

# Randolph Back

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## Summary

Twenty years of diverse experience in software systems development with significant experience in the areas of client-server software, computer graphics and user interface software development. Experience includes project leadership with primary responsibility for design, cost-estimation, project tracking and supervision of developers.

Java Programming	4 years
J2EE Programming	3 years
C++ Programming	10 years
Oracle	6 years
IBM UDB DB2	2 years
C Programming	14 years
Unix (Sun, AIX, HP, Linux)	14 years
Microsoft Windows	14 years

## Experience

- 2003 - present      **ObjectRiver, Inc**      Wayland, Mass.  
Chief Software Architect for a startup company creating the next generation framework for service oriented architectures. Using Model Driven Architecture to create data access and web services from object-relational models. Utilized Oracle, DB2, etc with internally developed Java Data Objects (JDO) and Java Message Service (JMS) implementations. Languages were Java, PL/SQL, DB2 SQL PL. (<http://www.objectriver.net>)
- 2005      **SAS Institute**      Wakefield, Mass.  
Senior Software Architect For the Marketmax division of SAS Institute. (<http://www.marketmax.com>)  
Developing core engine for on-line analytical processing (OLAP) in C++ an an in-memory dimensional database. Left this position to return to ObjectRiver.
- 2003      **Vermont Technical College**      Randolph, VT  
Instructor for C programming and Client-Server Database Development (SQL, PL/SQL, Macromedia Coldfusion).
- 2002      **Rogue Wave Software**      Southboro, Mass. & Boulder, Colorado  
As Senior Software Architect designed new software system for large scale object oriented systems. The system used Oracle data storage and provided CORBA, XML and J2EE interface for enterprise wide data systems. Platforms were IBM AIX, Sun Solaris, Microsoft Windows 2000. Languages were C++, PL/SQL and Java.
- 1987-2005      **Back Software & Consulting, Inc.**      Montpelier, Vermont & Boulder, Colorado  
Back Software & Consulting began in 1987 in Boulder, Colorado, providing contract software development and consulting services. In 1994, the business moved to Vermont.  
Significant projects are listed below by project category.

## Databases

With Rogue Wave professional services, developed an object-relational framework and utilized the framework in a major project for Chase Bank, "Global Master Repository

Data”. Primarily responsible for the layer of code utilizing Oracle OCI and PL-SQL to read and write objects to the database. On IBM AIX in C++. (2000-2001).

Assisted in conversion of database system from an ISAM database to Oracle by writing mapping layer using the OCI. On Sun/Solaris in C. (1999)

*Web  
Hosting*

BSCI ran a small web hosting business running on a Linux system using the Apache web server and Tomcat servlet engine. (2000-2005)

Developed online skills database for alternative medical professionals using Tomcat, Java servets, MySQL, Velocity. (2004).

*Scientific  
Programming*

For Computatational Geology (<http://www.cgeology.com>), a geological services firm, maintained an analysis and visulation package for dip-analysis of oil well logs. FORTRAN on Sun Solaris. (2001-2005).

For Visual Numerics (<http://www.vni.com>) of Boulder, Colorado, developed scientific visualization product (PV-WAVE). In C using Motif/X11 on Unix. (1991-1992).

*Client/Server*

Assisted software companies in developing client/server software products. Application areas included customer support software for financial institutions, technical help-desk software, procurement automation software, retail automation. Primary language was C++ Responsibilities included user interface design and development, relational database development, software tools development. Environments where multi-platform and database-independent on both client and server side. Client environments included Microsoft (Windows/NT/9x), OS/2, X/Motif. Server environments included Unix, Windows NT. Database systems included Oracle, Sybase, ODBC, ISAM. (1996-1999)

*Project  
Mentoring*

Working for XVT Software’s Professional Services group, assisted development organizations that were new to Object Oriented development by visiting for one to three weeks and assisting with the initial phase of project development. In particular, provided assistance with C++ programming, Application Frameworks, User Interface design, and cross-platform portability. Clients included IBM, Sabre Decision Technology, Putnam Investments, Continuum Corporation. (1994-1996).

*Training*

Classes for Rogue Wave Professional Services (Tools.h++, Standard Template Library), Dokken Software (Development tools for True 64 Unix). (2000-2001).

*Quality  
Assurance  
Planning*

Wrote user acceptance test plans for a new “virtual” company. The information system included a call-center using state of the art computer telephony integration, on-line transaction processing and a data warehouse. (1996)

*Hypertext  
Editors  
Converters*

Developer and publisher of Rtf2Ipf, a intelligent program for converting Microsoft Help files in RTF to OS/2 help files. Customers included IBM and Symantec. (1997-1999).

Assisted Procurement Automation Institute of Arlington, VA with its electronic procurement software that provides the user with a WYSIWYG, hypertext view of the procurement documentation. Analyzed and corrected deficiencies in the hypertext, RTF import and export, and printing engines. Primary development platform was Windows 3.1 with MS Visual C++ and Oracle database accessed via Rogue Waves DbTools++. (1995-1997).

Co-developer and primary customer support and maintenance for the Dovetail Help Author (DHA), a hypertext WYSIWYG editing tool for writing help systems. Primary development platform was Microsoft Windows, using XVT toolkit, Borland C++ and Rogue Wave Tools.h++. (1993-1995). w

<i>Multi-platform User Interfaces</i>	<p>Advised clients developing multi-platform client server applications using XVT Software's toolkit for the GUI client. (1991-1998).</p> <p>Wrote applications and utilities for clients of XVT Software's Consulting and Training group using XVT's Design, Power++, and Portability Toolkit products. (1991-1998).</p>
<i>Porting</i>	<p>As sub-contractor with XVT Software's Consulting and Training Group, provided expertise for moving their software tools to a variety of systems, including DEC Alpha Windows/NT, DEC OpenVMS, DEC OSF, HP/UX, HP MPE, QNX, NCR, Sequent Unix. Languages were C and C++. (1992-1998).</p> <p>Ported Rogue Wave's tools, including Tools.h++ and DbTools++ to various platforms, including Dec VMS, Sequent Unix, DEC Unix. (1996, 1998, 2000)</p> <p>Ported their Remote Procedure Call (RPC) compiler and utilities from Unix to VMS. Wrote Berkeley sockets interface fo VMS/Decnet. (1988-1989).</p>
<i>Computer Graphics</i>	<p>As a sub-contractor for Henderson Software of Boulder, developed Computer Graphic Metafile (CGM) generators and interpreters for major computer graphic vendors and application software developers, including DEC, Sun Microsystems, IBM, HP/Apollo, Mentor Graphics, Frame Technology, Intergraph/Daisix, Intercap Graphic Systems, Precision Visuals, Precision Image, Northern Telecom. (1987-1990).</p> <p>While working on CGM systems, developed and implemented algorithms to solve significant problems such as the decomposition of arbitrary polygon sets into sets of trapezoids, mapping of various parameterizations of ellipses, rendering of splines, utilization of limited color space, optimization of line-drawing, and automatic mapping of fonts. (1987-1990).</p>
<i>UNIX Systems programming</i>	<p>Participated in the original development of AIX as a sub-contractor for Interactive Systems Corporation. The project involved modifying AT&amp;T Unix System V source code for support of international character sets. (1989).</p>
<i>Technical Writing</i>	<p>Author of <i>Implementing CGM Interpreters using MDL/I</i>, a 60 page user manual for the MDL/I product of Henderson Software. (1990).</p> <p>Author of Dovetail Help Author User Manual and the Help system for the Dovetail Help Author. (1993).</p>
1999-2000	<p><b>Computer Task Group</b> <span style="float: right;">Burlington, Vermont</span>          Developed Microsoft Windows applications for the display and analysis of chip test data for IBM Microelectronics. Microsoft Visual C++ using MFC.</p>
1990-1992	<p><b>Analysts International Corporation</b> <span style="float: right;">Boulder, Colorado</span>          Developing X Window programs using Motif and Open Look Interface Toolkit. Various Unix platforms (DEC, Sun, Silicon Graphics) in C.</p>
1984-1987	<p><b>Precision Visuals</b> <span style="float: right;">Boulder, Colorado</span>          Member of graphics systems development group responsible for device independent graphics subroutine libraries. Developed and maintained Graphical Kernel System (GKS) product which was the first GKS implementation to pass the ISO conformance testing. Served as primary maintenance engineer for DI-3000, a subroutine library for 3D and 2D scientific graphics that generated approximately \$10 million in annual revenues. Part of a team developing a User Interface Management System (UIMS) that incorporated a portable Graphical User Interface (GUI). FORTRAN and C on DEC VMS.</p>
Spring 1984	<p><b>Boulder County Vocational Education</b> <span style="float: right;">Boulder, Colorado</span>          Instructor for FORTRAN programming.</p>

- 1983-1984      **Advanced Applications** Boulder, Colorado  
While in graduate school, was member of team developing one of the first commercial implementation of the ANSI/ISO standard Graphical Kernel System (GKS).
- 1982-1984      **National Center for Atmospheric Research** Boulder, Colorado  
Graduate Student Assistant in Scientific Computing Division. Provided consulting assistance to scientists and programmers on the using the NCAR computing system, including consulting on the Cray, IBM 4341, UNIX, FORTRAN programming, and scientific software. Installed, tested, and documented scientific software on the CRAY. Rewrote the database portion of the systems accounting software. Primary language was FORTRAN.
- 1981-1982      **University of Colorado, Department of Mathematics**  
Teaching assistant for College Algebra and Trigonometry and Remedial Mathematics.
- 1978-1981      **University of Kentucky, Department of Mathematics**  
Graduate student and instructor for Calculus and Finite Mathematics. As instructor had full responsibility for classes of 30-40 students including class planing, test creation, homework assignments and grading.

**Education**

- 1984              University of Colorado Boulder, Colorado  
M.S. in Applied Mathematics with minor in Computer Science, concentrating in Numerical Analysis.
- 1978              University of Kentucky Lexington, Kentucky  
B.S. in Mathematics.

**Expertise**

- Languages*              Java, C++, C, Perl, SQL, PL-SQL, UNIX Shells.
- Database Systems*      JDBC, Oracle (Oracle Call Interface, PL-SQL), IBM DB2 SQL, ODBC, Rogue Wave DBTools++.
- Associations**          IEEE, ACM, USENIX.