electronic Data Interchange systems utilizing technologies including routers, firewalls, demilitarized zones, Secure Socket Layer (SSL), authentication/certificates, Netscape Enterprise Server, VeriSign certificates, Checkpoint/Firewall-1 and Sun Netra Internet Servers. Built a message routing system based on asynchronous Remote Procedure Calls (RPC). Built CGI applications in Java, Perl5, Tcl, C, and C++.

**•** Developed software for Optical Character Recognition, Imaging Systems and Handwriting Recognition Systems.

**•** Provided trouble-shooting for system and network security, configuration and administration groups.

**•** Skills: Java, JavaScript, Perl5, Tcl, Expect, C, C++, [incr Tcl], Solaris, SunOS, AIX, HP-UX, Pyramid, Microsoft Windows 95/ NT, IBM OS/2, Apple Mac OS 7; Oracle SQL\*Net, TCP/IP, RPC, PPP, CVS; HTTP, HTML, CGI; Apache Web Server, Java Applets, Netscape Servers.

**Consultant: Quaker Farms Research, Southbury, CT. (Jun 1995 – Dec 1995)**

**•** Projects: Telephone Key System.

**•** Developed embedded system software.

**•** System and network security, configuration and administration; Internet, DNS & PPP configuration.

**•** Skills: C, Perl5, assembler & M68K; SunOS, WinNT; DNS, PPP, NFS, NIS, automounter.

**Consultant: General DataComm Incorporated, Middlebury, CT. (Oct 1992 – Jun 1995)**

**•** Ported GDC network management applications from HP OpenView/SunOS to HP OpenView/HP-UX and IBM NetView for

AIX. This required knowledge of BSD & SVR4 UNIX variants, multi-platform software development environments, SNMP, C

++, X11 window managers, and system & network administration.

**•** Developed a tool for importing cross-product databases that enabled legacy systems to be managed by GDC's Megaview Network

Management System.

**•** Created an extensible scripting language interface that enabled integration of third party network management protocols into GDC's Integrated Network Management Systems. This interface eliminated the need for Engineering to rebuild and redistribute system binaries to accommodate new protocols and reduced the frequency of software update releases.

**•** Developed a peer-to-peer network alarm-reporting interface for the INMS.

**•** Skills: C, C++, Perl5, Tcl, Expect; SunOS, AIX, HP-UX, Solaris; SNMP, TCP/IP, RPC, XView, CVS, Informix.

**Consultant: Data Switch Corporation , Shelton, CT. (Apr 1990 – May 1994)**

**•** Developed Element Management & Control Systems.

**•** Ported a real-time control system from PL/M to C for the SunOS Sun386I and SPARC platforms.

**•** Developed VT100 and IBM 3164 terminal emulators for SunView and the X11 Window System.

**•** Developed a Network Terminal Server interface for BSD sockets to network switches, user terminals and GUIs.

**•** Developed redundancy and fail-over systems for large and complex wide area networks.

**•** Developed graphical user interfaces for drag & drop port configuration and management.

**•** Skills: C, PL/M, Perl4, Tcl, Expect; SunOS; TCP/IP, RPC, NFS, NIS, Automounter, X11, XView.

**Consultant: IBM T.J. Watson Research Center, Eastview, NY. (Jul 1990 – Aug 1991)**

**•** Project: Servo Controller for a 12-Axis Robotics System; this was a "hard" real-time system.

**•** Designed the software architecture for the robotics system, a network of INMOS Transputers, with parallel processing and coordination for a 12-axis servo controller.

**•** Implemented network layer stack for distributing files and messages between Transputer nodes.

**•** Developed low level programming, command & data upload/download interface between host programming system and real- time robotics system. Developed GUI on host to access low level interface to control and monitor robotics system.

**•** Skills: C, assembler, INMOS Transputer; AIX RS/6000, DOS, OS/2; TCP/IP, NFS, X11, VM/CMS.

**Consultant: JANUS Systems, Incorporated, New York, NY. (Feb 1990 – Apr 1990)**

**•** Project: Total Integrated Graphics and Retrieval (TIGER) system for Ameritech Publishing, Inc.

**•** Skills: C; SunOS 3.5; Sun Tools; SunView; DEC VAX/VMS; RPC, NFS, Automounter.

**Consultant: General DataComm Incorporated, Middlebury, CT. (Jul 1988 – Dec 1998)**

**•** Integrated Network Management System: Architecture design team. Developed an AT&T Accumaster Protocol compatible alarm- reporting interface for the INMS.

**•** NetView Alarm Reporting Interface: Developed and integrated an IBM SNA alarm reporting interface into a multiplexor control system. The interface passed multiplexor alarms to a NetView/PC management station, which passed alarms to a mainframe NetView system.

**•** Skills: C, assembler; SCO XENIX & device drivers; IBM NetView/PC; IBM SNA protocols; Informix.

**Consultant: IBM T.J. Watson Research Center, Yorktown Heights, NY. (Aug 1987 – Jun 1988)**

**•** Projects: Robotic Fine Positioning Device. Communications System for Distributed Robotics. Digital Signal Processor Interface for Robotics.

**•** Developed all embedded software for these devices.

**•** Skills: C, assembler; Masscomp RTU & device drivers; VMEbus, Multibus, PC/AT bus.

**Consultant: Telecomp, Incorporated , Milford, CT. (Oct 1986 – Aug 1987)**

**•** Project: Point-Of-Sale System for Auto Parts Dealers.

**•** Migrated from NCR UNIX to SCO XENIX.

**•** Skills: C, assembler; NCR UNIX; SCO XENIX; Motorola 68000; Intel 80286.

**Consultant: Pitney Bowes, Norwalk, CT. (Oct 1986 – Jan 1987)**

**•** Project: Manifest Mailing System.

**•** Developed a prototype system for recharging postage meters using EFT and DES hardware.

**•** Skills: C, assembler, FORTRAN; SCO XENIX; MS-DOS; DES encryption devices.

**Consultant: IBM T.J. Watson Research Center, Yorktown Heights, NY. (Jun 1985 – Sep 1986)**

**•** Project: General Purpose Automation Controller & Programming System.

**•** Developed download & debug for embedded system. Scheduler/Dispatcher for real-time system. Messaging for real-time & UNIX programming systems.

**•** Skills: C, assembler; Masscomp RTU & device drivers; Motorola 68020; Multibus, RCS, VM/CMS.

**Consultant: Digitech Industries, Incorporated, Ridgefield, CT. (Aug 1984 – Jul 1985)**

**•** Project: Network Protocol Analyzer.

**•** Developed an event programming language for the embedded real-time system.

**•** Skills: C, assembler; MS-DOS, CP/M-68K; Motorola 68000; VMEbus, protocol analyzers.

**Consultant: Telecomp, Incorporated , Milford, CT. (May 1984 – Nov 1984)**

**•** Project: Point-Of-Sale System for Auto Parts Dealers.

**•** Skills: C, assembler, NCR UNIX.

**Senior Software Engineer, Dictaphone Systems & Products Division: Dictaphone Corporation, Norwalk, CT. (Mar 1982**

**– Apr 1984)**

**•** Projects: Digital Voice Operating System. Dictation Control and Management System.

**•** Skills: C, PL/M & assembler; UNIX V6, V7, System III on DEC PDP-11 and VAX; Intel 8085, SCCS.

**Vice President, Consulting Services / Systems Programmer: InfoSoft Systems, Incorporated, Westport, CT. (Jul 1978 – Mar 1982)**

**Consultant: Control Process, Incorporated, Plantsville, CT. (Jul 1978 – Mar 1982)**

**•** Projects: Embedded process control systems.

**•** Skills: C, assembler, Zilog Z80, CP/M; DEC RSX-11S/M; Data General Nova/Eclipse RDOS.

**Consultant: Learning Unlimited, New Canaan, CT & Research Triangle Park, NC. (Jul 1978 – Mar 1982)**

**•** Project: Prescription-based Learning System.

**•** Skills: FORTRAN, PL/1, assembler; Data General Nova/Eclipse RDOS; IBM TSO, OS & DOS.

**Consultant: Sales Maids of America division of GELCO, Southport, CT. (Jul 1978 – Mar 1982)**

**•** Projects: Payroll System. Point-Of-Sale Data Collection System.

**•** Skills: COBOL; Data General Nova/Eclipse RDOS & ICOS.

**Consultant: PR Data Systems, Wilton, CT. (Jul 1978 – Mar 1982)**

**•** Projects: Press Release Distribution System. Mailing List Maintenance System.

**•** Skills: COBOL; Data General Nova/Eclipse RDOS & ICOS.

**Consultant: Mnemonics Incorporated, Norwalk, CT. (Jul 1978 – Mar 1982)**

**•** Project: Market Tabulation System.

**•** Skills: FORTRAN, PL/1; Data General Nova/Eclipse RDOS.

**EDUCATION**

**Bachelor of Arts in Computer Science: Indiana University, College of Arts & Sciences, Bloomington, IN. (Sep 1975 – May 1978)**

**PROFESSIONAL CERTIFICATION**

Sun Certified Java Developer (SCJD) • Sun Certified Java Programmer (SCJP)

**PROFESSIONAL ASSOCIATIONS**

USENIX Association • SAGE (System Administrators Guild)

**TECHNICAL SEMINARS**

Alcatel: SwitchExpert • Motorola: PowerPC 860 • Telogy Networks: Golden Gateway Software • Telenetworks: ISDN • Wind

River Systems: VxWorks & Tornado • ObjecTime: Integration & Performance Tuning • USENIX: System & Network Security

• ObjectWorld: Managing Object-Oriented Development Projects

**HONORS AND AWARDS**

Cornell Society of Engineers "Ingenuity in Science and Mathematics Award," 1976.

**TECHNICAL SKILLS**

**Programming Languages:** Java, C, C++, Python, Perl, Tcl/Tk, Expect, JavaScript, yacc & lex, assembly languages.

**Professional Certification:** Sun Certified Java Developer (SCJD), Sun Certified Java Programmer (SCJP).

**Operating Systems:** NetBSD, FreeBSD, Red Hat Enterprise Linux, CentOS Linux, Fedora Linux, Embedded Linux, SuSE Linux, Sun Solaris, ExpressLogic ThreadX, Enea OSE, Wind River VxWorks, IBM AIX, HP HP-UX, Microsoft Windows.

**Database Engines:** MySQL, Microsoft SQL Server, Hypersonic SQL, PostgreSQL, Oracle, IBM Informix, IBM DB2.

**Microprocessors:** Intel x86, Atmel SAM9G (ARM), MIPS32, Freescale MPC8548, Freescale MPC7410, Intel

StrongARM, Freescale MPC860, Freescale MC680X0, Sun SPARC, Zilog 80180, Intel 8051

Microcontroller.

**Network Management:** SNMP MIB design & agent development, SNMP verification, HP OpenView, IBM Tivoli

NetView.

**Network Routing:** pfSense, Cisco IOS, Juniper JunOS, SonicWall Firewalls, LACP, BFD, OSPF.

**Network Protocols:** Voice over IP (VoIP), IP Multimedia Subsystem (IMS), PacketCable 2.0, Media Gateway Control Protocol (MGCP), Network-Based Call Signaling (NCS), Session Initiation Protocol (SIP), Signaling System #7 (SS7), Simple Network Management Protocol (SNMP), TCP/IP, UDP/

IP, Socket Programming, Point-to-Point Protocol (PPP), ISDN Q.921/LAPD, ISDN Q.931/Call

Control, High-level Data Link Control (HDLC), IEEE 802.2 Logical Link Control (LLC), IEEE

802.3 CSMA/CD (Ethernet), Secure Sockets Layer (SSL) & OpenSSL, Secure Shell (SSH) & OpenSSH, Simple Mail Transfer Protocol (SMTP), Internet Message Access Protocol (IMAP), Simple Network Time Protocol (SNTP), X11 Window System, Domain Name System (DNS), Network Information Service (NIS), Lightweight Directory Access Protocol (LDAPv3), Dynamic Host Configuration Protocol (DHCP).

**Java Technologies:** Apache Ant, Eclipse, Standard Widget Toolkit (SWT/JFace), Hibernate, XDoclet, Apache Log4j, Java Management Extensions (JMX), Java Service Wrapper (JSW).

**Java Web Services:** JBoss, Apache Tomcat, Java Servlets, Java Server Pages (JSP), Java Server Pages Standard Tag

Library (JSTL), Java API for XML Processing (JAXP).

**Web Services & Content:** HyperText Markup Language (HTML), Cascading Style Sheets (CSS), Java Applets, HyperText Transfer Protocol (HTTP), Web Services Description Language (WSDL), Simple Object Access Protocol (SOAP), Apache Axis, Apache HTTPD, Apache Struts, JavaServer Faces (JSF).

**Web Performance & QA:** JUnit4, HttpUnit, Apache JMeter, Apache Cactus, ECPerf, JUnitEE, TagUnit, Apache Watchdog.

**XML Technologies:** Document Object Model (DOM), Simple API for XML (SAX), Extensible Markup Language (XML), Extensible HyperText Markup Language (XHTML), XML Schema, XML Path Language (XPath), XML Pointer language (XPointer), XML Linking Language (XLink), Extensible Stylesheet Language (XSL), XSL Transformations (XSLT), XSL Formatting Objects (XSL-FO), Apache Xalan XSLT processor, Apache Xerces parser, Saxon XSLT processor.

**Java 2 Standard Edition:** Java Naming and Directory Interface (JNDI), Java Database Connectivity (JDBC), Java Authentication & Authorization Service (JAAS), Java Cryptography Extension (JCE), Java Foundation Classes (JFC/Swing), Java IDL, Java Remote Method Invocation (RMI), JavaBeans Activation Framework (JAF), JavaBeans Component API, Abstract Window Toolkit (AWT).

**Java 2 Enterprise Edition:** Enterprise JavaBeans (EJB), J2EE Connector Architecture (JCA), Java Message Service (JMS), Java RMI over IIOP (RMI-IIOP), Java Transaction API (JTA), Java Transaction Service (JTS), JavaMail, OMG Object Transaction Service (OTS).

**Object-Oriented Tools:** IBM Rational Rose RealTime, Real-time Object-Oriented Modeling (ROOM).

**Release Engineering:** Perforce, Mercurial, IBM Rational ClearCase, Concurrent Versions System (CVS), Apache

Subversion, Microsoft Visual SourceSafe.

**Defect Tracking:** IBM Rational ClearQuest, Bugzilla, Jira Issue Management, Jive Forums.

**Other Tools:** Adobe FrameMaker, DejaGnu, ZeroG InstallAnywhere, IBM Lotus Domino & Notes, Cognos

ReportNet.

**Other Languages:** PostScript, PL/M, FORTRAN, COBOL, PL/1, Pascal, LISP, BASIC.