

R A N D Y L . R I B L E R

EDUCATION

Postdoctoral Research Associate
University of Illinois
Urbana-Champaign, Illinois
August 1996 – July 1998

Doctor of Philosophy
Computer Science and Applications
Virginia Tech, Blacksburg, Virginia
April 1997

Master of Science
Computer Science
George Mason University, Fairfax, Virginia
May 1991

Bachelor of Science
Computer Science
University of Maryland, College Park,
Maryland
May 1980

ACADEMIC EXPERIENCE

**June 1998 to present – Computer Science Department
University of Lynchburg (formerly Lynchburg College)**

Professor of Computer Science (fall 2011 – present)

Computer Science Department Chair (fall 2009 – 2018)

Computer Science Program Coordinator (fall 2000 – 2008)

Vietnam Education Foundation U.S. Faculty Scholar (spring 2013)

Associate Professor of Computer Science (fall 2004 – spring 2011)

Fulbright Scholar (February 2006 – July 2006) Vietnam National University, Hanoi

Assistant Professor of Computer Science (fall 1998 – 2004)

Taught a wide range of courses (twenty in all) including seven that I initiated. I have taught all the computer science courses required for our major, and eight elective courses. I have worked to maintain high standards across the curriculum, to reduce the attrition rate in the introductory classes, to keep our program in step with the newest technologies, and to accommodate the different needs of our majors and minors.

**August 1996 to July 1998 - Department of Computer Science,
University of Illinois, Urbana-Champaign**

Postdoctoral Research Associate, Staff member of Daniel A. Reed's Pablo Group

Designed and implemented the DARPA funded Autopilot instrumentation library for real-time, adaptive steering of parallel and distributed applications. Worked with the Pablo Group scalable I/O and virtual reality development teams to integrate Autopilot sensors and actuators into an immersive environment for the visualization and manipulation of I/O performance.

Teaching

Courses taught:

Introduction to Computation (CS105)
Introduction to Computer Science and Structured Programming I (CS141)
Introduction to Computer Science and Structured Programming II (CS142)
Sophomore Project (CS231)
Data Structures and Algorithms I (CS241 fall 2018)
Data Structures and Algorithms II (CS242)
Computer Architecture and Assembly Language Programming (CS271)
Computer Networks (CS335 and CS235)
Windows/Event-driven Programming (CS345)
Software Engineering (CS350)
Computer Forensics (CS355)
Operating System (CS360)
Database Management Systems (CS370)
Digital Systems (Digital Circuit Design) (CS375)
Artificial Intelligence (CS380)
Senior Projects (CS451/CS452)

Special Topics Classes

Compilers (CS498)
Advanced C++ (CS493)

Independent Studies

Programming Languages (CS322)
Computer Security (CS397)

New Courses initiated and taught

Compiler Construction (CS491)
Advanced C++ Programming (CS493)
Event-driven programming (CS493)
Database Programming with Oracle (with Dr. Constantine Roussos) (CS494)
System and Network Administration (with Dr. Constantine Roussos) (CS201)
User Interface Design (CS49x – taught at Vietnam National University, Hanoi)
Computer Forensics (CS355)
Introduction to Computation (with Drs. Will Briggs and Joe Meehan) (CS105)

Service Highlights

- Program Coordinator/Department Chair for Computer Science (fall 2000 – 2018)
- Led three Computer Science Program Reviews for SACS accreditation (2000, 2006, 2012)
- Faculty Steering Committee Chair (2010 and 2011)
- General Education Oversight Committee Chair (2015-2016)
- Faculty Development Committee Chair (2000)
- Coached and traveled with Lynchburg College Programming Team (2001-2016)
- Academic adviser for computer science majors (1998 to present)
- Faculty advisor and founder of the Lynchburg College Chess Club (2000-present)

RESEARCH INTERESTS

Information visualization, performance analysis, high-performance computer architectures, parallel and distributed processing, compilers, machine learning, genetic algorithms, algorithms for fair division.

Selected Conferences Attended

Vietnam Education Foundation Conference, Washington, DC, March 2018

SIGCSE Conference on Computer Science Education, Raleigh, NC, March 2012

GECCO Conference on Genetic and Evolutionary Computing, Washington, DC, July 2005

PKAL National Assembly in Washington D.C., October 2002

InfoViz2000, the IEEE Information Visualization Conference, Salt Lake City, UT, October 2000

Proficiency in Software Technologies

Programming Languages: C++, C++/CLI, C#, C, Java, Python, Basic, Fortran, Lisp, Prolog, Intel, SPARC, TMS320 and MIPS assembly languages

Dialects: Visual C++ and MFC, Visual Basic, Sun CC, GNU C/C++

Operating Systems: Microsoft Windows, SunOS/Solaris, Linux, Unix, VAX/VMS

Networking: TCP/IP (Berkeley/Winsock) sockets

Web: HTML, PHP, ASP.NET, JavaScript

Shell: Bourne shell, C shell, awk, Perl

Database Management Systems: MySQL, Access, Microsoft SQL Server, Oracle

Consulting

HDF Group, Summer 2006

Consulted on the development of a .NET version of the Hierarchical Data File libraries currently available as part of HDF5 project.

EnSCO Inc., Summer 2002

Developed software for the DARPA-funded *Smart Building* project. Wrote C++ programs that monitor sensors that detect chemical and biological weapons attacks and control ventilation systems, doorways, and alarm systems.

EnSCO Inc., Summer 2001

Developed network-based security software used to protect both the Pentagon and the FBI facility at the Winter Olympic Games in Salt Lake City.

Electronic Arts, Summer 2000

Wrote multithreaded C++ programs for the network infrastructure of online games. This software is used as part of *The Sims Online*.

Academic Employment

September 1991 to August 1996 - Virginia Tech - Computer Science Ph.D. Candidate
Graduate Teaching Assistant (Fall 1992 to Spring 1996)

Fall 1995 and Spring 1996 - Instructor for introductory Unix class.

Taught three one-hour sections each week

Fall 1994 - Lab instructor for assembly language programming class.

Taught two sections twice each week. Developed lectures and class exercises.

PROFESSIONAL EXPERIENCE

June 2001 to August 2001 and June 2002 to August 2002

EnSCO, Inc., Springfield, Virginia – Contractor/Consultant

Developed software for the DARPA-funded *Smart Building* project. Wrote C++ programs that monitor sensors that detect chemical and biological weapons and control ventilation systems, doorways, and alarm systems.

Developed network-based security software used to protect both the Pentagon and the FBI facility at the Winter Olympic Games in Salt Lake City.

May 2000 to August 2000 – ea.com, Charlottesville, Virginia – Contractor

Developed high-performance multithreaded software and stress-tested systems for handling very large numbers of simultaneous, interactive users. Analyzed performance of several candidate system configurations.

August 1991 to August 1996 - Contract Work

General Electric Medical Systems, Waukesha, Wisconsin

Developed Motif-based user interface and diagnostic tests for GE's next generation CAT scanner.

National Eye Trauma System

Created PC-based database documenting eye traumas for general research into causes and treatments of eye injuries. Wrote data collection program distributed to hospitals nationwide.

AMREX Commercial Real Estate System

Wrote Visual C++ and Visual Basic programs to support on-line commercial real estate transactions.

January 1988 to August 1991 - Star Technologies, Inc., Sterling, Virginia - *Senior Engineer*

Compiler group team leader for project to produce a vectorizing compiler for the Star 910/VP, a Sun-compatible SPARC-based supercomputer that was released in July of 1991. Responsible for the overall design of the compiler. Worked with Kuck and Associates Inc. (KAI) in the development and testing of the vectorizing compiler. Designed and implemented highly optimized routines to support concurrent vector processing and data movement between the main memory and the vector cache.

- Used syntax-directed parsers to implement microcode assemblers for Very Long Instruction Word (128-256 bit) architectures.
- Designed and implemented simulators for assessing machine architectures. Provide simulators to allow software development to proceed prior to the availability of hardware.
- Designed memory management algorithms for main memory and vector cache memory.
- Implemented medical image processing algorithms on a system of four parallel Texas Instruments TMS320 Floating-Point Digital Signal Processing chips.

May 1986 to January 1988 - Xenologic Inc., Newark, California - *Software Engineer*

Implemented Unix device-driver for the Xenologic X-1, the commercial version of a high-speed symbolic coprocessor originated at the University of California, Berkeley. The device-driver performs virtual memory management, processor I/O, and numeric processing. Also developed the library of Prolog built-in functions, and supplied utilities for hardware/software debugging. Designed methods that allow the integration of the X-1 into systems that are implemented with conventional programming languages.

September 1983 to May 1986 - Westinghouse Electric Corporation - *Senior Engineer*

Developed algorithms for and led the implementation of the Westinghouse Knowledge Processing System (KPS). This expert systems shell was implemented in both Lisp and Prolog, and contains many innovative approaches to knowledge representation, certainty propagation, attention focusing, and truth maintenance. KPS was adopted by several divisions within the corporation. .

Developed algorithms for the automatic generation of KPS rules

July 1980 to September 1983 - Ensco Inc., Springfield, Virginia – *Programmer, Senior Programmer/Analyst*

Designed, developed, and tested an array processor-based signal processing subsystem. Developed a device-driver for a custom A/D controller, and implemented numerous signal processing algorithms in microcode.

SELECTED PUBLICATIONS

Randy L. Ribler and Chris R. Jordan. Visualizing speciation in evolving neural networks, ANNIE 2003, St. Louis, Missouri, 2001

Randy L. Ribler and Daniel A. Reed. *Future Generation Computer Systems*, special issue (Performance Data Mining) 18(1), September 2001, pp. 175-187

Randy L. Ribler and Marc Abrams. Using visualization to detect plagiarism in computer science classes, *IEEE InfoVis 2000*, Salt Lake City, Utah, October 2000.

Daniel A. Reed and Randy L. Ribler. Performance analysis and visualization. In Ian Foster and Carl Kesselman, editors, *Computational Grids: State of the Art and Future Directions in High Performance Distributed Computing*, Chapter 15. Morgan Kaufmann Publishers, Inc., San Mateo, CA, 1999.

Randy L. Ribler, Jeffrey S. Vetter, Huseyin Simitci, and Daniel A. Reed. Autopilot adaptive control of distributed applications, Proceedings of the 7th IEEE Symposium on High-Performance Distributed Computing, Chicago, IL, July 1998 ([voted one of the best HPDC papers 1992-2012](#))

Daniel A. Reed, Ruth A. Aydt, Luiz DeRose, Celso L. Mendes, Randy L. Ribler, Eric Shaffer, Huseyin Simitci, Jeffrey S. Vetter, Daniel R. Wells, Shannon Whitmore, and Ying Zhang, "Performance Analysis of Parallel Systems: Approaches and Open Problems," *Joint Symposium on Parallel Processing (JSPP)*, pp. 239-256, Nagoya, Japan, June 1998 (*invited paper and keynote presentation*)

Randy L. Ribler. *Visualizing Categorical Time Series Data with Applications to Computer and Communications Network Traces*. PhD thesis, Computer Science Department, Virginia Tech, April 1997. <http://scholar.lib.vt.edu>.

M. Abrams, R. Ribler, and A. Mathur. Two performance tool design issues and Chitra's solutions. In *ACM SIGMETRICS Symposium on Parallel and Distributed Tools*, Philadelphia, PA, May 1996.

R. Ribler, A. Mathur, and M. Abrams. Visualizing and modeling categorical time series data. In *Symposium on Visualizing Time-varying Data*, NASA Conference Publication 3321, Williamsburg, VA, January 1996. <http://www.cs.vt.edu/~chitra/docs/95vtvdRMA.html>

M. Abrams, S. Williams, G. Abdulla, S. Patel, R. Ribler, and E. A. Fox. Multimedia traffic analysis using Chitra95. In *Proc. ACM Multimedia '95*, San Francisco, CA November 1995.

Randy L. Ribler. The integration of the Xenologic X-1 AI coprocessor with general purpose computers. In *COMPCON 87*, San Jose, CA, February 1987. IEEE Computer Society.

Randy L. Ribler. KPS – an approach to knowledge representation. In *Proc. of the Westinghouse Symposium on Artificial Intelligence*, Pittsburgh, PA, October 1986