David Paul Roland

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Senior Software Engineer

A career of accomplishments in diverse Software Engineering Applications:

- Designed and implemented data and GUI Java Eclipse RCP plugins with Hibernate RDBMS interface for a flexible framework that supports multiple missions, enables diverse research studies and has been applied to an anomaly tracking and analysis application. Developed an Oracle data mining database application including source data parser, database schema and database setup, administration and report generation. Designed a Monte Carlo simulation in UML using a generalized finite state machine engine approach and implemented it in C++. It was used for analyzing two advanced planning tools, providing graphical results of studies of plan robustness. (CSC, NASA Ames Research Center, Moffett Field, CA: 2002 – present)

- Architect of n-tiered Web-based B2B 24x7 transaction financial application integrating Weblogic and Oracle database with other third party packages. Resolved Function Specification issues and developed project plan. Instituted innovative, streamlined OOAD methodology with sound practices at minimum effort while meeting challenging interim payment deliverables schedule. (Sierra-Atlantic, Fremont, CA: 2000 – 2000)

- Architected configurable Enterprise Application Integration middleware and led the Java implementation of its core engine and RDBMS interfaces on JBoss web server. Prepared product functional specification as HTML-based online help. Delivered production-ready code in five weeks for funding demonstration. (ePatterns, Inc. Redwood City, CA: 2000 – 2001)

- Re-engineered multithreaded, multiprocessor Oracle-based C++ product to enhance robustness and testability. Presented plans and reports to funding partners. Processes instituted reduced defects 40% and cut defect repair time in half. (Sutmyn Storage Corp, Inc. Santa Clara, CA: 1996 – 1998)

- Implemented FDA 21 CFR Part 11 compliant medical device production record database application. Architect and lead for local customization of Oracle-based COTS product. Proposed and interfaced with vendor professional services to implement external agent architecture. Met aggressive fifteen week deadline. (Lifescan, Milpitas, CA 1999 -2000)

Software Engineering Leadership

- Managed NASA programming services contract supervising four team managers (total staff of 30) achieving high award fee scores and customer recognition of on-schedule delivery and quality. (Informatics, NASA Ames Research Center, Moffett Field, CA: 1975 - 1982).

- Led 3 person SQA team testing a client/server-based, interactive multimedia (VOD) application. Built test support software for emulating external components. Product installed at customer site and test tools adopted by technology partners and used for installation validation. (Sybase, Inc, Emeryville, CA: 1994 – 1996)

- Established FDA compliant IVV group for medical diagnostic device incorporating OO real-time data acquisition and analysis, relational database and GUI interface. Revised architecture to message-based, publish/subscribe, multi-threaded approach implemented in C++. (LifeScan, Milpitas, CA: 1999 – 2000)

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Professional and Academic Training:

- Led Corporate Training projects in CAD/CAM and Expert Systems.

- Adjunct faculty in Computer Graphics at California State University, San Jose.

Chronological Resume

2002 - present: Computer Sciences Corporation Mountain View, CA

Sr. Computer Scientist developing NASA/Ames research and mission applications in Java and C++.: Eclipse-based Java development of GUI and planning application for managing missions used on Mars spacecraft. Extended framework for anomaly data collection and analysis system.

C++ Monte Carlo simulator for Mars Rover contingency planning application. Designed in UML and implemented generalized finite state machine engine approach to enable diverse research studies and initial data extraction interface for existing planner. Enhanced Java Graphical User Interface.

Oracle database for data mining related to Aviation Security research. Developed application to extract relevant fields from airline archive records, designed and implemented schema, and prepared queries that analyzed data and fed into research data mining algorithms.

2000 – 2001: ePatterns Inc. Palo Alto, CA

Software Development Manager of group developing legacy system adapters for Java-based Enterprise Application Integration middleware product. Defined UML model of the configurable architecture and led the Java-based implementation of the core engine and RDBMS interfaces. Prepared functional specification as HTML-based online help. Defined deliverables' criteria and participated in design reviews. Managed MS Project schedules and delivered production-ready code for pre-alpha prototype in five weeks.

2000 – 2000: Sierra Atlantic Inc. Fremont, CA

Project Director producing Web-based 24x7 B2B financial application integrating latest EJB and middleware components. Established deliverables based project plan, applied peer review process to refine client's Function Specification, revised proposed approaches for improved reliability and production and created on-line Help System as specification deliverable. Used streamlined development process using minimal UML work products and tasks. Monitored and reported progress to client and management.

1999 – 2000: LifeScan Inc. Milpitas, CA

Project Lead implementing FDA regulated medical device manufacturing line using Windows NT, Oracle and commercial package. Lead four-person team with planning, design, and implementation.

1996 – 1998: SUTMYN Storage Corporation Santa Clara, CA

Joined **Architecture Team** re-engineering product to enhance robustness and testability. Established development process deliverables and validation criteria. Using Booch OO (Rational Rose) for specification, C++ implementation, and peer review using formal criteria. As **Senior SQA Engineer** defined tests for mainframe attached peripheral product incorporating dual Solaris-based processors and Oracle RDBMS. Wrote test plan, created automated testing tools and product test system. Presented plans and reports to funding partners.

1994 - 1996 - Sybase, Inc. Emeryville, CA

SQA Lead supervising white-box QA implementers testing a Multimedia (Video on Demand) Server incorporating a custom messaging protocol. Tested APIs via simulated clients and emulation programs, built test automation script. Developed criteria for peer reviewing Shlaer-Mellor format OO models.

1992 - 1994 - Abbott Diagnostics Division, Abbott Labs, Santa Clara

Independent Validation and Verification Lead supervising seven people testing a blood analysis machine. Established FDA compliant process with peer reviews, verified designs and validated implementation for the X-windows GUI, RDBMS, networked, multi-CPU system. Passed quality audit and was cited as role model for software process. Designed object-oriented multi-threaded architecture and led the implementation, in C++, of data collection and analysis classes on UNIX-like real-time OS.

1992 - 1992: Independent Contractor

Designed and implemented in C a PC-DOS-based, automated teller machine touch-panel graphical user interface retro-fit product, including complete documentation. Product is on the market now.

1991 – 1992: Consilium Inc. Mountain View, CA

Software Quality Manager introducing formal peer review, testing, and process improvements on C++/SQL and COBOL factory floor management products. Analyzed defect frequencies to guide process improvements. Earned key customers' citation for quality improvements on major feature release.

1982 - 1991: FMC Corp. Corporate Technology Center Santa Clara, CA

As **Project Manager,** taught KBS concepts and techniques, developed applications, and integrated KBS with existing applications. Designed and implemented DECnet and TCP/IP communications modules in C, LISP, and FORTRAN on DEC/VMS for enhanced CAD system, process control and CIM system.

As **Manager, CAD/CAM Systems Development** led corporate CAD/CAM support group training management and staff, recommending systems, installing and extending software. Successfully introduced MCAD/CAM at manufacturing divisions, enhancements led to spun-off company.

1983 - 1988: San Jose State University (part-time)

Taught Computer Graphics and Graphics Application Laboratory graduate courses.

1975 - 1982: Informatics Inc. Palo Alto, CA

Mission Support Manager on NASA programming services contract supervising four team managers (total staff of 30) achieving high award fee scores and customer recognition of on-schedule delivery and quality. Recruited staff, assigned tasks, and made salary recommendations. Prepared operating plans and costs, and reviewed technical approaches on wide range of technical and computer system development projects. Wind tunnel data analysis and graphical reporting system still in daily use.

1967 - 1975: Douglas Aircraft Company Long Beach, CA

Advanced Procedures Engineer implementing graphical manpower tracking program; 3-D CAD system enhancements; automated drawing system systems routing database; and graphics terminal utilities.

Technical Experience:

Computer systems: IBM Windows NT/2K; Linux, Solaris and HP-UX; VAX VMS; IBM MVS/CMS
Web/App/DBMS Servers: Weblogic, Oracle, Sybase, MySql, DB2
Architecture/Modeling: UML, Shlaer-Mellor, Booch, Structured Analysis and Design (with Real-time)
Programming Languages: C/C++, Java, FORTRAN, COBOL, Lisp, Pascal, BASIC, various Assembler
Scripting Languages: Perl; UNIX Shells (BASH, Ksh, Csh); Tcl/Tk;
Project Management: MS Project, MS Office (Word, Excel, Access, Powerpoint)
Networking/Communications: HTTP, TCP/IP, DECnet, VTAM, Async serial

Education

Polytechnic Institute of Brooklyn   B.S., Aerospace Engineering
Project Technology, Berkeley CA
     Object-Oriented Analysis: States and Processes
     Recursive Design: Implementation Through Translation
Teknowledge Professional Training
Stanford Instructional Television Network
PMA, Associates, Career Track   Various Management Seminars

Papers and Presentations

D. P. Roland, *Software Engineering Benchmarks from the Aerospace Industry,* ASQ Western Regional Conference, Fremont, CA, October 7, 2002

D. P. Roland, *Lessons From Aerospace,* Silicon Valley Software Quality Assurance (SSQA) Section of ASQ, Cupertino, CA, August 11, 1998

D. P. Roland, *Software Quality Lessons from the Lockheed Martin Skunk Works,* SQA Magazine, Vol 5 No.3 June/July 1998

D. P. Roland, *Scoring Regression Tests for Establishing Release Quality,* Silicon Valley Software Quality Assurance (SSQA) Section of ASQ, Cupertino, CA, November 11, 1997

D. P. Roland, *The Side--Effects of Inspections,* Silicon Valley Software Quality Assurance (SSQA) Section of ASQC, Milpitas, CA, May 30, 1992

D.P. Roland, *Common PRL Idioms*, Presented at USER.PRL, Orlando FL, October 25-26, 1990

KBS Applications Development and Computer-Aided Engineering,, FMC Seminar Series, 1982-89

D.P. Roland: *What is CAD/CAM?* Presented at FMC Engineering and Manufacturing Managers Conference, Scottsdale AZ, April 18-19, 1982

D.P. Roland: *XIO - A FORTRAN Access Management System.* Conference on Engineering and Scientific Data Management, May 18-19, 1978. NASA Conference Publication 2055

J.B. Ashbaugh, D.P. Roland and L. F. Laird: *DSPOBJ - System for Display of Multiple Sets of Three-Dimensional Data.* Computers and Graphics, Vol 3 pp 63-70 (1978)

D.P. Roland: *Parametric Cubic Surface Representation.* NASA Surface Representation Workshop, Ames Research Center, CA, March 1-2, 1977

D.P. Roland: *Computer Definition of Systems Routing.* McDonnell-Douglas TIE, July 1975

Advanced FORTRAN and Parametric Geometry in-plant training courses at Douglas Aircraft Co., 1970-5

Other

Competent Toastmaster