

Ruth E. Davis
Computer Engineering Department
Santa Clara University

Curriculum Vitae

Education.

Santa Clara University
Major: Mathematics
B.S. June, 1973

San Jose State University
Major: Mathematics
M.S. June, 1976

University of California, Santa Cruz
Major: Computer and Information Science
Ph.D. June, 1979
Ph.D. Dissertation: "Generating Correct Programs From Logic Specifications"

Honors

Pi Mu Epsilon — (National Math Honor Society), 1971 – present

ACM Doctoral Forum Award 1979, for Outstanding Ph.D. Thesis in Computer Science

Elected to Senior Member in the IEEE, 1993.

David Packard Mentor Scholar Endowed Term Professorship (93–95, and 95–97)

Best Paper Award in track on government policy issues, International Conference on Engineering Education and Research, Olomouc, Czech Republic, June 27–30, 2004.

Robert W. Peters Endowed Professorship in Engineering, 2004–2009.

ACM Distinguished Scientist, awarded October, 2006.

2009 Alumna of the Year Award, Academy of Our Lady of Peace, presented at ceremony May 21, 2009.

Lee and Seymour Graff Professor, University Endowed Chair, awarded September, 2009.

Academic Employment

California State University, San Jose, Lecturer, part-time (1974–76)

University of California, Santa Cruz, Teaching Assistant (1976–March,1979)

University of California, Santa Cruz, Lecturer (Summer 1978, Spring, 1979)

Santa Clara University
Assistant Professor (1979–86), Associate Professor (1986–94), Professor (1994–present)

Western Institute in Computer Science at the University of California, Santa Cruz (1980), Santa Clara University (1985), and Stanford University(1986 & 1987). Lecturer.

Santa Clara University
Associate Dean, Undergraduate Studies in Engineering (2003 – present)

Other Employment

1976–77 Member Technical Staff, Hewlett Packard Research Labs, Palo Alto, CA (Reference: Jim Duley).

1979–81 Part-time consultant to Logical Paradox, Inc. (Reference: S. Sickel Beach).

1980 No-fee consultant with Xerox Palo Alto Research Center, Palo Alto, CA (Reference: Lynn Conway).

1981–1985: SCU Director for Eastern and Western Institute in Computer Science. Coordinated short course offerings at Santa Clara University (the other campuses involved in this program were the Wang Institute of Graduate Studies and Stanford University).

1982–87 Vice President of The LISP Company, Los Gatos, CA (Reference: J. R. Allen).

Publications

Dissertation

DAVIS, Ruth E. *Generating Correct Programs From Logic Specifications*. (Ph.D. dissertation), published by University Microfilms, Ann Arbor, Michigan, 1979.

Also published as Technical Report No. 79-5-001 for the Office of Naval Research, May, 1979.

Books

ALLEN, John R. with Ruth E. Davis and John F. Johnson. *Thinking About TLC-Logo: A Graphic Look at Computing with Ideas*. New York: Holt, Rinehart, and Winston, 1984.

DAVIS, Ruth E. *Truth, Deduction, and Computation*. New York: W. H. Freeman and Company, 1989.

Technical Reference Manuals

ALLEN, John R. with Ruth E. Davis. *TLC-Lisp86: Primer, Metaphysics, and Reference Manual*. Los Gatos: The Lisp Company, 1984.

ALLEN, John R. with Ruth E. Davis, Michael Burke, and Alan Foster. *Getting Started With TLC-Logo*. Los Gatos: The Lisp Company, 1984.

Journal Articles

DAVIS, Ruth E. “Logic Programming and Prolog.” *IEEE Software* 2, 5 (1985):53–62.

Also published in *Programming Languages: A Grand Tour*, edited by Ellis Horowitz. Rockville, MD: Computer Science Press, 1987, pp. 493–502.

Also published in *IEEE Selected Reprints in Software*, edited by Marvin Zelkowitz. Washington, DC: Computer Society Press of the IEEE, 1987, pp. 371–380.

SHIH, Timothy K. with Nam Ling, Ruth E. Davis, and Fuyau Lin. “On the Construction of a Prolog-based Verifier for Systolic Designs.” *Journal of Computational Intelligence* 11, 1 (1995):172–221.

SHIH, Timothy K. with Ruth E. Davis. “SPEC: A Specification Processing Environment with Controls.” *Journal of Information Science and Engineering* 10, 4:495–526.

SHIH, Timothy K., with Ruth E. Davis. “IMMPS: A Multimedia Presentation Design System.” *IEEE MultiMedia* 4, 2 (1997): 67-78.

XUE, Jinyun, with Ruth E. Davis. “A Rigorous Proof of Knuth’s Binary to Decimal Conversion Algorithm.” *Software Concepts & Tools*, 18, 4 (1997).

DAVIS, Ruth E. “Formal Specifications Guide Development and Testing of Software Components.” *Tamkang Journal of Science and Engineering*, June, 1999.

DAVIS, Ruth E. “Improving the Diversity of Our Technology Workforce.” *explore*, 4, 1 (2000), 17–21.

DAVIS, Ruth E. “Co-evolving Social Systems with Escalating Technological Change.” *STS Nexus*,1(2001):2 14-18.

SCHAECKELER, Stefan, with Weijia Shang and Ruth Davis, “Visualization of Procedural Abstraction.” *Electronic Notes in Theoretical Computer Science*, 224:27-39, 2009.

SCHAECKELER, Stefan, with Weijia Shang and Ruth Davis, “Compiler Optimization Pass Visualization: The Procedural Abstraction Case.” *ACM Transactions on Computing Education*, Vol. 9, Issue 2, pages 1–13, June 2009.

Peer Reviewed Chapters in Books and Conference Proceedings

- DAVIS, Ruth E. “Runnable Specifications as a Design Tool.” Proceedings of the Logic Programming Conference, Drebecen, Hungary, July, 1980.
- DAVIS, Ruth E. “The Post Correspondence Problem As a Question of Ambiguity.” Proceedings of the Western Educational Computing Conference, San Diego, November, 1980.
- DAVIS, Ruth E. “A Programming Methodology Based on Executable Logic.” Proceedings of the ACM Computer Science Conference, Indianapolis, February, 1982.
- DAVIS, Ruth E. “Runnable Specifications as a Design Tool.” In *Logic Programming*, edited by Keith Clark and Sten-Åke Tärnlund. New York: Academic Press, 1982, pp. 141–150.
- DAVIS, Ruth E. “Logic Programming Is NOT Circuit Design.” Proceedings of IEEE Spring CompCon, San Francisco, February, 1984.
- ALLEN, John R. with Ruth E. Davis. “In Praise of Fingertips.” Proceedings of Logo Conference, MIT, Boston, June, 1984.
- DAVIS, Ruth E. with John R. Allen. “Quality and Computer Education.” Proceedings of the Western Educational Computing Conference, San Diego, November, 1984.
- DAVIS, Ruth E. “Programming Styles.” Proceedings of the Western Educational Computing Conference, San Diego, November, 1984.
- DAVIS, Ruth E. “Logic Programming.” Proceedings of the 1984 International Computer Symposium, Taipei, Taiwan, December, 1984.
- DAVIS, Ruth E. “Executable Specifications as Basis for Program Life Cycle.” Proceedings of the 18th Hawaii International Conference on System Sciences, Honolulu, January, 1985.
- DAVIS, Ruth E. with John R. Allen. “Languages and Data for the Fifth Generation.” Proceedings of the 19th Hawaii International Conference on System Sciences, Honolulu, January, 1986.
- DAVIS, Ruth E. “Logic Programming and Prolog.” In *Programming Languages: A Grand Tour*, edited by Ellis Horowitz. Rockville, MD: Computer Science Press, 1987, pp. 493–502.
- DAVIS, Ruth E. “Logic Programming and Prolog.” In *IEEE Selected Reprints in Software*, edited by Marvin Zelkowitz. Washington, DC: Computer Society Press of the IEEE, 1987, pp. 371–380.
- DAVIS, Ruth E. with Timothy K. Shih. “A CASE for Logic Programming.” Proceedings of the Tenth International Conference in Computer Science, Santiago, Chile, July 1990.
- DAVIS, Ruth E. “Supporting the Specification of Logic Programs.” Proceedings of the 24th Hawaii International Conference on System Sciences, Kauai, January, 1991.
- LING, Nam with Fuyau Lin, Timothy K. Shih, and Ruth E. Davis. “Automatic Formal Verification of Systolic Array Designs.” Proceedings of the International Conference on Applications-Specific Array Processors, Costa Brava, Spain, September, 1991.
- SHIH, Timothy K. with Nam Ling, Ruth E. Davis, and Fuyau Lin. “An Automated Design Specification and Verification Tool for Systolic Architectures.” Proceedings of the 25th Hawaii International Conference on System Sciences, Kauai, January 1992.
- SHIH, T. with Ruth E. Davis and Fuyau Lin. “Coping With Failure: Disciplined Exceptions in Logic Programming.” Proceedings of the 1992 ALP UK Logic Programming Conference, London, England, June, 1992.
- LIN, Fuyau, with Timothy K. Shih, Nam Ling, and Ruth E. Davis. “Using Prolog as a Tool for Systolic Array Designs.” Proceedings of the Conference on Practical Applications of Prolog, London, June, 1992.
- SHIH, Timothy K. with Ruth E. Davis. “Intelligent Backtracking and Control Based on a Deduction Status Representation in Logic Programming.” Proceedings of the Golden West International Conference on Intelligent Systems, Reno, Nevada, June, 1992.

- SHIH, Timothy K. with Ruth E. Davis, and Robert Langsner. “A Specification Processing Environment with for Making Well-Engineered Logic Programs.” Proceedings of the Golden West International Conference on Intelligent Systems, Reno, Nevada, June, 1992.
- SHIH, Timothy K. with Ruth E. Davis. “Program Generation and Controls in a Specification Processing Environment.” Proceedings of the International Computer Symposium, Taiwan, 1992.
- SHIH, Timothy K. with Ruth E. Davis and Fuyau Lin. “Disciplined Exceptions in Logic Programming.” In *4th UK Conference in Logic Programming*, edited by Krysia Broda. New York: Springer-Verlag, 1992.
- DAVIS, Ruth E. with Ron L. Danielson. “LSL + Ada \rightarrow Reusable Data Structures.” Proceedings of the Tenth Annual Washington Ada Symposium, McLean, Virginia, June, 1993.
- CUNNINGHAM, H. Conrad, with Ruth E. Davis, Douglas Troeger, and Henry M. Walker. “Formal Methods in the Undergraduate Computer Science Curriculum.” Proceedings of the Twenty-Sixth SIGCSE Technical Symposium on Computer Science Education, Nashville, Tennessee, March, 1995.
- DAVIS, Ruth E. with Ron L. Danielson. “Practically Formal Methods.” Proceedings of the 1996 International Conference Software Engineering: Education & Practice, Dunedin, New Zealand, January, 1996.
- XUE, Jinyun, with Ruth D. Davis. “A Simple Program Whose Derivation and Proof is Also.” Proceedings of the First IEEE International Conference on Formal Engineering Methods, Hiroshima, Japan, November, 1997.
- DAVIS, Ruth E. with Melissa McClaren. “Designing Women: Perspectives From Technology’s Powerful Distaff Side,” Proceedings of the SWE National Conference, Washington, D.C., June, 2000.
- DAVIS, Ruth E. “Spreading the Seeds of STEM Programs for Girls.” Proceedings of the Grace Hopper Celebration of Women in Computing Conference, Cape Cod, MA, September, 2000.
- DAVIS, Ruth E. with Melissa McClaren. “Increasing the Impact of Women on Technology.” Proceedings of the Grace Hopper Celebration of Women in Computing Conference, Cape Cod, MA, September, 2000.
- DAVIS, Ruth. “SCU’s Gender Climate Study.” Abstract published in Proceedings of the Making Connections VI Conference of NAWCHE, Santa Clara, July, 2002.
- DAVIS, Ruth E. with John R. Allen. “Software: Craft, Science, and Engineering.” Proceedings of the 2003 ASEE Annual Conference and Exposition, Nashville, TN, June, 2003.
- DAVIS, Ruth E. “Motivating Women Engineering Students through Community-Based Projects.” Proceedings of the 2003 ASEE Annual Conference and Exposition, Nashville, TN, June, 2003.
- DAVIS, Ruth E. “Using Social Relevance to Recruit and Retain Minority and Women Engineers.” Proceedings of the International Conference on Engineering and Education and Research, Olomouc, Czech Republic, June 27–30, 2004.
- DAVIS, Ruth E. “Community-based Learning Develops Diverse Engineering Workforce.” *Innovations 2005: World Innovations in Engineering Education and Research*, Begell House Publishing, Arlington, VA, 2005, 7 – 16.
- DAVIS, Ruth E. “Community-based Learning Develops Diverse Engineering Workforce.” *Innovations 2005 - Special Edition: World Innovations in Engineering Education and Research*, 1(2005), chapter 2. This is one of 20 articles selected for reprint in this more focused volume from the publication listed immediately above.
- HEALY, Timothy, with Ruth Davis, Drazen Fabris, Mark Aschheim, and Tim Urdan, “Work In Progress: Restructuring a Cornerstone Course With Limited Resources,” Proceedings of the Frontiers In Education Conference, sponsored by IEEE, IEEE-CS, and ASEE, San Diego, October 28–31, 2006.
- SULLIVAN, Kieran, with Ruth Davis, “Increasing Retention of Women Engineering Students,” Proceedings of the 2007 ASEE Annual Conference and Exposition, Honolulu, HI, June, 2007.
- DAVIS, Ruth, with Kieran Sullivan, “Why Do/Don’t They Stay: Preliminary Results of an Engineering Retention Study,” Proceedings of the International Conference on Engineering Education and Research, Melbourne, Australia, December 2–7, 2007.

- SCHAECKELER, Stefan, with Weijia Shang and Ruth Davis, “Visualization of Procedural Abstraction,” Proceedings of the Fifth Program Visualization Workshop, Madrid, Spain, July 3–4, 2008.
- DAVIS, Ruth E., with Patti Fyelling Rimland, Drazen Fabris, Tim Healy, and Mark Aschheim, “Community-Based Projects Provide Motivation, Experience, and Opportunity for Global Collaboration,” Proceedings of the 7th ASEE Global Colloquium on Engineering Education, Cape Town, South Africa, October 19-23, 2008.
- DAVIS, Ruth E., “Intentional, Integrated Learning for Engineering Students,” in Proceedings of the Transforming Engineering Education Conference sponsored by ASEE and IBM, Dublin, April 6–9, 2010.
- KRISHNAN, Shoba, with Ruth Davis, Marco Bravo, and Melissa Gilbert, “Projects Integrating Sustainability and STEM Outreach,” Proceedings of the ASEE Pacific Southwest Region Conference, Fresno, CA, March 31 – April 2, 2011.
- ALLEN, John, with Ruth Davis, “. . . and a Little Child Shall Lead Them,” in Proceedings of the International Conference on Engineering Education, Belfast, Northern Ireland, August 21 – 26, 2011.
- DAVIS, Ruth with Christopher Kitts, “Design Thinking, a Pathway to Intentional Learning,” in Proceedings of the International Conference on Engineering Education, Belfast, Northern Ireland, August 21 – 26, 2011.
- KRISHNAN, Shoba, with Ruth Davis, “Engineering Projects for the Community,” in Proceedings of the International Conference on Engineering Education, Belfast, Northern Ireland, August 21 – 26, 2011.

Workshops and other formal presentations

- DAVIS, Ruth E. “How Pure Are We and How Much Does It Matter?” I was one of less than 30 researchers in North America invited to the Logic Programming Workshop in Syracuse, New York, April, 1981.
- DAVIS, Ruth E. Discussant on Panel in Workshop on Software Engineering Education at the 13th International Conference on Software Engineering, Austin, Texas, May, 1991.
- DAVIS, Ruth E. “Formal Specification of Abstract Data Types.” Presented at the NSF Formal Methods Curriculum Development Workshop, Hamilton College, Clinton, New York, August, 1994.
- DAVIS, Ruth E. “Formal Specification and Advanced Data Structures.” Presented at the NSF sponsored workshop, Exploring Formal Methods in the Computer Science Curriculum, Stevens Institute of Technology, Hoboken, New Jersey, July, 1996.
- DAVIS, Ruth E. with Catherine Bell. Acceptance Speech for Ralph S. Brown Award for University Governance, June, 1999. In February, 2000, I was asked to send this to the AAUP for publication in their newsletter.
- DAVIS, Ruth E. with Melissa McClaren. “Engaging Women’s Visions for Useful Technology Innovations.” (Refereed, but no proceedings published.) Workshop based on paper was presented at the Conference on Women and Gender in Science, Medicine, and Technology: Writing the Past, Claiming the Future, St. Louis, MO, October, 2000.
- PITT, Daniel with Ruth Davis. “Engineering at Santa Clara University: Jesuit Values in Silicon Valley.” Conference on the Role of Engineering at a Catholic University, Dayton, Ohio, September 22–24, 2005.
- HELLEBRANDT, Josef, with Ruth Davis and Cynthia Mertens. “Carnegie’s New Community Engagement Classification: A Pilot Perspective.” Presented at the American Association of Colleges and Universities’ conference on The Civic Engagement Imperative, Providence, Rhode Island, November 10–12, 2005.
- DAVIS, R. “Importance of Diversity in Computer Science: Some Data, Some Experience, Some Suggestions.” Presented at Victoria University of Wellington, May 4, 2006.
- DAVIS, R. “Gender Diversity in Computer Science: Some Data, Some Experience, Some Suggestions.” Presented at University of Technology, Sydney, Australia, June 15, 2006. (This was a modified version of the talk given at Victoria University, it excluded New Zealand data and included more about Australia.)
- DAVIS, R. “Importance of Diversity in Computer Science: Some Data, Some Experience, Some Suggestions.” Updated version presented at UCSC. April 2007.

SULLIVAN, Kieran, with Ruth E. Davis, "Increasing Retention of Women Engineering Students," 6th ASEE Global Colloquium on Engineering Education, Istanbul, Turkey, October 1-4, 2007.

DAVIS, Ruth, "TIDE: Technology Innovation for Diverse Excellence," HP and ISTE (International Society for Technology in Education) sponsored conference on Teaching, Learning, and Technology in Higher Education, La Jolla, California, Feb 17-19, 2008.

DAVIS, R. "Web Design and Engineering major", Un-poster session at NCWIT Annual meeting, Portland, May 18-20, 2010.

DAVIS, Ruth, with Shoba Krishnan, "Pathways to Meaningful Learning," poster presentation at NSF CCLI Annual Grantee meeting, Washington, D.C., January 26 - 28, 2011.

Grants received since 2000

(Support 1980 - 1999 can be summarized as:

\$32,000 in SCU Internal grants

\$1,400,000 in equipment, software, maintenance and support, from Xerox Corporation, Hewlett-Packard, and Intellicorp

\$37,000 from Defense Information Systems Agency

\$127,000 from National Science Foundation

1,485DM from the NATO Science Committee)

TITLE: Retention Study for Women in Engineering
SPONSOR: Center for Science, Technology, and Society
AMOUNT: \$8,000.00
DATE: 2000

TITLE: IWT Virtual Development Center for SCU
SPONSORS: Institute for Women and Technology, and Hewlett-Packard
AMOUNT: \$63,000 in HP Equipment
+ payment for consultants in Workshops
DATE: 2001 - 2002

TITLE: IWT Virtual Development Center for SCU
SPONSOR: Center for Science Technology and Society
AMOUNT: \$35,000
DATE: 2000 - 2004

TITLE: IWT Virtual Development Center for SCU
SPONSOR: Cisco Systems
AMOUNT: \$10,000 in Equipment
DATE: 2002

TITLE: IWT Virtual Development Center for SCU
SPONSOR: Engineering School, Dean
AMOUNT: \$1500
DATE: 2002

TITLE: HP Travel Grant to FIE and Retention Workshop
SPONSOR: Hewlett Packard
AMOUNT: \$6000
DATE: 2003

P.I.: Ruth E. Davis
co-PI's: Mark Ascheim, Drazen Fabris, Timothy Healy
TITLE: CLEER: Community Learning Enabling Engineering Reform
SPONSOR: National Science Foundation
AMOUNT: \$98,531.00
DATE: 2004

P.I.: Ruth E. Davis
co-PI's: Dennis Gordon
TITLE: Establishing Distance Learning and Overseas Studies Opportunities in El Salvador and London
SPONSOR: SCU Technology Steering Committee
AMOUNT: \$82,578.00
DATE: 2005

P.I.: Ruth E. Davis
TITLE: Mentoring Students Toward Sustainability
SPONSOR: Intel Foundation
AMOUNT: \$20,000.00
DATE: 2006

P.I.: Ruth E. Davis
co-PI's: Mark Aschheim, Drazen Fabris, Tim Healy
TITLE: TIDE: Technology Innovation for Diverse Excellence
SPONSOR: Hewlett Packard
AMOUNT: \$68,000.00
DATE: 2007

P.I.: Ruth E. Davis
co-PI: Shoba Krishnan
TITLE: Pathways to Meaningful Learning
SPONSOR: National Science Foundation
AMOUNT: \$150,000.00
DATE: 2008

P.I.: Ruth E. Davis
TITLE: Using Concept Mapping Software to Set the Context for Meaningful Learning
SPONSOR: SCU Technology Steering Committee
AMOUNT: \$3,101.00
DATE: 2008

P.I.: Christopher Kitts
co-PI: Ruth Davis
TITLE: Kern Entrepreneurship Education Network
SPONSOR: Kern Family Foundation
AMOUNT: \$50,000.00
DATE: June 2008

P.I.: Dennis Smithenry
co-PI's: Melissa Gilbert, Ruth Davis, Craig Stephens
TITLE: SCU Robert Noyce Teacher Scholarship Program
SPONSOR: National Science Foundation
AMOUNT: \$750,000.00
DATE: September 2008

P.I.: Daniel W. Lewis
co-PI's: Ruth Davis, Pedro Hernandez-Ramos, C. Blackburn
TITLE: Special Project: Expanding the Impact of Computer Science in Silicon Valley High Schools and Facilitating
SPONSOR: National Science Foundation
AMOUNT: \$380,928 (380,475 year 2, 227,190 year 3)
DATE: Dec 2009

P.I.: Christopher Kitts
co-PI: Ruth Davis
TITLE: The Entrepreneurial Mindset at Santa Clara University — a KEEN proposal
SPONSOR: Kern Family Foundation
AMOUNT: \$341,000 (379,000 year 2, 422,000 year 3)
DATE: October 2010

P.I.: Daniel W. Lewis
co-PI's: Ruth Davis, Pedro Hernandez-Ramos
TITLE: GK-12: A symbiotic Exploration of Computer Science in High School Classrooms
SPONSOR: National Science Foundation
AMOUNT: \$852,000.00
DATE: September, 2011

Memberships in Professional Organizations

American Society for Engineering Education

Association for Computing Machinery, Distinguished Scientist

Institute of Electrical and Electronic Engineers (IEEE), senior member
IEEE Computer Society

Society of Women Engineers (SWE), senior member
Santa Clara Valley SWE

Computer Professionals for Social Responsibility

INSEIT, International Society for Ethics and Information Technology

iNEER, International Network for Engineering Education and Research

WEPAN, Women in Engineering ProActive Network

Professional Service

- Society of Women Engineers:
 - Faculty Advisor to Santa Clara Student Chapter of SWE (84–2007)
 - Participated in panels at conferences.
 - Served on committees on Women in Academia and Student Sections and Awards
 - Helped with organization of getSET (get Science, Engineering, and Technology) program when offered at SCU, 94, 95, 97, 2000 – 2010.
 - Judge of projects at Santa Clara County Science Fairs
- IEEE Computer Society:

- Circulation Promotion and Advertising Advisory Committee (86–87)
- Technical Activities Board, Task Force on the Future of Computing (87)
- Review committee for ACM/IEEE-CS Joint Curriculum Task Force (88–90)
- Member of the Review Team for the Guide to the Software Engineering Body of Knowledge project, in areas of Software Engineering Process and Software Requirements Analysis, 1999– .
- Educational Activities Board (89 –)
- Design Education 199X task force (92 – 97)
- Chaired technical session at the Frontiers In Education Conference (95)
- Board of Directors, California Educational Computing Consortium (86–88)
- Advisory Panel for "Real Science!", an Emmy award-winning national PBS series designed to get preteens and teens interested in pursuing science and technology careers (03 – 05)
- Advisory Board for AAUW's STEM Savvy Publication Dissemination Project (03 – 05)
- Anita Borg Institute for Women and Technology - served on program committees for GHC, co-chair for TechLeaders Workshop (2007), advisor to Institute Board
- Served on review panel for SMART Scholarship Program of the Department of Defense
- National Science Foundation review panels:
 - CISE Institutional Infrastructure (Minority Institution) grants
 - Undergraduate Curriculum and Course Development in Eng, Math, and the Sciences
 - Educational Infrastructure
 - Broadening Participation in Computing
 - Program for Gender Equity in Science, Mathematics, Engineering, and Technology
 - Computer and Computation Research
 - * Small Business Innovation Research
 - * Computational Logic and Automated Deduction
 - * Software Engineering and Languages
 - * Topology and Foundations
- Reviewed Technical Articles, Manuscripts, and/or Proposals, (and served as session chair for several of the conferences) for the following publishers, journals, conferences, and institutions:

Prentice-Hall

Springer-Verlag

Addison-Wesley

Academic Press

CBS College Publishing

Kluwer Academic Publishers

Little, Brown and Company

W.H. Freeman and Company

Wiley Interscience Division

IEEE Software

IEEE Computer

IEEE Transactions on Software Engineering

Journal of Logic Programming

Journal of Symbolic Computation

ACM Symposia on LISP and Functional Languages
IEEE International Symposiums on Logic Programming
Hawaii International Conferences on System Sciences
1994 International Conference on Tools with Artificial Intelligence
ACM Symposia on Applied Computing
International Association of Science and Technology for Development
International Conference on Engineering Education and Research
International Parallel Processing Symposium
International Workshop on Software Engineering and Multimedia Applications
Frontiers In Education Conferences
ASEE Annual Conferences
National Computer Symposia: Multimedia, Computer Graphics and Image Processing
Software Engineering Applications Conferences
Western Educational Computing Conferences
University of San Francisco
SUNY, Buffalo
Louisiana Board of Regents
University of Colorado
International Network for Engineering Education and Research
WEPAN National Conferences
Grace Hopper Celebration of Women in Computing conferences

University Service

- Department of EECS then Computer Engineering:
 - Faculty Search Committees (80–82, 83–86, 88–89, 93, 97, 00)
 - Curriculum Committee (81–present)
 - ABET Committee (88–89, 01 – 07, 09 – 10)
 - PhD Preliminary Exam (89–92, 97–99)
 - Representative to the Academic Alliance of the National Center for Women in Information Technology (04–present)
 - Developed successful proposal to make department a founding member of Pacesetters, and serve as representative to same
 - JETT - Java Engagement for Training Teachers (summer course, 2005)
 - Coordinated study of trends in computing, Student Experience of the Major survey
 - Helped manage grad program offerings in software engineering and theory
 - drafted proposal for name change from COEN to Computer Science and Engineering
- School of Engineering:
 - SCU Coordinator for MentorNet (03 – present)
 - ABET Coordinator (01 – 06)
 - Grievance Committee (87–90, 94–97, 99–02)
 - Honor Code Committee (85–88, 97–00)
 - Engineering Student Honor Court (97 - 99)
 - Minority Engineering Program, Industry Advisory Board (93–99, 2000–present)
 - Summer Engineering Seminar, program for minority and women high school students (91 – present)

- Rank and Tenure Committee (86–89, 05–08)
- Undergraduate Programs Committee (88–90)
- National Youth Leadership Forum/Technology (04–07)
- VDC Director, the Virtual Development Center is a program in cooperation with the Anita Borg Institute for Women and Technology (99–2006)
- Participant in WELI (04–present)
- Institutional representative for WEPAN
- University:
 - Faculty Senate Council (86–88, 93–96)
 - Faculty Benefits Committee (Jan 89 — 94)
 - Faculty Personnel Committee (member 89–90, chair 90–92, member 94–95)
 - University Anti-Harassment Policy Committee, then Discriminatory and Sexual Harassment Task Force (Jan–Oct 92, then 93–95)
 - Harassment Grievance Committee Pool (95 – present)
 - University Diversity Committee (93–94)
 - Faculty Senate President, Elect, and Past (93–96) and (08–11)
 - Faculty Senate Task Force on Governance, and follow-up evaluation committees (Summer 93 – 97)
 - Enrollment Task Force (93–95)
 - University Governance Task Force, then Evaluation Com (94 – 97, 03 – 04)
 - Planning Action Team (94–95)
 - University Coordinating Committee (94–95, 01-03)
 - Sabbatical Policy Revision Task Force (95–96)
 - Sabbatical Review Committee (95–96)
 - University Planning Council (May 95 – 97)
 - University Policy Committee on Faculty Affairs, chair (97–99), member (97-00)
 - Center for Science, Technology, and Society, steering committee (97 - present)
 - Faculty Handbook Revision Committee (98 – 03)
 - Faculty Associate with the Center for Multicultural Learning (99–present)
 - Affiliated Faculty with the Program for the Study of Women and Gender (99–06)
 - Governing Board, Program for the Study of Women and Gender (99 – 03)
 - Gender Climate Task Force (00 – 03)
 - ad hoc committee to propose improved flexibility for faculty to Sloan Foundation (2007)
 - University Campus Advocate - for students who are victims of harassment or hate crimes (06 – present)
 - Academic Integrity Committee (06 – present)

Community Service

- Activities related to Lexington Fire Relief (summer 85)
- Loma Prieta Home and School Club (86–98)
- C.T. English Home and School Club (92–01)
- Los Gatos High School Parent, Teacher, Student Association (95–05)
- Kids on Campus (89–92), Board of Directors (91–92)
- Several activities related to Loma Prieta Quake Relief (89–90)

- Career presentations at Bay Area middle and high schools
- Easter-time efforts for people at Loaves & Fishes Family Kitchen
- Mentor and selection committee for the Valley Scholars Program (94–04)
- Women of Vision for the Tech Museum
- Vega Project : with Notre Dame High School and the Tech Museum
- Work with GAINS (Girls Achieving in Nontraditional Subjects) program of the Santa Clara Unified High School District
- Presentations on Gender Diversity in Computing