Sr QA Sr QA Sr QA San Jose, CA Over 31 years hands-on full-time Employee/Consultant on Windows, Linux-Unix, Android, Windows-Mobile, Symbian, IOS doing: software quality assurance, functional and performance automation, infrastructure systems performance engineering, application development, database administration, porting, diagnostics software, embedded software, release engineering, system administration, technical support, project management.   BACKGROUND: LANGUAGES Java, C++, C, SQL, Python, Scala, Perl, PHP, JavaScript, Groovy, Ruby, Java-Go, Shell, PowerShell, TCL, Expect, Tk, CGI, JSP, ASP, ASP.Net, Visual Basic, VBScript, VB.Net, C-Sharp, Objective-C, Swift, UNIX debugger, LISP, Awk, Sed, D-HTML, Postscript, assembly (ARM, Intel x86, SPARC, Motorola 68k, Z80), Fortran, Basic, lex, yacc   SOFTWARE Web Server/Client Design: J2EE, JSON, JavaScript, HTTP, XML, XML Parsers (DOM/STAX/SAX), HTML5, JQuery, Ext JS, React JS, AngularJS MVC, Node.JS, BackBone.JS, XQuery, XPath, XSLT, CSS, Bootstrap3, Unicode, UTF8/UTF16/Base64 Encoding, AJAX, XMLHTTPRequest, Object Serialization, Google Web Toolkit, Eclipse RCP, Apache Wicket, Apache Velocity, Hibernate DAO, Spring MVC, JRuby, Ruby Rails MVC, Django MVC & REST framework, Web Browsers, .NET Framework, ASP, IIS/ISAPI, JFC/Swing, JSP, JSF, UML, CGI, WebNFS, Apache HTTP Server Modules, Nginx, Curl, SyncML, JBoss, Tomcat, WebSphere MQSeries, Tibco Rendezvous/EMS, WebLogic, ATG Dynamo, SOA/Web Services, SOAP, WSDL, RESTful Apps, UDDI, JMX/MBeans, ColdFusion, Flash/ActionScript, DreamWeaver, PhotoShop, Illustrator, JDBC/ODBC, CORBA, RMI, EJB, JavaBeans, Servlets, MVC-2 Struts, JMS, Servlet Engine, Rational Rose/Robot/Purify, TeamSite Content Mgmt Authentication: HTTP Basic, OAuth, OAuth2, PKI, Active Directory Users Group, LDAP over SSL, Client Auth with SSL, SAML SSO, Kerberos (KDC service w/ Active Directory), Radius Server (PEAP, EAP/TLS), Anti Security Vulnerability: IIS OWASP Modsecurity Core Rules Set, IIS Anti-XSS Security Runtime Engine HTTP Module, CSRF Token, Intrusion Detection, BurpSuite Vulnerability Scans Virtualization: VmWare Desktop/ESX, VSphere Client, VCenter Server, VMotion Cloud Hosted Systems: Amazon Web Services (AWS CLI/Console, boto3 python, EC2, EBS Snapshots, S3, Lambda, Metadata, SQS, SNS, ACL, IAM, CloudFormation, Terraform, ELB, RDS, VPC, CloudFront CDN, CloudTrail, CodeDeploy, CodePipeline, Aurora

MySQL with InnoDB, DynamoDB), Microsoft Azure (Azure CLI, azure-cli python, Azure Resources Storage ActiveDirectory & deployed VMs via PowerShell cmdlets), Google Cloud (gcloud, gsutil, bq, PowerShell cmdlets), Apache CloudStack Cloud/Platform: MultiTenant SAAS, Docker Compose for MicroServices Architecture, gRPC, protobufs bi-directional streaming, PAAS: LXC Linux Containers, Docker, Deploy Docker Stack to Docker Swarm, Provision Cloud Parameters into Jenkins instance using Groovy, Kubernetes (kubectl, kops, kargo), Mesosphere DC/OS, OpenShift   Service Assurance Tools: Cloudwatch, ElasticSearch, Logstash, Kibana Load Balancers: AWS Software Load Balancer, F5 Hardware Load Balancer Automation Frameworks: WinRunner, QuickTestPro, Ranorex Studio, Appium Android/IOS, Cucumber BDD, pytest, Selenium/WebDriver, Jasmine Protractor, Postman, REST Assured, Flask Web Framework, Robot Framework, MochaJS, Chai, SOAPUI, Autoit, LoadUI, TestIt, LoadRunner, Apache JMeter, Webload, Neoload, QualityCenter, SilkTest, SilkPerformer, JUnit, NUnit, PyUnit, HTTPUnit, PHPUnit, DBUnit, CPPUnit, TestNG, Cargo, Cactus, IBM STAF, Watir HTTP Client Inspection: Chrome Advanced REST Client, FireBug, FirePath, Fiddler, IE F12 Developer Tools Performance Tools: JTest, JProbe, JProfiler, Debug Diagnostics, Windbg, Process Explorer, VSPerf Diagnostic Tools: Android Tools, Qualcomm (QPST, QXDM, QRCT), adb logcat, USB BusHound, IOMeter, Lauterbach Trace32, Ethereal, Wireshark, Omnipeek, arpspoof, ethercap, tcpdump, nslookup, telnet, traceroute, netdom, netsh. netstat, netcat, Agilent MobileIP Simulator, Monsoon Power Monitor, Ixia Qcheck/Chariot, IPerf, UDP Flood, SnifferPro, EtherPeek, AiroPeek, ping, snoop, Microsoft Network Monitor, Perfmon, NetPerSec, SiteScope, snort, nmap, nesus, hMailServer OTA Device Mgmt: First Setup, Configuration, Software Update, Fault Mgmt VOIP: IP Multicast, Asterisk, Cisco CME/CCM, IP PBX, Avaya TDM PBX, Virtual Call Routing, Media Servers, SS7, SONET, ATM, MPLS, Frame Relay, ISDN-T1-E1, QSIG/Q.931, SIP<->T1/PRI, SIP, SCCP, RTP, SRTP, ACD, Push-To-Talk, IVR (In-Band DTMF, Out-Of-Band RFC2833 DTMF) H.323, H.225 & H.245 signal, NetHawk East, MGCP, SIPP Load, PSTN Call Generators Linux, Unix, Embedded, WinCE, VxWorks, RTOS: system calls, character & block device drivers, Realtime/Timeshare kernel, multiprocessor diagnostics, POSIX.2/ XCU4 Spec: 1170, system libraries, multithread apps Big Data Analytics:

Hadoop Framework, Amazon RedShift/EMR, Apache Spark, Apache Mesos, Cassandra, Kafka, Splunk Databases: HP's ISAM, Sybase-SQL, MySQL, IBM DB2, Microsoft Access, Oracle Parallel Database, Oracle Pluggable Container Database, Oracle 10g/11g/12c, Oracle App. Server 11i, CRM, SQL, ODBC Clients, Oracle RFID SensorEdge Server, Microsoft SQL Server 2008/2012/2014/2016, MongoDB, CouchDB, Redis, Memcached, Neo4J, PostgreSQL, DerbyDB Microsoft Windows: Visual Studio, Win-32 API, MFC, Visual C++, DCOM, Exchange Server, SharePoint, IIS, ASP.Net, VB.Net, C-Sharp.Net, ADO.Net. Windows Mobile 2006: Platform Builder, WinCE CAB Manager, VOIP SDK, WiFi & CellularData API, CERegEditor Android w/ Ubuntu: SDK, Frameworks, Apps, VOIP, API w/ WiFi & CellData Symbian S60 30/FP1: VOIP SDK, API w/ WiFi, Cellular Data, Cellular interface.   Volume Management: HA, Disaster Recovery, Failover, Sun/Veritas Cluster; RAID: Veritas Volume Manager, HP's LVM; RAID Storage Mgmt.; Veritas NetBackup; Legato NetWorker; VmWare Software Virtualization; ZFS filesystem. Multimedia: audio, video, fax, IPTV, IGMP, H.264, RTSP, MIME, sendmail, POP3, IMAP4, PCX, JPG, TIFF, TARGA, GIF, YUV, JPEG, MPEG, DLNA Media Networking: TCP/IP, UDP/IP, DNS, DHCP, Firewalls, NAT, VRRP, OSPF, BGP, RIP, socket, NFS, PPP, DCE, LAN, SNMP, FTP, TFTP, SMTP, POP3, IMAP4, 7 Layer OSI, X.25, RPC, FDDI, ATM, Token Ring, VPN, routers, switches, load balancer, clusters, HA NIC Teaming, HP OpenView Network Security: OpenSSL, OpenVPN, pgp, S/MIME, sshd, JSessionID, RSA, MD5, SHA, Self Signed and CA Certificates, L2TP, PPTP, IPSec, TLS, Encrypt/Decrypt; Encryption methods: WEP, WPA-PSK(TKIP) Diagnostics: multiprocessor diagnostics, Qualcomm (MSM7x30/8x55/8960, MDM9200), ARM-7, ARM-9, ARM-11, HP PA-RISC, Motorola 68K, Intel x86. Wireless: LTE, HSPA+, HSPA, UMTS/WCDMA, EVDO, EDGE, GSM, CDMA, 802.11.X, Wi-Fi, J2ME, WAP, GPS, SMS, MMS, HDML, WML, WAP browser, RFID, VOIP, ADSL Wireless Modem/Router, Wireless Switches/AP Ecommerce: BroadVision/Javascript components, TaxWare, ClearCommerce X-Window: Application software using Xlibrary, Xview, Motif/Xt/CDE widgets, X- Runner, Window Manager porting, X-Graphics library, XServer design. DOS: system call applications, batch files, TSR applications. Defect Tracking: ClearQuest, Vantive, BugTraq, BugZilla Test/ Project Management: Asana, TestDirector, TestRails, Jira Agile Tools: Jira

(Kanban, Scrum, Waterfall) Build Tools: makefile, cmake, Apache Ant/Maven, Jenkins, CircleCI, Gradle, Bazel, SonarQube SCM Tools: ClearCase, PerForce, CVS, SVN, PVCS, RCS, SCCS, VSS, Git, Gitk, GitHub, Gerrit, Repo, Dimensions CM   Monitoring: Perfmon, New Relic, AppDynamics, Dynatrace, Datadog, Nagios Deployment Tools: Ansible, Chef, Fabric, Puppet, SaltStack, CFEngine, CloudFoundry Hardware Interfaces: Fibre Channel, SAN/NAS storage backend, RS 232-C, CCITT T.30, X.25, Ethernet, IBM's AT-Bus, VME bus, S-bus, PCI bus, SCSI, iSCSI, Network Interface Cards, USB 2.0, Wireless Switches, Wireless AP Work Experience Sr QA AUTOMATION, PERFORMANCE, FORMATION INC May 2018 to June 2018 Roles: Implemented Selenium UI QA/Automation for Formation/Starbucks Rewards Offers and integrated timer metrics gathered from UI wotkflows into Datadog for application performance monitoring Environment: Selenium WebDriver (ChromeDriver/Chrome Headless), Scala, ScalaTest, Java, HTML5, JSON, PostgreSQL, Redis, AWS, Dockerfile, docker compose/stack file in yaml, S3/CloudFront, Kinesis/BigData, IntelliJ with Scala and sbt plugin, Datadog scala library for Datadog integration, Git/GitHub, Jira/Confluence Sr QA, PERFORMANCE, AUTOMATION SERENA SOFTWARE April 2012 to December 2017 Roles: Distributed Windows Enterprise IIS ISAPI Application serves web requests via Serena Work Center and Serena Request Portal using SAML SSO Token authenticated to users and redirects requests using IIRF URL Rewrite ISAPI Filter to Java web apps running inside Tomcat/JBoss container on Linux backends; QA of On-Premise and On-Demand (multi namespace SAAS with AWS/Azure load balanced cluster nodes and Docker Container PAAS) Serena Business Manager and Solutions (Serena Service Manager & DevOps Release Lifecycle Control); Did Web Automation using Selenium WebDriver with Ranorex Studio where Android and IOS are also devices under test; Did Load Performance Automation using Load Runner Web/HTTP and Apache JMeter HTTP/TCP Sampler and processed Text HTML and Application JSON Receive Content Type with XMLHTTPRequest AJAX, also did load test performance comparisons between document databases MongoDB, CouchDB, Cassandra; Product interfaces include: SOAP Web Services Request Response, RESTful CRUD HTTP mapping to external resources via a proxy using OAuth and OAuth2 authentication, UI Social Views with Contributors and Followers, Bootstrap

Rich Text Editor with HTML5 tags, Notes, Attachments, Notification Email Services, App Scripting using Visual Basic or C++ Chai Script, Synch and Asynch Orchestrations running under Tomcat ODE that execute BPEL 3.0 logic, Reports, MongoDB JSON Objects Logging, Asynch External Configuration Item Events, Multi Locale Design Objects/Strings, Lucene Text Search by Item ID and Keywords, Parent/Child Configuration Item processed into relationships in Neo4J graph database, Sharepoint Connector to interface with Sharepoint 2016 and Microsoft Office 365 Applications; Did Application Performance Monitoring Thru Distributed Software Stack and Did Application Tuning; Did HTTP Client inspection using Chrome Advanced REST Client, FireBug, FirePath, Fiddler; Overall debug strategy is to query MongoDB document collection to drill down into specific XId and point out component/calls with worker thread error or taking long time such as long running sql; Debug on Windows/IIS ISAPI application using Debug Diagnostics, Windbg, Process Explorer, VSPerf; Debug on Java/Tomcat 8.5 by upping log level in log4j.xml for related web apps, also using J Profiler snapshots, heap dumps, cpu call tree; Performance optimization on Database via Composite Indexes, Optimized Indexes Statistics, Database Profiling, using SQL Explain to reduce query cost against relational databases (SQLServer, Oracle, PostgreSQL, DerbyDB) Environment: C, C++, Java, Jackson Java Server JSON API, JPA, Javascript, React JS. JQuery, C-Sharp, Visual Basic, HTML5, XML, XMLHTTPRequest AJAX, XPath, JSON, IIS OWASP Modsecurity Core Rules Set, IIS Anti-XSS Security Runtime Engine, Java-Go, Groovy, JRuby, Angular JS MVC, Hibernate DAO, Spring MVC, Ranorex Studio, Selenium WebDriver, Cucumber BDD, Jasmine Protractor, JUnit, SOAPUI, LoadUI, LoadRunner, PHP, Python (xmltodict, json, cpickle, numpy arrays, lxml etree, Django REST framework, pytest), Go for Java, Perl, Shell, PowerShell, Ant, Jenkins Pipeline, Maven, Gradle Sr QA Automate, Debug, Appl Dev, SONY ERICSSON Redwood City June 2009 to April 2012 Roles: For Windows Mobile 6.5 & Android 2.x thru 4.x did: Windows-XP/7 Product Support Tools, QA, Automation (Selenium/WebDriver), Appl. Devp, Customize, Content Backup & Restore using Android/Windows Service, Debugging/BugFix (Windows Mobile 6.5: Registry, Configuration Service Provider , KITL USB Debug; Android: User-Space & Kernel-Space Memory, Crash, Application Not Responding, Watchdog Reset Analysis, QualComm UMTS/CDMA Tools

(QPST Service Program, QXDM NV Browser & Data Protocol Log, Qualcomm API (PRL/ERI-Update, NV-Items Read/Write), QRCT, PPP & PCAP Analysis), Power Save Analyse, Performance Tune at Kernel & App layers, RIL Debug, Mean Time To Failure. Environment: C, C++, Java, Shell Scripts, Perl, Python, MySQL, Apache2, Android SDK, HTTP, XML, XSLT, Xquery, JSON, JUnit, TestNG, SMS, MMS, RTSP ; C/Java Android Native/Apps Debugging on Ubuntu 10.04 using Eclipse IDE: readelf of vmlinux, tl2elf of tlcore, kdump of vmcore, gdb, tcpdump, ethereal, Android Tools (adb logcat, ddms, monkey), Agilent MobileIP Simulate Data Call using Cell/Channel from PRL, hudson/jenkins build tool, git repository & tools (repo, gitk, gerrit); C-Sharp, Visual Studio 2008: customaction.vb Install/UnInstall override MSI, Platform Builder 6, Windows Mobile 6.5: UTF8 Translations w/ SetupDLL Install/UnInstall Init/Exit functions, Configuration Service Provider Tasks using Windows Mobile 6.5 API; DLL, Device Drivers & Resource files, COM objects, Monsoon Power Monitor on WindowsMobile & Android devices, OTA Device Mgmt (Configuration, FOTA Software Update, Fault Mgmt), DRM Encoded Content, DLNA Media Server, Exchange Direct Push, PHP/Javascript Browser Plugins, ActiveX, CSS, PHP-Curl to query remote servers. Sr. Python/Java QA Automation HEWLETT PACKARD - Cupertino, CA February 2009 to March 2009 Cupertino Sr. Appl. Devp, QA/Automation Did Appl. Development - Mtn. View, CA, US December 2005 to November 2008 Roles: Did setup QA lab/network, QA, Automation, Appl. Development for Fixed to Mobile convergence product in Enterprise space. Single Master, Multi Slave Replicated Active Directory Domain Controller interacted with OpenLDAP for Single-Sign-On for User/Group (with Attributes) Authentication on Mobile Devices across Domains with TLS/SSL using PHP w/ MySQL backend. Ran valgrind against C/C++ server/client to resolve runtime performance & memory leaks. Analyse data & voice protocol via tcpdump, Ethereal, GLComm AFT capture. Measure End-to-End Delay via GLComm AFT, PESQ via GLComm VQT, performance via Ixia Chariot & IPerf, impairments via NIST impairment simulator (ported to Fedora Core 8). Did Automation: WinRunner & QuickTest Pro Wireless module from Mobile Device, SIPP (SIP load/stress), Selenium (IDE & RC & WebDriver) for FireFox/IE web interface, LoadRunner 8.x: Wireless VUser script (Scenario involving Steps, Transactions, Rendezvous Points, Correlation).

Environment: Product converges Fixed Wired (Line-Side and Trunk-Side interfacing to Asterisk, Cisco CCM, Cisco CME, Avaya TDM-PBX & S8700 Media Servers, FXS to Intuity Audix, IVR, ACD, Virtual Call Routing) solutions to Mobile Unified Communication to provide seamless mobility (handoffs utilizing WiFi, Cellular Voice, Cellular Data) with Voice and Instant Messaging. Push To Talk, Media Gateway convert SIP to T1/E1-PRI into Avaya Media Server/TDM-PBX for Voice/Video Streams. VOIP/PBX functionality supported via IVR, Messaging, Virtual Call Routing, Location Aware using GPS API, Audio/Video Conferencing. Product built on open source (SIP, Asterisk, Apache, Ant, XML, Jabber, MySQL, Perl, Python, Shell, C, Objective-C, Windows Mobile 2005 API, HTC VOIP SDK, Symbian S60.30 & FP1, Nokia VOIP SDK, SMS, C++, Fedora Core-8, Flash/ActionScript, PHP, Ruby On Rails, Java, CVS). Sr. Appl. Devp, QA Automation - San Jose, CA February 2004 to November 2005 San Jose Roles: Mobility Services Platform (manage entire mobile network infrastructure in enterprise via a console) Project: Single Master, Multi Slave Replicated Active Directory Domain Controller interacted with OpenLDAP for Single-Sign-On for User/Group (with Attributes) Authentication on Mobile Devices and Desktop Client across Domains with TLS/SSL using PHP w/ MySQL backend. Ran JProbe, JProf, OptimizeIt against Java server/client to resolve runtime performance (did JVM performance tuning) & memory leaks. Did setup QA lab/network, hands-on QA, functional automation: WinRunner & QuickTestPro WebTest module that is integrated with STAF, Selenium IDE/Remote Control for FireFox/IE Enterprise web interface, simulation of multiple devices to measure upper limit of devices the platform can support, JUnit/OptimizeIT for Java API, Load Test with Apache JMeter. Did performance tuning via LoadRunner 7.51: Wireless VUser script (Scenario involving Steps, Transactions, Rendezvous Points, Correlation).   Environment: Devices in mobile infrastructure: Access Points, Wireless Switches, Access Ports, Mobile Devices running Palm, PocketPC, CE.Net, DOS. Authentication methods: Kerberos (KDC service w/ Active Directory), PEAP (Radius server), EAP/TLS (Radius server), LDAP sign-in. Encryption methods: WEP, WPA-PSK(TKIP). Platform is Apache/Tomcat appl. server, JBoss JMS, SNMP, SMS, Java, PHP, Python, JSP, XML, TCL/Expect, Ant, MySQL, PerForce. Sr. QA & Data Development KAISER PERMANENTE IT DEPT May 2003 to November

2003 Roles: HIPAA Project: Wrote data driven automation tests in WinRunner 7.5 (w/ Java, WebTest modules). Did WebSphere administration & deployment. Did JVM performance tuning. Did bug fixing of code in WebSphere Application Developer 5.0: Java API, Session EJB, JSP, servlets, Business Integration w/ MQSI/WBI and SOA WebServices objects, XML, XSD, XSLT, PHP, DOM/SAX XML parsers, ClearCase. Used SOAPTest (reads WSDL) to do: functional (emulated client that sends requests for services and client handles services responses as expected), load testing (monitor response rate for simultaneous requests) of WebService object. Did performance tuning via LoadRunner 7.51: Web Vuser script (Scenario involving Steps, Transactions, Rendezvous/Synchronization Points, Correlation, Parameterization) and Java VUser script (Scenario involving Correlation, invoking LoadRunner Java API methods). Defects in TestDirector. Environment: EDI (claim forms) & XML interfaced distributed N-Tier J2EE (IBM WebSphere MQSeries with IBM DB2 backend) Java web application for claims processing (EMC SAN backend).

Sr. Appl. Devp, QA, Systems, Performance QA labs - Alta Vista, CO December 1999 to January 2003 CO. (CMGI) Roles: Setup/Administer two QA labs, performed porting, build/release, performance (system, database), functional QA analysis, systems engineering. Compared portal performance atop BEA WebLogic, IBM WebSphere (did administration and deployment). Wrote Unit Tests using Jtest, Junit to automate whitebox testing of Java servlets API, coding errors. Ran JProbe, OptimizeIt against Java servlets to resolve runtime performance (did JVM performance tuning) & memory leaks. Ran Purify against C/C++ code to detect memory leaks. Developed Use Cases, Interaction Diagrams, Class and sequence diagrams using UML & Rational Rose 98. Used HTML syntax/ link checker, Segue SilkTest, WinRunner, Rational Robot, TestDirector to measure blackbox functionality of web portal. Oracle CRM, Siebel CRM, Epiphany RealTime Personalization was setup (atop Oracle 11i application server) to manage rules based customer marketing & advertisement (paid placement) campaigns (EMC SAN backend). Used RSW Esuite, LoadRunner/SilkPerformer for performance characterization of web portal and Oracle App. Server based applications. Used Big-IP to load balance TCP/IP HTTP request to FrontEndWebServers, did failover, high availability tests. SCM tools: CVS, ClearCase, PerForce, Microsoft Visual Source Safe.

Environment: http://www.altavista.com (internationalized) web portal running on Linux/ Resin Servlet Engine (initial application on Windows-NT 4.0/ Netscape Enterprise Web Server 4.0 SP2 - NSAPI interface from Visual Studio 6.0 C++ code). Software included C++, Java servlets, JavaBean components, JMS, Tibco Rendezvous/EMS API for Real-Time Feeds, JNI to C code (interface to backend search indexes), awk, sed, C, shell scripts, D-HTML, XML/XSLT, DTD, JDBC/ODBC, SQL, stored procedures, SQL Server/Oracle RDBMS, CGI, server/client JavaScript, Flash/ActionScript, ColdFusion MX, JSP, PHP, Perl, Python, WAP, WML, HDML, SSL, digital signed certificates, cookies, session persistence, VPN, authentication, C#, ASP.NET, VB.NET. Appls. included custom JSP tags w/ Java class written in Apache Struts framework of TomCat Java appl. server (built via Apache Ant) for user authentication. Sr. Ecommerce Solutions QA HEWLETT PACKARD CO September 1999 to November 1999 Roles: Performed integration and application development with BroadVision base ecommerce components libraries (JavaScript, C, C++) and business, retail ecommerce, publishing, financial applications, Verity search engine. Used RSW Eload, Mercury Interactive WinRunner, LoadRunner to stress & test robustness of all components (including BroadVision) on ecommerce servers. Did comparative analysis with scenario personalization applications using ATG Commerce/Portal. Environment: Entire ecommerce solution is designed to run on HP-UX and NT and is written in server/client-side JavaScript, JSP, C, C++, sh, D-HTML, RDBMS schema, CGI. Sr. Software Engineer LIBERATE TECHNOLOGIES INC July 1999 to September 1999 Sr. Network Storage QA Engineer interactive TV December 1996 to July 1999 web access, ecommerce settop box that is connected to a on- demand server via cable modem Environment: This product has a content development kit that has dynamic HTML and JavaScript extensions. Software is written for VxWorks RT-OS, Solaris, Windows-NT and contains: Netscape Enterprise Server, JavaScript, D-HTML, C, C++, JBDC, Oracle RDBMS, CORBA, JDK. 12/96 - 7/99 Sr. Network Storage QA Engineer, SUN MICROSYSTEMS INC. Roles: Developed/ported tools to test and measure performance. Did failover via dynamic multipathing of Solaris. Tested software for hardware RAID solutions from Symbios Logic. Tested JDK's JMAPI and JFC-based applets, servlets, Java application and X/Motif Enterprise Backup Products. Did JVM performance

tuning. Wrote TCL event rules for Sun's Enterprise System Monitoring software (uses SNMP and MIB for enterprise clients/server communication, HP OpenView Trend Performance Manager to measure performance) and tested it via QC Replay. Wrote CGI applications and search engines including Forms I/O for HTTP clients and interfaces between CGI and Solaris server in Bourne shell, Perl, C, C++. Environment: Software RAID volume manager: Veritas, Solstice Disk Suite for SCSI-2/3 Fast/Wide Copper/ Fiber Channel storage devices (SAN & NAS) on multi processor Ultra-SPARC machines. Software includes asynchronous, synchronous, memory mapped I/O, Y2k compliance, multithreaded in C, C++, Java, Perl, Python, sh, awk, sed, html, ISQL, TCL/Expect, Sun's JavaStar Java GUI test tool. Diagnostics Devp. Technical Leader SUN MICROSYSTEMS INC May 1996 to December 1996 Roles: Led and did hands-on diagnostics development preparing Diagnostics Plan and diagnostics software. Environment: Interactive Digital Video Server System, RAID Storage Array Products, several PCI Network Interface Cards. Software is in C++, C, Motif, TCL/Expect, SPARC assembly. Sr. Software QA Developer Thomson/ Sun Interactive Alliance October 1995 to August 1996 Roles: Developed/ported OpenTV hardware independent API applications to run on embedded set-top box for Audio/Video. Environment: Modules on Demand Interactive Television Multimedia technology in C, C++, assembly, plus HTML home - 10/95 Sr. Software QA Engineer, SUNSOFT INC., Mtn. View Roles: Developed/ported TCL-X harness, keyed list TCL -X I/O mailbox mechanism Environment: Distributed computing environment (SPARC, X86, PowerPC arch.) for load/stress tests for Solaris. Code is in C, C++, Perl, sh, gnu-make, nawk. Sr. Software Developer, QA Engineer SUNSOFT INC August 1994 to May 1995 Mtn. View Roles: Developed/tested Solaris-2.5 commands/utilities: du, dd, talk, write, vi, ed, sed, id, nawk, lex, yacc, chmod; system libraries: libc.so.1, libw.so.1 to be XOpen compliant per XPG4/ POSIX 1003.2. Environment: Work was mostly internationalization, localization, regular expressions with commands/utilities/libraries. Software is in C. Test suite is in shell, Tcl, perl. Technical Support Specialist SUN MICROSYSTEMS INC., Mtn. View June 1994 to August 1994 Debugging and suggesting Sun customers technical solutions TalOS Development, TALIGENT INC - Cupertino, CA March 1994 to June 1994 Environment: Solaris/ 4.1.3 SunOS system calls applications, user

commands, kernel debugging and performance tuning. Software was in C, C++, Bourne shell.

3/94 - 6/94 Software Designer, TalOS Development, TALIGENT INC., Cupertino   Roles: Development of hierarchical Makefile builders and debugging Taligent GUI front-end/ platform independent O.S in C++. Environment: IBM RS-6000 running AIX for Intel build target. Software was in C++ (O.O.D. design: FrameWorks, Collections, Container templates), C, C/Bourne-shell, Nawk, Sed, Perl. Software QA Project Leader SILICON GRAPHICS INC December 1993 to March 1994 Mtn. View   Roles: Led a team to develop automation of tests, collection of test results, X-Motif/ GUI for a relational data model engine for performance, functionality, stress industry standard benchmarks. Environment: MIPS RISC-3k/4k CPU SGI workstations. Software was in C, X-Motif, Informix Wingz, Sybase DB-C w/SQL involving stored procedures and script languages: nawk, perl, sed, C-shell, Bourne shell. Software Leader X Tools March 1993 to September 1993 Roles: Led a team and did hands-on development of large X/Motif 1.2 client appls.: document search/view/print tool, software source delta tool: using RPC to access FrameMaker documents. Environment: Based on Motif widgets and uses own developed library of composite widgets. Software was in ANSI-C, C++ on Solaris/SunOS. Project Leader/ Developer (PartTime) VIDEOMAIL INC - Sunnyvale, CA June 1990 to April 1993 Sunnyvale.   Roles: Developed/ported in 16-bit MS-Windows 3.0 SDK several applications and Developer's API.   Environment: PC Multimedia hardware for PC's AT-bus: full-motion video, audio, TV tuner cards. Software was written in C, C++, Intel-386 assembly. Software uses DOS/BIOS system calls, and involves: Laserjet printer drivers, panning, video & audio customization, and captures still video frames into TIFF, TARGA-24, PCX, YUV, BMP files. Also developed XView GUI front-end for S-bus versions of above Multimedia hardware. Sr. Software Developer SILICON VALLEY GROUP INC - San Jose, CA January 1993 to March 1993 San Jose   Roles: Ported all process control software modules. Developed tools to automate porting using UNIX tools: awk, sed, Bourne-shell, C-shell scripts.   Environment: Z80 processor based semiconductor manufacturing machine   Code is in ANSI-C, Z80 assembly on Solaris/SunOS. Sr. Diagnostics Design Engineer AMDAHL CORP June 1992 to December 1992 Fremont   Roles: Developed design verification diagnostics for Memory Sub-system and CPU

Sub-system: Primary/External Caches. Environment: SPARC-Viking processor based mainframe. Software was written in C, AT&T C++, SPARC assembly. Also, debugged a Sybase w/SQL X-client application. Sr. Software Developer SCHLUMBERGER LTD - San Jose, CA September 1991 to June 1992 San Jose Roles: Ported Computer Aided Test Engg. (CATE) X-Window based software product. Environment: Sun's SPARC to IBM's RS-6000 platform. CATE is written in Schlumberger's own toolset written atop X-library. Port involved object-oriented C, C++ code for: the toolset, X-library, and Window Manager calls, UNIX system calls, EDIF 2.0 parser for circuit viewing, Racal Redac circuit simulation software, CADDIF databases. Software Appl. Engineer VIDEOMAIL INC July 1991 to September 1991 Roles: Developed system's programmer's class materials for a 2.5 day course. Environment: Sun's Secure Windowed Operating System (SunOS CMW 1.0). Examples were in AT&T C++ and C of API's of GUI/kernel features. Software Engineer VIDEOMAIL INC - Cupertino, CA February 1991 to July 1991 Cupertino. Roles: Developed X11R4, Motif/Xt based GUI for diagnostics software.. Developed device verification software for HP's PCL printers and HP GL-2 plotters. Environment: HP 700 workstations. GUI created a graphical tree of devices to verify via a Composite Tree Widget. Software was in HP's C, C++. Software Designer (Multimedia) VIDEOMAIL INC January 1991 to May 1991 Unix QA/ Appls Co-developed the SunFax Multimedia October 1989 to December 1990 software product for SPARC workstations Environment: . SunFax design involved layered software development from Xview GUI application through a server daemon and application driver for RS-232C and S-bus fax modems and has hardware-independent API.   10/89 - 12/90 Unix QA/ Appls. Engineer, SUN MICROSYSTEMS FEDERAL, Milpitas. Developed/ ported test software for UNIX kernel/ system call areas affected by adding a Realtime scheduler to SunOS. Ported PHIGS, Sybase DB-C w/SQL & stored procedures, Xview applications to Realtime SunOS. Wrote device drivers and interrupt handlers for GPIB hardware. Wrote a TCP/IP appl. driver that allows client embedded SparcEngine boards to boot of the master SparcEngine board on the same VME-bus backplane. Software was in C, C++. Software QA. Engineer HEWLETT PACKARD CO - Cupertino, CA May 1989 to October 1989 Cupertino Developed stress tests, functionality tests for HP-ISAM based relational database for HP-UX/

MPE-XL minicomputers. Software was in HP-SQL, C. Software Development Engineer COMPRESSION LABS - San Jose, CA January 1989 to May 1989 San Jose Developed Real-time Video Teleconferencing software in C, Intel 386 and Motorola 68k assembly. The Software includes system boot software, full-duplex system messaging software utilities, VRTX-Realtime executive calls. UNIX Systems Analyst HEWLETT PACKARD CO - Cupertino, CA December 1987 to June 1988 Cupertino Developed and tested HP-UX performance benchmarks written in C, HP-PA assembly, C-shell, Bourne shell scripts, did analysis of UNIX system performance and fine-tuned operating system configurable parameters. Software Engineer ROLM CORP June 1987 to September 1987 Santa Clara Developed a Real-Time diagnostics package in C to detect complex control sequences of Real-Time data communication to and from the Data Front End interface of the VLCBX 9000 switching product. Software Developer S.F. STATE UNIVERSITY - San Francisco, CA February 1986 to May 1987 San Francisco Developed and tested ADA-like compiler involving lexical analysis, parsing, semantic, syntactic analysis, object code generation. Software was in C. Education BACHELOR'S in COMPUTER SCIENCE San Francisco State University 1988

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