

**David Richard Rush**  
59 Rathfriland Street  
Banbridge, Co. Down, BT32 3LB  
**Email:** kumo@bellsouth.net  
**Phone:** +44 18206-27781

## Objective

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Flexible employment utilizing skills in all phases of software development, mentoring, and leadership to produce efficient, reliable, and maintainable software in a learning organization.

## Summary

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15 years of professional programming experience, with a strong background in object-oriented programming and design. Three years of Smalltalk programming; six years of C++ programming, with an extensive C background. Other skills in computing technologies including relational database design, client/server systems, workflow analysis, networking and compiler development.

## Technical Skills

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### *Domain Knowledge*

Telephony (Provisioning & Real-time), IETF & ISO Networking Protocols, Client/Server Systems, Workflow, Medical Informatics, Billing Systems, Discrete Manufacturing, Language Design, Parsers, Object-oriented Programming, Framework Design, GUI Design, Object & Relational Databases, Testbed Development, Virtual Machines, Expert Systems

### *Programming Environments and Tools*

Rational Rose, OMTTool, ClearCase, CVS, Unix, OS/2, ObjectStore EHLLAPI, ChronOS, VMS

### *Languages and Toolkits*

Smalltalk, Lex/Yacc, C/C++, Tcl/Tk, NeOpus, RogueWave, SQL (DB/2, SQL Server), Standard ML, CLIPS, ILOG Rules, Assembly, HTML, Lisp, T<sub>E</sub>X

## Accomplishments

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### *Development*

- Development of error architecture for real-time switch applications. Integrated error-handling system into home-grown collection frameworks.
- Design and prototyping of framework support for real-time switch applications, including modules for communication with network management elements and safe real-time locking with priority inheritance.
- Design and implementation of a protocol for OSS operations on Nortel DMS series telephone switches. The protocol implementation included a rich C++ API, with parsing, extensive parse-tree manipulation, and message factory facilities.
- Design and implementation of a scripting language for a generic software library test tool. The tool was used for verification and regression testing of three different libraries across several Unix variants.
- Design of a C++ embedded rule engine with dynamic rule-base loading capabilities to leverage the development effort in an existing set of object-oriented development frameworks. The system included facilities for dynamic binding and dispatch of C++ methods.
- Integrated and extended a public-domain Smalltalk embedded forward-chaining expert system shell. The application domain required modifications to the compiler to support a more robust explanation and rule-base partitioning scheme. The extensions were used to retrofit a workflow system and in a prototype medical treatment protocol identifier.
- Redesigned a C++ class library encapsulating the EHLLAPI 3270 terminal emulation interface to support scripting facilities. This resulted in a system which enabled users to handle changes in legacy system navigation with minimal programmer involvement.
- Designed portable cell-controller software including network programming language
- Implemented and ported PLC programming software from MS-DOS to chronOS and VMS
- Designed and developed network interface drivers for ISO protocol stacks

- Architecture, design and implementation of ISO presentation and application layer protocol gateways. This software had the highest transaction rate in the market. It was ported to four different OS/Hardware platforms, with support for numerous proprietary back-ends.
- Developed a serial device driver for PC-MOS (an early multi-tasking MS-DOS extension)
- Developed ISO upper layer software and scenario interpreters for network interoperability testing.
- Ported and maintained terminal emulation software on first-generation PCs for Univac systems. This involved rewriting device drivers and extensive reverse-engineering of existing assembly code.

### *Research*

- Completed a technology survey of object-oriented forward-chaining expert systems.
- Researched, designed and developed a generic workflow system in Smalltalk. The software was developed using two different expert systems to support several different client/server environments. It was subsequently used as the integration platform for an integrated hospital information (ADTR) and billing system.
- Refined internal software design and development patterns through the application of functional programming principles and category theory to object-oriented development.
- Debugged numerous problems with development platform and in-house framework internals based upon broad knowledge of networking, operating system and virtual machine architectures.
- Design, development, and maintenance of an extended YACC clone which enabled the design of a programmer-friendly API to the MMS (ISO 9506/9507) protocol. The extended feature set also enabled its use in the implementation of network protocol state machines.

### *Human Relations*

- Cordinated multicultural research group for community development efforts in Albania. Successfully communicated vision and project requirements. Achieved a high level of work product ownership among the group members.
- Coordinated small software team to develop a workflow system and integrate it into a hospital (ADTR) information system. Developed work plans and identified appropriate personnel to complete the system integration. Developed documentation and trained team members in system application.
- Reorganized a troubled group into a coherent team by identifying and articulating the vision of motivated individuals. Developed a mutually supportive team culture which encouraged individual growth and corporate identity.
- Supervised food-service operations which fed over 400 people per day.
- Achieved conversational fluency in Japanese, with technical fluency in specific subjects.
- Developed accounting procedures to enable the expansion of local community service. Elements of the methodology were used by a national organization, enabling staff to more clearly articulate vision and concretely plan its implementation.
- Participated in development of software process standards

## Professional Experience

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Contract work at BroadBand Technologies	1999
Contract work at Nortel (BNR)	1997-1998
Contract work at IBM	1996-1997
Imonics Corporation	1995-1996
Raleigh Systems, Inc.	1992-1995
COMMSOFT Inc.	1986-1987, 1989, 1990-1991
Allen-Bradley Corporation (Contractor)	1988
Allen-Bradley Corporation (Co-op program)	1985-1986
Chi Corporation (Summer job)	1984

## Continuing Education

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University of the Nations, College of Christian Ministries	1999
Independent Study in Expert Systems	1996
Independent Studies in Functional Programming and Category Theory	1994-1995
University of the Nations, College of Counseling and Health Care	1989, 1992
Independent Studies in Programming Languages and Compiler Design	1990
Japanese Language at Yoshida Academy, Tokyo, Japan	1989
Case Western Reserve University, Computer Engineering	1982-1986