

Eric S. Roberts

Curriculum Vitae

Home address

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Work address

Department of Computer Science
Stanford University
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(650) 723-3642
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Principal areas of expertise

Computer science education, programming languages, programming environments, multiprocessor systems, social implications of computing, science education for nonscientists

Current position

Professor (Teaching) of Computer Science. I was originally appointed to the Stanford faculty as an associate professor in 1990 and was promoted to full professor in 1995.

Faculty Director for Interdisciplinary Science Education, Office of the Vice Provost for Undergraduate Education, Stanford University, 2003-2006.

Bass University Fellow in Undergraduate Education, Stanford University, 2002-present.

Educational background

Ph.D., Applied Mathematics, Harvard University, June 1980. Dissertation: *Software Techniques for Practical Multiprocessors*, Advisor: Thomas E. Cheatham.

S.M., Applied Mathematics, Harvard University, June 1974.

A.B., *cum laude*, Applied Mathematics, Harvard University, June 1973.

Academic experience

Chair of the Faculty Senate, Stanford University, 2005-06.

Senior Associate Dean for Student Affairs, School of Engineering, Stanford University, 2001-2003. In this capacity, I was responsible for the academic programs in the eight departments that make up the School of Engineering.

Associate Chair and Director of Undergraduate Studies, Department of Computer Science, Stanford University, 1990-2002.

Charles Simonyi Professor for Innovation in Teaching, Stanford University, 1997-2002.

Eugene Lang Visiting Professor for Social Change, Swarthmore College, January to June, 2000. Under this endowed visiting professorship, I both taught and wrote about computing technology and its influence on society.

Visiting Lecturer in Computer Science, Harvard University, 1984-1985. At Harvard, I taught Computer Science 163 (Theory and Construction of Compilers) and began writing my first textbook, *Thinking Recursively*.

Assistant Professor of Computer Science, Wellesley College, 1980-1985 (on leave 1983-1985). As Wellesley's first full-time faculty member in computer science, I had the principal responsibility for designing new courses, developing curricular materials, advising the College on the integration of computer science into the overall program, and setting the foundation necessary to establish computer science as an autonomous department. In my years at Wellesley, I taught courses in introductory programming, data structures, programming languages, assembly language programming and operating systems. I also served as department chair in 1982-83.

Books and book chapters

Eric Roberts, *The Intellectual Excitement of Computer Science*, forthcoming. This book is written for a wide college-educated audience interested in learning more about what makes computer science interesting on an intellectual level.

Eric Roberts, *Programming Abstractions in C++*, Pearson Prentice Hall, 2014. This text covers the material in a traditional CS2 course on data structures and algorithms. The book adopts a "client-first" approach in which students begin by using the various collection classes as clients; once students know how to use these structures, they are in a much better position to understand issues of implementation and algorithmic performance.

Eric Roberts, *The Art and Science of Java*, Addison-Wesley, 2008. This book is an introductory Java text with much the same overall flavor of my 1995 text, *The Art and Science of C*.

Eric Roberts, *Thinking Recursively with Java*, John Wiley and Sons, 2006. This text is a twentieth-anniversary update of my 1986 text, *Thinking Recursively*. The new version uses Java in place of the original Pascal.

Eric Roberts, "Computers and society," in *Encyclopedia of Computer Science* (fourth edition), Anthony Ralston, Edwin Reilly, and David Hemmendinger (editors), Grove's Dictionaries, 2000.

Eric Roberts, *Programming Abstractions in C*, Addison-Wesley, 1998. This text is a companion volume to *The Art and Science of C* that covers the material in the standard CS2 course. The text offers a classical introduction to data structures and algorithms, with a strong focus on the use of abstraction and encapsulation. This text has been translated into Chinese.

Eric Roberts, *The Art and Science of C: A Library-Based Introduction to Computer Science*, Addison-Wesley, 1995. This text is a general introduction to programming that covers the material in the CS1 course described in the ACM Curriculum '78

document. The text uses ANSI C as its programming language but limits the complexity of the presentation by using library packages to defer consideration of complex topics until students are able to assimilate that material. The text emphasizes the development of good software engineering methodology and effective strategies for modular decomposition and data abstraction. This text has been translated into Modern Greek and Chinese.

Eric Roberts, “Computers and society,” in *Encyclopedia of Computer Science* (third edition), Anthony Ralston and Edwin Reilly (editors), Van Nostrand Reinhold, 1992.

Eric Roberts and Steve Berlin, “Computers and the Strategic Defense Initiative,” included as Chapter 8 of *Computers in Battle: Will They Work?*, David Bellin and Gary Chapman (editors), Harcourt Brace Jovanovich, November 1987.

Eric Roberts, *Thinking Recursively*, John Wiley and Sons, 1986. This sophomore-level text gives students a strategic overview of how to approach recursive programming problems. It has been translated into German, Italian, and Japanese.

Publications

Eric Roberts, “A portable graphics library for introductory CS,” Proceedings of the SIGCSE Conference on Innovation and Technology in Computer Science Education, Canterbury, England, July 2013.

Eric Roberts, “Meeting the challenges of rising enrollments,” *ACM Inroads*, September 2011.

Chris Piech and Eric Roberts, “Informatics education using nothing but a browser,” *Proceedings of the IFIP Conference on ICT and Informatics in a Globalised World of Education*, Mombasa, Kenya, August 2011.

Stephen J. Andriole and Eric Roberts, “Point/Counterpoint: Technology education for early 21st century” *Communications of the ACM*, July 2008.

Eric Roberts, “Resurrecting the applet paradigm,” Proceedings of the Thirty-eighth SIGCSE Technical Symposium on Computer Science Education, Covington, Kentucky, March 2007.

Brigid Barron, Caitlin Kennedy Martin, and Eric Roberts, “Sparking self-sustained learning: Report on a design experiment to build technological fluency and bridge divides,” *International Journal of Technology and Design Education*, 17:1, January 2007.

Eric Roberts, “An interactive tutorial for Java,” Proceedings of the Thirty-seventh SIGCSE Technical Symposium on Computer Science Education, Houston, Texas, February 2006.

Brigid Barron, Caitlin Kennedy Martin, and Eric Roberts. “Designing a Computer Science Curriculum for Bermuda’s Public Schools,” World Conference on Computers in Education, Capetown, South Africa, July 2005.

Lecia Barker, Kathy Garvin-Doxas, and Eric Roberts, “What can computer science learn from a fine-arts approach to teaching?” Proceedings of the Thirty-sixth SIGCSE Technical Symposium on Computer Science Education, St. Louis, Missouri, February 2005.

Brigid Barron, Caitlin K. Martin, Eric Roberts, Emma M. Mercier, and Sara McPhee. "Imagining possible futures: Course taking and knowledge use within trajectories of technological fluency," American Educational Research Association Annual Meeting, San Diego, California, April 2004.

Eric Roberts, "The dream of a common language: The search for simplicity and stability in computer science education," Proceedings of the Thirty-fifth SIGCSE Technical Symposium on Computer Science Education, Norfolk, Virginia, March 2004.

Eric Roberts, "Strategies for promoting academic integrity in computer science courses," Proceedings of the 2002 Frontiers in Education Conference, Boston, Massachusetts, November 2002.

Caitlin Martin, Brigid Barron, and Eric Roberts, "Designing and assessing ongoing professional development: Opportunities for high school computer science teachers," Proceedings of the Fifth International Conference of the Learning Sciences, Seattle, Washington, October 2002.

Caitlin Martin, Brigid Barron, and Eric Roberts, "A design experiment to build technological fluency and bridge divides," Proceedings of the Fifth International Conference of the Learning Sciences, Seattle, Washington, October 2002.

Eric Roberts, Marina Kassianidou, and Lilly Irani, "Encouraging women in computer science," *Inroads*, June 2002.

Brigid Barron, Caitlin Martin, Eric Roberts, Alex Osipovich, and Michael Ross, "Design experiments at a distance: Lessons from developing a secondary school curriculum for Bermuda public schools," Proceedings of the Computer Support for Collaborative Learning (CSCL) Conference, Boulder, Colorado, January 2002.

Eric Roberts and Gerald Engel (editors), *Computing Curricula 2001*, IEEE Computer Society Press, December 2001.

Eric Roberts, "An overview of MiniJava," Proceedings of the Thirty-second SIGCSE Technical Symposium on Computer Science Education, Charlotte, North Carolina, February 2001.

Eric Roberts, "Computing education and the Information Technology workforce," paper was prepared for the National Academy Study on Workforce Needs in Information Technology with the endorsement and support of the Education Board of the Association of Computing Machinery. Reprinted in *SIGCSE Bulletin*, June 2000.

Eric Roberts, "Strategies for encouraging individual achievement in introductory computer science courses," Proceedings of the Thirty-first SIGCSE Technical Symposium on Computer Science Education, Austin, Texas, March 2000.

Eric Roberts, "Conserving the seed corn: Reflections on the academic hiring crisis," *SIGCSE Bulletin*, December 1999.

Carl K. Chang, Gerald Engel, Willis King, Eric Roberts, Russ Shackelford, Robert H. Sloan, and Pradip K. Srimani, "Curricula 2001: Bringing the future to the classroom," *IEEE Computer*, September 1999. Also published in the *SIGCSE Bulletin*, December 1999.

Eric Roberts, "Strategies for integrating technology into computer ethics courses," Proceedings of the SIGCSE/SIGCUE Joint Conference on Integrating Technology in Computer Science Education, Dublin, Ireland, August 1998.

Eric Roberts, Antoine Picard, and Maria Fredricsson, "Designing a Java graphics library for CS1," Proceedings of the SIGCSE/SIGCUE Joint Conference on Integrating Technology in Computer Science Education, Dublin, Ireland, August 1998.

Eric Roberts, "Directions in computer science education," published electronically in conjunction with the December 1996 issue of Computing Surveys as part of an invited collection of position papers.

Eric Roberts, "Tools for creating portable demonstration programs," Proceedings of the SIGCSE/SIGCUE Joint Conference on Integrating Technology in Computer Science Education, Barcelona, Spain, June 1996.

Steve Freund and Eric Roberts, "Thetis: An ANSI C programming environment designed for introductory use," Proceedings of the Twenty-seventh SIGCSE Technical Symposium on Computer Science Education, Philadelphia, Pennsylvania, February 1996.

Eric Roberts, "A C-based graphics library for CS1," Proceedings of the Twenty-sixth SIGCSE Technical Symposium on Computer Science Education, Nashville, Tennessee, March 1995.

Eric Roberts, "Loop exits and structured programming: Reopening the debate," Proceedings of the Twenty-sixth SIGCSE Technical Symposium on Computer Science Education, Nashville, Tennessee, March 1995.

Eric Roberts, John Lilly, and Bryan Rollins, "Using undergraduates as teaching assistants in introductory programming courses: an update on the Stanford experience," Proceedings of the Twenty-sixth SIGCSE Technical Symposium on Computer Science Education, Nashville, Tennessee, March 1995.

Eric Roberts, "Using C in CS1: The Stanford experience," Proceedings of the Twenty-fourth SIGCSE Technical Symposium on Computer Science Education, Indianapolis, Indiana, February 1993.

Eric Roberts, "Factors working against women in computer science," *Tough Questions* (a publication of Student Pugwash USA), fall 1989.

Eric Roberts and Mark Vandevoorde, "WorkCrews: An abstraction for controlling parallelism," Research Report #42, Digital Equipment Corporation Systems Research Center, Palo Alto, California, April 1989. Also published in the *International Journal on Parallel Programming*, Volume 17, Number 4, 1988.

Eric Roberts, "Implementing exceptions in C," Research Report #40, Digital Equipment Corporation Systems Research Center, Palo Alto, California, March 1989.

Eric Roberts and Douglas Schuler, "Computing implications: Report from DIAC-88," *Computers and Society*, ACM SIGCAS, Volume 19, Number 1, March 1989. An earlier version of this paper appeared in *Abacus* magazine, summer 1988.

Eric Roberts and John Ellis, "**parmake** and **dp**: Experience with a distributed, parallel implementation of make," Proceedings from the Second Workshop on Large-Grained

Parallelism, Software Engineering Institute, Carnegie-Mellon University, Report CMU/SEI-87-SR-5, November 1987.

Eric Roberts, "Programming and the Pentagon," *Abacus* magazine, summer 1987.

Eric Roberts, "The Eastport Report: Unexpected support for SDI critics," *The CPSR Newsletter*, Volume 4, Number 3, Summer 1986.

Eric Roberts, *Elements of Basic Programming: An Introduction to Algorithmic Computation*, Department of Computer Science, Wellesley College, Wellesley, MA. This draft textbook was used from 1981-1987 for the introductory computer science course at Wellesley.

Eric Roberts, Arthur Evans Jr., C. Robert Morgan, and Edmund Clarke, "Task management in Ada: A critical evaluation for real time multiprocessors," *Software—Practice and Experience*, Volume 11, October 1981.

Eric Roberts, Software Techniques for Practical Multiprocessors (Ph.D. thesis), Technical Report TR-08-81, Center for Research in Computing Technology, Harvard University, 1981.

Arthur Evans Jr., C. Robert Morgan, Eric S. Roberts, and Edmund Clarke, "The impact of multiprocessor technology on high-level language design," Report No. 4188, Bolt Beranek and Newman Inc., September 1979.

David Katsuki, Eric Elsam, William Mann, Eric Roberts, John Robinson, F. Stanley Skowronski, and Eric Wolf, "Pluribus: An operational fault-tolerant multiprocessor," *Proceedings of the IEEE*, Volume 66, Number 10, October 1978. Reprinted in *Advances in Computer Communications and Networking*, Wesley Chu (editor), Artech House, Dedham, Massachusetts, 1979. Also reprinted in *The Theory and Practice of Reliable System Design* by Daniel P. Siewiorek and Robert W. Swarz, Digital Press, Billerica, Massachusetts, 1982.

John Robinson and Eric Roberts, "Software fault-tolerance in the Pluribus," Proceedings of the 1978 National Computer Conference, June 1978.

Invited talks and presentations

"The Impact of Computers on our World: The View from Stanford Computer Science," Stanford Club for European Affairs, Paris, France, June 3, 2013.

"Nifty Assignments: Turtle Graphics," panel participant at the Forty-fourth SIGCSE Technical Symposium on Computer Science Education, Denver, Colorado, March 2013.

"Bridging the Gender Gap: Lessons from the Liberal Arts," panel participant at the Grace Hopper Celebration of Women in Computing, Portland, Oregon, November 2011.

"Computer Science as an Essential 21st-Century Skill: Making the Case," opening keynote address, Grace Hopper Celebration of Women in Computing: K-12 Workshop, Atlanta, Georgia, October 2010.

"Converting Java into JavaScript," Google Tech Talk, Atlanta, Georgia, October 2010.

“Recognizing the most influential CS papers,” panel participant at the Forty-first SIGCSE Technical Symposium on Computer Science Education, Milwaukee, Wisconsin, March 2010.

“What Journalists Need to Know about Computing,” Knight Fellowship Program, Stanford University, Stanford, California, January 2010.

“Restoring the passion, beauty, joy, and awe,” Invited departmental colloquium, Department of Computer Science, University of Auckland, Auckland, New Zealand, July 2009.

“Restoring the passion, beauty, joy, and awe,” panel participant at NACCQ 2009, Napier, New Zealand, July 2009.

“Why programming matters,” invited keynote address at NACCQ 2009, Napier, New Zealand, July 2009.

“Passion, beauty, joy, and awe, continued,” panel participant at the Fortieth SIGCSE Technical Symposium on Computer Science Education, Chattanooga, Tennessee, March 2009.

“Computational thinking everywhere: The ‘broad audience for CS1’ approach,” invited participant at the National Academies Computational Thinking Workshop, Washington, DC, February 2009.

“Computing and competitiveness: Implications of the programmer shortage,” Center for International Security and Cooperation, Stanford, California, February 2009.

“Programming and the CS curriculum: The more things change . . .”, Fascinating Lectures in Computer Science series, Swarthmore, Pennsylvania, November 2008.

“Rediscovering the passion, beauty, joy, and awe: Making computing fun again,” keynote address, Liverpool, England, August 2008.

“Designing a modern computing curriculum for Bermuda,” Reed College Mathematics Colloquium, Portland, Oregon, April 2008.

“Expanding the pipeline of students in computer science” (with Mehran Sahami). Plenary address, Stanford Computer Forum, Stanford, California, March 2008.

“Rediscovering the passion, beauty, joy, and awe: Making computing fun again,” panel participant at the Thirty-ninth SIGCSE Technical Symposium on Computer Science Education, Portland, Oregon, March 2008.

“Making computer science fun again,” opening keynote address at Informatics Education Europe II, Thessaloniki, Greece, November 2007.

“The current crisis in computing: What are the real issues?”, panel participant at the Thirty-eighth SIGCSE Technical Symposium on Computer Science Education, Covington, Kentucky, March 2007.

“New approaches to the development of the U.S. computing work force: Assessing the issues,” panel participant at the American Association for the Advancement of Science meeting, San Francisco, California, February 2007.

“Learned societies in an international context: A perspective from the United States,” invited plenary presentation at the annual Conference of Professors and Heads of Departments of Computing, Glasgow, Scotland, March 2006.

“Nifty Assignments: Breakout!,” panel participant at the Thirty-seventh SIGCSE Technical Symposium on Computer Science Education, Houston, Texas, March 2006.

“The ACM Java Task Force: The Beta Release,” special session at the Thirty-seventh SIGCSE Technical Symposium on Computer Science Education, Houston, Texas, March 2006.

“The ACM Java Task Force: Implications for high schools,” presentation to the Computer Science and Information Technology Symposium, St. Louis, Missouri, February 2005.

“The ACM Java Task Force: Status report,” special session at the Thirty-sixth SIGCSE Technical Symposium on Computer Science Education, St. Louis, Missouri, February 2005.

“Teaching the psychology of debugging,” invited plenary talk at the winter meeting of the Psychology of Programming Interest Group. University of Nottingham, Nottingham, England, December 2004.

“Labor dynamics of the IT economy: What IT planners need to know about the nature of programming,” invited keynote address at the U.S. State Department IT Strategy Conference, San Francisco, November 2004.

“The Bermuda Project: Developing a new computing curriculum for Bermuda’s public schools,” plenary talk at a workshop for pre-college computer science teachers. University of Leeds, Leeds, England, July 2004.

“Expanding the audience for computer science,” keynote address at the Midwest Instruction and Computing Symposium, Morris, Minnesota, April 2004.

“Educating the next generation of computer scientists: The critical role of high school teachers,” opening keynote address for the Computer Science and Information Technology Symposium, Norfolk, Virginia, March 2004.

“SIGCSE special projects showcase,” panel presentation at the Thirty-fifth SIGCSE Technical Symposium on Computer Science Education, Norfolk, Virginia, March 2004.

“Resources to support the use of Java in introductory computer science education,” panel chair at the Thirty-fifth SIGCSE Technical Symposium on Computer Science Education, Norfolk, Virginia, March 2004.

“Great principles of computer science: Strategies for integrating fundamental concepts into the classroom,” panel presentation at the Thirty-fifth SIGCSE Technical Symposium on Computer Science Education, Norfolk, Virginia, March 2004.

“Computing Curriculum 2001: Content, development, and application,” Open University of the Netherlands, Utrecht, Holland, June 2003.

“Computing accreditation in the United States,” Open University of the Netherlands, Utrecht, Holland, June 2003.

“Strategies and tactics for the first course in computer science,” University of Kent, Canterbury, England, March 2003.

“Expanding the audience for computer science,” invited plenary address at the Thirty-fourth SIGCSE Technical Symposium on Computer Science Education, Reno, Nevada, February 2003.

“Professional development and Computing Curricula 2001,” invited plenary presentation at the annual Conference of Professors and Heads of Departments of Computing, Milton Keynes, England, October 2002.

“What makes software difficult?,” invited plenary presentation at the 23rd ISODARCO Summer Course on “Cyberwar, Netwar, and the Revolution in Military Affairs: Real Threats and Virtual Myths,” Trento, Italy, August 2002.

“Recruitment and retention: Preliminary results of the CRA study,” panel presentation at the Computing Research Association Conference, Snowbird, Utah, July 2002.

“Undergraduate curriculum and accreditation advances: Computing Curricula 2001,” presentation at the Computing Research Association Conference, Snowbird, Utah, July 2002.

“Computing Curricula 2001 and the challenge of defining an international curriculum,” keynote address at the IFIP WG3.2 Working Conference on Informatics Curricula, Teaching Methods, and Best Practice, Florianopolis, Brazil, July 2002.

“Computing Curricula 2001: Implementing the recommendations,” panel chair at the Thirty-third SIGCSE Technical Symposium on Computer Science Education, Cincinnati, Ohio, February 2002.

“Computing Curricula 2001: An unveiling,” panelist at the 2001 Frontiers in Education Conference, Reno, Nevada, October 2001.

“Panel on Computing Curricula 2001: Computer engineering,” panelist at the 2001 Frontiers in Education Conference, Reno, Nevada, October 2001.

“Technology against terrorism,” panelist at a campus-wide symposium on the events of 9/11, Stanford University, October 2001.

“Computing Curricula 2001: En route to the Steelman draft,” presentation at the ITiCSE 2001 Conference, Canterbury, England, June 2001.

“Computing Curricula 2001 and its relation to ADMI institutions,” presentation at the 2001 Conference of the Association of Computer Information Science and Engineering Departments at Minority Institutions (ADMI), Hampton, Virginia, May 2001.

“Computing Curricula 2001,” panel chair at the Thirty-second SIGCSE Technical Symposium on Computer Science Education, Charlotte, North Carolina, February 2001.

“Curricula 2001 for computer science and engineering,” panelist at the 2000 Frontiers in Education Conference, Kansas City, Missouri, October 2000.

“Computing Curriculum 2001: Getting Down to Specifics,” Consortium for Computing in Small Colleges (Northwest), Beaverton, Oregon, October 2000.

“Computing Curricula 2001: Status report,” presentation at the Computing Research Association Conference, Snowbird, Utah, July 2000.

“Computing Curricula 2001: Preliminary overview,” invited plenary presentation at the annual Conference of Professors and Heads of Departments of Computing, Brighton, England, April 2000.

“Computing Curricula 2001: Evaluating the Strawman Report,” panel presentation at the the Thirty-first SIGCSE Technical Symposium on Computer Science Education, Austin, Texas, March 2000.

“The Internet Revolution: Promises and Pitfalls,” Eugene M. Lang Annual Lecture, Swarthmore College, March 2000. Also presented at Princeton University in July 2000.

“Curricula 2001 for computer science and engineering,” panelist at the 1999 Frontiers in Education Conference, San Juan, Puerto Rico, November 1999.

“Curriculum 2001: Interim report from the ACM/IEEE-CS task force,” panel chair at the Thirtieth SIGCSE Technical Symposium on Computer Science Education, New Orleans, Louisiana, March 1999.

“Integrating professionalism into undergraduate degree courses in computing,” panel participant at the third SIGCSE/SIGCUE Joint Conference on Integrating Technology in Computer Science Education, Dublin, Ireland, August 1998.

“Cyberlibertarianism vs. Technorealism: Visions of the new millennium,” Distinguished Speaker Series, Eleanor Roosevelt College, University of California at San Diego, April 1998.

“The Microsoft monopoly: Fact or fabrication,” panel participant, Stanford University, April 1998.

“The retention of women in computer science,” panel participant at the Twenty-ninth SIGCSE Technical Symposium on Computer Science Education, Atlanta, Georgia, February 1998.

“Large introductory courses in research computer science departments,” panel participant at the Twenty-ninth SIGCSE Technical Symposium on Computer Science Education, Atlanta, Georgia, February 1998.

“Expanding the audience for science and engineering,” conference panel sponsored by the Feminist Studies program and the Center for Teaching and Learning, Stanford, June 1997.

“Strategies for increasing student involvement in computer science courses,” Reed College, Portland, Oregon, March 1997. Also presented at the Dartmouth College Computer Science Department, Hanover, New Hampshire, May 1997.

“Strategic directions in computer science education,” panel participant at the Twenty-eighth SIGCSE Technical Symposium on Computer Science Education, San Jose, California, February 1997.

“Managing large introductory courses,” panel participant at the Twenty-eighth SIGCSE Technical Symposium on Computer Science Education, San Jose, California, February 1997.

“Designing a wide-audience introduction to computer science,” opening address at the Symposium on New Ideas in Teaching Computer Science, University of Toronto, December 1995.

“The culture of science,” panel discussion in the President’s Lecture Series on “Culture and Cultures,” Stanford University, May 1995.

“Women in computer science: barriers to academic success,” Jing Lyman Lecture Series, Institute for Research on Women and Gender, February 1995. Also presented at the U.S. Geological Survey in Menlo Park, March 1995.

“The introductory CS curriculum at Stanford: Strategies and tactics,” NECUSE Conference on Computer Science Education, Harvard University, January 1995.

“Global Information Infrastructure: Connecting the future,” panel discussion at the Student Pugwash National Chapter Conference, Stanford University, January 1994.

“Using C in CS1,” Computer Science Colloquium Series, University of Nevada, April 1993.

“The National Information Infrastructure,” interview aired on PBS’s McNeill-Lehrer News Hour, April 7, 1993.

“Redesign of the introductory computer science course at Stanford,” NECUSE Conference on Computer Science Education, Harvard University, January 1993.

“The ethical responsibility of the scientist,” National Public Radio’s Talk of the Nation program, August 28, 1992.

“Software reliability,” panel presentation, American Society of Mechanical Engineers Computers in Engineering Symposium, San Jose, California, August 1991.

“Technology and the poor,” keynote panel presentation, Conference on Computers and Social Change, sponsored by the Boston Computer Society, Boston, Massachusetts, April 1991.

“Undergraduate computer science education at Stanford,” NECUSE Conference on Computer Science Education, MIT, January 1991.

“Priorities for science and technology research: Addressing the problems of the 21st century,” University of Southwestern Louisiana, February 1991.

“The ethical responsibility of the computer scientist,” keynote address, Drew University Graduate School Colloquium on “Scholarship and moral choice in contemporary society,” April 1990. Also presented in August 1990 at the University of Minnesota, the University of Wisconsin, and Carnegie Mellon University. Presented as part of a university colloquium series at Northeastern Illinois University, January 1991.

“Concurrent programming in the United States: A research overview,” Institute of Machine Tools, Moscow, USSR, September 1989.

“Programming environments at DEC/SRC: Vulcan and Vesta,” International Federation of Information Processing Working Group 2.4 (Systems Implementation Languages), Warsaw, Poland, September 1989.

Senior participant for session on “Computers and human interaction,” Student Pugwash Conference, Boulder, Colorado, June 1989.

“Computers and the workplace,” CPSR/Berkeley, March 1989; Stanford University, May 1989; George Washington University, August 1990.

“Professional responsibility and computer science,” Society of Women Engineers Conference, Stanford, January 1988; DSA Summer Youth Conference, Kalamazoo, Michigan, August 1988; Stanford University, March 1989.

“Trip report: Inside the Blue Cube,” CPSR/Palo Alto, October 1988.

“parmake and dp: Experience with a distributed, parallel implementation of make,” BASS-11 (Bay Area System Seminar), Cupertino, December 1987.

“WorkCrews: An abstraction for controlling parallelism,” Reed College, October 1987; Bolt Beranek and Newman, April 1988; DEC/Littleton, April 1989; University of Wisconsin, August 1990.

“The Star Wars computer system: Is the software feasible?,” Reed College, October 1987; Institute for Advanced Study, October 1987; Wellesley College, October 1987; San Francisco State University, December 1987; University of California at Berkeley, February 1988; California State University at Fresno, February 1988; Bolt Beranek and Newman, April 1988; Stanford University, April 1989.

“Defense procurement and the programming industry,” CPSR/Boston, May 1985; CPSR/Palo Alto, October 1985; Stanford University, November 1987; CPSR/Denver, July 1988.

Industrial research experience

Principal Software Engineer, Systems Research Center, Digital Equipment Corporation, 1985-1990. As a member of the SRC research staff, I was part of a team of research scientists seeking, in the words of the SRC charter, “to design, build and use new digital systems five to ten years before they become commonplace.” At SRC, my principal research activities included the Vulcan programming environment for Modula-2+, design and implementation of the lauralee mail system, and a parallel version of the Unix make utility for the Firefly multiprocessor.

Consultant, Digital Equipment Corporation, summer 1982. Based on experimental language modifications undertaken at Wellesley, I implemented a significantly enhanced version of BASIC-PLUS-2 for the DECsystem-20.

Staff scientist, Bolt Beranek and Newman Inc., Cambridge, Massachusetts, 1976-1979. My work at BBN was concentrated in multiprocessor system research, primarily in connection with the BBN Pluribus, and with various Unix-based systems.

Awards, fellowships, and distinctions

Fellow of the Association of Computing Machinery (ACM).

Fellow of the American Association for the Advancement of Science (AAAS).

Karl V. Karlstrom Outstanding Educator Award from the Association of Computing Machinery (ACM), 2012. The Karlstrom Award recognizes educators who have “advanced new teaching methodologies; effected new curriculum development in Computer Science and Engineering; or contributed to ACM’s educational mission.”

Taylor Booth Education Award from the Institute for Electrical and Electronic Engineers Computer Society (IEEE-CS), 2012. The Taylor Booth award is given annually to recognize and “outstanding record in computer science and engineering education.”

Laurance and Naomi Carpenter Hoagland Prize, 2004. The Hoagland Prize focuses specifically on the teaching of undergraduates and is awarded annually to a “member of Stanford’s faculty who excels in this activity as an opportunity to pursue new directions in teaching that will benefit Stanford undergraduates on a continuing basis.”

ACM Special Interest Group on Computer Science Education Award for Outstanding Contribution to Computer Science Education, 2003. The description for this award, given annually since 1981, reads as follows: “This award goes to an individual or group in recognition of a significant contribution to computer science education. The contribution may take many forms, such as: curriculum design, innovating teaching methods, textbook authorship, development of new teaching tools, or any of a number of other significant contributions to computer science education. The contribution should have had long lasting impact on, and made a significant difference in, computing education.”

John A. and Cynthia Fry Gunn University Fellow in Undergraduate Education, 2002. Stanford established the University Fellowships in Undergraduate Education “to reward faculty who make truly outstanding contributions to Stanford’s undergraduate experience.” This fellowship was one of the inaugural eight fellowships awarded under this program.

Dinkelspiel Award, Stanford University, 1998. The Lloyd W. Dinkelspiel Award recognizes “distinctive and exceptional contributions to undergraduate education at Stanford University.” Two awards are made each year at commencement “to the faculty or staff members adjudged to have made the most distinctive contribution to the development and enrichment of undergraduate education in the broadest sense.”

Founders’ Award, Computer Professionals for Social Responsibility, June 1996. The text of the citation indicates that the award is made “in appreciation of his enduring commitment to providing the public and policymakers with realistic assessments of the power, promise, and problems of information technology.”

Social Service in Computing Award, ACM Special Interest Group on Computers and Society, June 1996. The text of the award reads: “The ACM Special Interest Group on Computers and Society recognizes the outstanding work that Professor Eric Roberts has done over the past two decades to raise the awareness of social and ethical responsibility among computer professionals. His tireless effort and leadership in such groups as Computer Professionals for Social Responsibility has made a significant impact upon the computer field and has helped shape public policy toward the beneficial and equitable use of computing technology in our society.”

Perin Award for Undergraduate Engineering Education, Stanford University, October 1995. Two of these awards are given each year to faculty members in the School of Engineering to support the improvement of undergraduate education.

Bing Fellow Award, Stanford University, 1993-1995. The Bing Fellowship was established “to recognize excellence in teaching and a committed interest to the teaching of undergraduates.”

Selected for inclusion in *Who's Who in American Education*, beginning with the 4th edition (1994).

Selected for inclusion in *Who's Who in Science and Engineering*, beginning with the 2nd edition (1994).

Selected for inclusion in the International Biography Center's *Men of Achievement* beginning with the 16th edition (1993).

Selected for inclusion in *Who's Who in California*, beginning with the 23rd edition (1993).

Selected for inclusion in *Who's Who in The West*, beginning with the 23rd edition (1991).

Selected for inclusion in *Who's Who in Technology Today*, beginning with 1980 edition.

National Science Foundation Graduate Fellow, 1973-1976.

National Merit Scholar, 1969.

Professional activities

Member of the ACM Education Board, 1997-present (chair from 2005-2007). The ACM Education Board sets policies related to education for the Association for Computing Machinery, which is the premier professional society for computing.

Member of the Board of Advisors for Camp Amelia, 2004-2007. Camp Amelia runs computer engagement camps for elementary school children in low-income areas of the United States as well as international camps in Ghana, South Africa, and Vietnam.

Member of the Academic Alliance for the National Center for Women in Information Technology, 2004-present.

Member of IFIP Working Group 3.2 (Informatics and ICT in Higher Education), 2003-present.

Chair of the ACM Java Task Force, 2003-2007. The Java Task Force has received funding in excess of \$50,000 from the National Science Foundation and other sources.

Member of the Board of Advisors for the Computer Science Teachers Association, 2003-present.

Member of Computing Research Association study panel on Recruitment and Retention of Faculty in Computer Science and Engineering, 2001-2002.

Co-chair of the ACM Task Force for Computing Curriculum 2001, 1998-2001.

Information Director for the ACM Special Interest Group on Computer Science Education (SIGCSE), 1997-2005.

Member-at-large of the Board of Directors for the ACM Special Interest Group on Computer Science Education (SIGCSE), 1997-2001.

Member of the Board of Directors, Student Pugwash USA, 1997-present (chair from 1999-2002). Student Pugwash USA is the student affiliate of the Pugwash Conferences on Science and World Affairs, which was awarded the Nobel Peace Prize in 1995. The mission of Student Pugwash is “to encourage young people to examine the ethical, social, and global implications of science and technology, and to make these concerns a guiding focus of their academic and professional endeavors.”

President, Computer Professionals for Social Responsibility, 1990-1996. CPSR is a public-interest organization of computer scientists and other professionals concerned about the impact of computing technology on society. Prior to becoming President, I served as the CPSR National Secretary from 1987 to 1990.

Member of the Education Working Group for the Strategic Directions in Computing Research workshop, 1996. The Strategic Directions in Computing Research workshop was an invitational symposium held in June 1996 to identify research priorities in many different areas of computer science. The forum was sponsored by the Association for Computing Machinery, the Computing Research Association, the National Science Foundation, and Office of Naval Research.

Member of the Board of Advisors for the Ethics Center for Engineering and Science, 1995-1999. This center, funded by the National Science Foundation and directed by Professor Caroline Whitbeck at MIT, focused its attention on developing materials “to help engineers and scientists clarify the problems they face.”

Member of the ImpactCS Steering Committee, 1994-1998. This group consisted of 25 nationally recognized academicians involved in teaching ethics and computer science.

Member of the Aspen Institute summit group on computer science policy, 1992. This group consisted of the chief executives and elected presidents of eight computer science organizations (AAAI, ACM, CPSR, CRA, CSPP, CSTB, IEEE/CS, and SIAM).

Reviewer for National Science Foundation, Instrument and Laboratory Improvement Program, 1992.

Member of the National Board, Research Center on Computing and Society, New Haven, Connecticut, 1991-1993.

Member of the National Board, The Democracy Project, San Francisco, California, 1991-1994.

Editor of the “Computing and the Citizen” column for *Abacus* magazine, 1986-1988.

Editor of *Working Notes*, a monthly newsletter published by the CPSR Computers in the Workplace Project, 1987-1990.

Local Arrangements Chair, ACM SIGSOFT/SIGPLAN Software Engineering Symposium on Practical Software Development Environments, December 9-11, 1986.

Member of Association for Computing Machinery (ACM); ACM Special Interest Groups SIGCSE and SIGCAS; IEEE Computer Society; American Association for the Advancement of Science.