

## Curriculum Vitae

Name: Robert Stephen Cunningham

Date: December 2010

### *Education:*

Oregon State University, Corvallis, Oregon  
University of Oregon, Eugene, Oregon

MS, Computer Science, 1982  
MA, Mathematics, 1966  
Ph.D., Mathematics, 1969  
BA cum laude, Mathematics, 1964

Drury College, Springfield, Missouri

### *Professional Experience:*

Brown Cunningham Associates  
Grinnell College  
Oregon State University  
National Science Foundation

Principal; author and consultant, 2005-current  
Noyce Visiting Professor of Computer Science, 2006  
Research Professor of Computer Science, 2004-05  
Intermittent Expert, 2009  
Program Director, EHR/DUE, 2003-2005

California State University, Stanislaus

Professor Emeritus, 2005-current  
Gemperle Distinguished Professor, 2001-04  
Professor of Computer Science, 1986-2004  
Associate Professor of Computer Science, 1982-86  
Visiting Scientist, 1999-2000  
Associate Professor of Computer Science, 1979-82  
Associate Professor of Mathematics, 1975-79  
Assistant Professor of Mathematics, 1974-75  
Assistant Professor of Mathematics, 1969-1974

San Diego Supercomputer Center  
Birmingham-Southern College

University of Kansas

### *Selected Honors, Awards, and Grants:*

ACM SIGGRAPH Outstanding Service Award, 2004  
California State University Stanislaus, Gemperle Distinguished Professor, 2001  
California State University Stanislaus, Outstanding Professor in Research, Scholarship, and Creative Activities, 2001  
Eurographics, elected Fellow, 1998

### National Science Foundation:

CISE/CCF travel grant for computer graphics education workshops, 2006  
DUE/CSEMS award to CSU Stanislaus (2003) and Oregon State University (2004) to fund NSF IPA assignment  
DUE/CCLI Educational Materials Development Program, 1999  
CISE travel grant for GVE 99 workshop (co-PI), 1999  
Instructional Laboratory Improvement Program, 1988  
Science Faculty Professional Development Program, 1980  
Local Course Improvement Program, 1978  
Instructional Scientific Equipment Program, 1976  
Traineeship, University of Oregon, 1968

### *Professional Organizations, Selected Activities:*

#### Association for Computing Machinery

- Chair, search committee for Editor in Chief, ACM Transactions on Graphics, 2002
- SIG Governing Board, 1998-99, nominating committee, 1998, 1999
- SIG Board, member-at-large, 1997-98
- Reviewer, 1989 ACM/IEEE-CS Computer Science Curriculum Recommendations

## ACM SIGGRAPH

- Conference Committee, SIGGRAPH Asia 2010
- Co-Chair or program co-chair, Computer Graphics Education workshops: CGE09, Munich, March 2009; CGE06, Vienna, September 2006; CGE04, Hangzhou, China, June 2004; CGE02, Bristol, UK, July 2002 (all co-sponsored by Eurographics)
- Past President, 1999–2002
- Chair, 1995–99
- Finance Committee, 1992–2002
- Conference Advisory Group, 1996-99
- Director for Publications, 1991–95: Created SIGGRAPH electronic publishing program and created SIGGRAPH Books series with ACM Press Books and Addison-Wesley
- SIGGRAPH Conference Committees, 1991–1995, 1997–1999
- Educators' Program Chair, SIGGRAPH '91, creating the first formal educators' program for the SIGGRAPH annual conference
- SIGGRAPH Education Committee, 1983–90; Chair, 1984–90

## European Association for Computer Graphics (Eurographics)

- Co-chair, conference education programme, Eurographics 2003, 2004, 2008
- Education Board, appointed Chair to create this Board for the association, 2002-2003; member 2002–current
- Executive Board, 2002–2003
- Executive Committee, elected member, 2000–2005
- Conf. Committee, Workshop on Graphics and Visualization Education, Portugal, 1999
- International Programme Committees, seven conferences, 1992–97

## ACM SIGCSE

- Board of Directors, elected member, 1991–93
- ITiCSE conference, Working Groups co-chair, 2009, Paris, Tips and Techniques co-chair, 2011, Darmstadt

## Mathematical Association of America

- Board of Governors, Governor-at-Large, 1990–93
- Editorial Board, The College Mathematics Journal, 1983–88

## IFIP Working Group 5.10, Computer Graphics

- Co-Chair, IFIP Computer Graphics and Education '91 Conference, Begur, Spain, 1991

## Other

- Program co-chair, WSCG08, Plzen, Czech Republic, February 2008
- Co-chair, Edutainment '06 conference, Hangzhou, China, April 2006, and co-chair of the Education Symposium held at that conference
- International Program Committees: GraphiCon '92, '97, 2000, 03, 07, 08 (Moscow); '93, '95, '10 (St. Petersburg); co-program chair, 03. CAD/Graphics '93 (Beijing). Winter School of Computer Graphics (Plzen, Czech Republic), '95, '97. Electronic Publishing and the Information Superhighway, '95 (Boston). VRML '95 (San Diego). Computación Visual 98 (Mexico City), Visual 2000 (Mexico City). Afrigraph 2001 (Cape Town, South Africa). VRAI 02 (Hangzhou, China); 06 (Hong Kong). CNIV 06 (Bucharest). ACM Graphite 05 (Dunedin, NZ); 06 (Kuala Lumpur, Malaysia).
- Council on Undergraduate Research, 2006, 07, 09, 10: Proposal Writing Institute, facilitator in computer science

## *Publications:*

### Journals

- Editorial Board, *ACM Journal of Educational Resources in Computing (JERIC)*, 2000-03

- Editor, *Computer Graphics*, 1991–92
- Software Reviews Editor, *The College Mathematics Journal*, 1983–88

#### Books:

- *Graphics Shaders: Theory and Practice* (with Mike Bailey), AK Peters, 2009, second edition in preparation.
- *Computer Graphics: Programming in OpenGL for Visual Communication*, Prentice-Hall, 2007
- *Electronic Publishing on CD-ROM* (with Judson Rosebush), O'Reilly and Associates, 1996
- *Interactive Learning Through Visualization—The Impact of Computer Graphics in Education* (ed. with Roger Hubbard), Springer-Verlag, 1992
- *Computer Graphics Through Object-Oriented Programming* (ed. with N. Craighill, M. Fong, and J. Brown), Wiley, 1992
- *Visualization in Teaching and Learning Mathematics* (ed. with Walter Zimmermann), MAA Notes Number 19, Mathematical Association of America, 1991
- *User Interface Programming: Principles and Examples* (with Judith R. Brown), Wiley, 1989
- Series Editor, SIGGRAPH Books series, with ACM Press Books and Addison-Wesley, 1992–95

#### Journal special issues and production work:

- Guest co-editor, special issue of *IEEE Computer Graphics & Applications* on computer graphics and education, October 2005
- Production editor for *Invention and Impact: Building Excellence in Undergraduate Science, Technology, Engineering and Mathematics (STEM) Education*, AAAS Press, 2005
- Production editor for annual SIGGRAPH Proceedings, 1992-94; SIGGRAPH Conference Proceedings CD-ROM, 1993-96; four SIGGRAPH small conference proceedings, 1992-94
- *Computer Graphics Career Handbook* (ed with J. Brown, L. Carey Halas, C. Keith, and S. Keith), published as a special issue of *Computer Graphics* 23[1] (February, 1989)

#### Research and technical papers:

- Asymmetric Error Correcting Codes (with Bella Bose), in *Sequences II: Methods in Communication, Security, and Computer Science*, Renato Capocelli et al, eds, Springer-Verlag, 1993
- 3D Viewing and Rotation Using Orthonormal Bases, in *Graphics Gems*, Andrew Glassner (ed.), Academic Press, 1990, 516-521
- On Asymmetric Error Correcting Codes (with B. Bose), Technical Report, Oregon State University, 1982
- Perfect Modules (with E. A. Rutter, Jr.), *Math. Zeitschrift* 140(1974), 105-110
- On Finite Left Localizations, *Pacific J. Math.* 51(1974), 407-415
- Rings of Quotients of Endomorphism Rings of Projective Modules (with E. A. Rutter, Jr. and D. R. Turnidge), *Pacific J. Math.* 41(1972), 647-668
- The Double Centralizer Property is Categorical (with E. A. Rutter, Jr.), *Rocky Mtn. J. Math.* 2(1972), 627-629
- Strongly Separable Pairings of Rings, *Trans. Amer. Math. Soc.* 148(1970), 399-416

#### Invited chapters in books:

- A Publisher's Point of View on Electronic Publishing, in *Digital Media and Electronic Publishing*, R. Earnshaw et al., eds., Harcourt Brace, 1996, 1–7

- Computer Science, edited chapter in *Library Recommendations for Undergraduate Mathematics*, Mathematical Association of America, Lynn Arthur Steen (ed), MAA Reports 5, 1992
- The Visualization Environment for Mathematics Education, in *Visualization in Teaching and Learning Mathematics*, Zimmermann & Cunningham (eds.), Mathematical Association of America, 1991, 67–76
- Visualization in Science and Engineering Education (with Judith R. Brown and Mike McGrath), in *IEEE Tutorial: Scientific Visualization*, Gregory M. Nielson and Bruce Shriver (eds.), IEEE Computer Society Press, 1990, 48–57
- Choosing Computers and Software, in *Resources for Secondary and Junior College Mathematics Education*, Garland Publishing, 1988, 227–244
- Evaluating Mathematical Software, in *Computers and Mathematics: The Use of Computers in Undergraduate Instruction*, MAA Notes No. 9, 1988, 13–17

#### Selected Articles:

- Teaching Computer Science in Context (with Steve Cooper), invited editorial, *ACM Inroads*, March 2010
- Teaching Computer Graphics in Context: Computer Graphics Education 09 Workshop (with Colleen Case), at <http://education.siggraph.org/media/reports/CGE09-Workshop-Report.pdf>
- A History of ACM SIGGRAPH (with Judith R. Brown), *Communications of the ACM*, 50(5), May 2007, 54-62
- Report of the CGE 06 Computer Graphics Education Workshop, (with Jean-Jacques Bourdin, Marta Fairén, and Werner Hansmann), at <http://education.siggraph.org/conferences/eurographics/2006/cge-06-report-pdf/view>
- Visualization in Science Education, in *Invention and Impact: Building Excellence in Undergraduate Science, Technology, Engineering and Mathematics (STEM) Education*, AAAS Press, 2005, 127-128
- The Beginning Computer Graphics Course in Computer Science (with Werner Hansmann, Cary Laxer, and Jiaoying Shi), *Computer Graphics* 38(4), 2004, 24-25
- Building Computer Graphics in Southern Africa (with Sampson Asare and Petros Mashwama), *Computers & Graphics*, 27(2003)
- Lessons from Scene Graphs: Using Scene Graphs to Teach Hierarchical Modeling (with Michael J. Bailey), *Computers & Graphics* 25 (2001), pp 703-711
- Re-Inventing the Introductory Computer Graphics Course: Providing Tools for a Wider Audience, *Computers & Graphics*, v. 24(12), April 2000, pp 293-296
- GVE '99: Report of the 1999 Eurographics/SIGGRAPH Workshop on Graphics and Visualization Education, *Computer Graphics* 33(4), November 1999, pp. 96-102 and *Computer Graphics Forum*, 19(1), March 2000, pp. 86–93
- Outside the Box — The Changing Shape of the Computing World, invited editorial, *SIGCSE Bulletin* 30(4), December 1998, 4a-7a
- Computer Graphics: From “Interactive” to “Collaborative” (with Judith R. Brown), invited special article, *Interactions*, volume 4, July/August 1997, 88-87
- Electronic Publishing Today and Tomorrow (in Russian), in *Open Systems Journal*, 13:5, 1995, 69–75
- Some Strategies for Using Visualization in Mathematics Teaching, invited article for the *Zentralblatt für Didaktik der Mathematik* 26:3 (June 1994), 83–85
- ACM SIGGRAPH and Computer Graphics Education in the United States (in Russian), *Programmovatnye (Programming), the Computer Science Journal of the USSR Academy of Sciences*, 4 (March/April 1991), 41–49

- Computer Graphics in Computing Curriculum 1991, *Computer Graphics*, 25:3 (July, 1991), 208–210
- Visualization in Higher Education (with Judith R. Brown), *Academic Computing* 4 (March, 1990), 24–25, 41–45, 59
- Eurographics Teaching Activities in the U.K. for Computer Graphics Education (with K. Brodli, T.L.J. Howard, and C. Ruggles), *Computer Graphics*, 24 (January, 1990), 68
- Writing Grant Proposals (with Judith R. Brown), *Computer Graphics* 23 (August, 1989), 273–274
- Varieties of Computer Graphics Courses in Computer Science (with Judith R. Brown, Robert P. Burton, and Mark Ohlson), *SIGCSE Bulletin*, 20 (February 1988), 313
- The Compleat Mathematics Software Database (with David A. Smith), *The College Mathematics Journal* 19 (1988), 268–289
- Computer Graphics Education Directory, *Computer Graphics* 18(1984), 129–159; *Computer Graphics* 19 (1985), 113-150; *Computer Graphics* 21(1987), 253–280
- Computing and Computer Science in the Liberal Arts College, *SIGCSE Bulletin* 15 (1983), 24–25
- A Statistics Laboratory Using Computer Graphics, *J. Coll. Science Teaching* 9 (1979), 31-33

Selected Conference Publications and Presentations:

- Teaching and Learning in the Internet World, invited keynote, ICICSE09, Harbin, China
- Introduction to Computer Graphics Shaders, half-day course, with Mike Bailey, SIGGRAPH Asia 08, Singapore; SIGGRAPH Asia 10, Seoul; SIGCSE 09
- Computer Graphics in Context: An Approach to a First Course in Computer Graphics, SIGGRAPH Asia 2009 Educators Program, Singapore, December 2008, Article 1
- Introduction to Computer Graphics, half-day course, with Mike Bailey, SIGGRAPH Asia 08, Singapore
- The Art of Proposal Writing, half-day course, SIGGRAPH 08; presenter with Barb Helfer (organizer), Larry Rosenblum, and Mike McGrath
- Workshop on Shader Programming (with Mike Bailey), SIGGRAPH 07 education program
- Tutorial on Computer Graphics Shaders, with Mike Bailey, ASME, 2008
- A Hands-on Environment for Teaching GPU Programming (with Mike Bailey), *Proceedings of the SIGCSE 2007 Technical Symposium on Computer Science Education*, 254-258
- The Beginning Course in Computer Graphics in a Computer Science Program (with Werner Hansmann, Cary Laxer, and Jiaoying Shi), Eurographics 2004 conference, Grenoble, France, August 2004
- Computer Graphics in Undergraduate Computational Science Programs (with Angela B. Shiflet), *Proceedings of the SIGCSE 2003 Technical Symposium on Computer Science Education*, 372-375
- New Media and Future Education (with Alan Chalmers), East-West Vision Conference, Graz, Austria, September 2002
- Computer Graphics: New Contents, New Audiences, Eurographics/SIGGRAPH computer graphics education workshop, Bristol, UK, July 6-7, 2002
- Building Computer Graphics Education in Developing African Countries (with Sampson D. Asare and Petros Mashwama), SIGGRAPH 2002 *Conference Abstracts and Applications*, July 2002, pp. 46-48
- Graphical Problem Solving and Visual Communication in the Beginning Computer Graphics Course, *Proceedings of the SIGCSE 2002 Technical Symposium on Computer Science Education*

- Projects for a Computer Graphics Programming Course, SIGGRAPH 2000 Conference Abstracts and Applications, July 2000, pp. 56-59
- Powers of 10: The Case for Changing the First Course in Computer Graphics, Proceedings of the SIGCSE 2000 Technical Symposium on Computer Science Education, Austin, TX, March 2000, pp. 293-296
- User Interface Programming: A Human-Computer Communication Course for Computer Science, Proceedings of the SIGCSE Technical Symposium on Computer Science Education, 1991, 330–336
- Visualization in Computational Science and its Educational Implications, Proceedings of the November, 1990 CSU, Pomona Conference on Computational Science in Industry and the Comprehensive University, 25–30

#### Other

- Preface for *Visualizing Quaternions*, Andrew J. Hanson, Morgan Kaufmann, 2006

#### Organized and Invited Presentations:

- Panel, “A Discussion of the CGE06 Workshop Report: A Computer Graphics Curriculum that Addresses the Bologna Requirements”, Eurographics 07, Prague
- Panelist, “Teaching Computer Graphics without Raster-Based Algorithms,” SIGCSE 2006 Technical Symposium on Computer Science Education, Houston, TX
- Panel, “Outcomes-Based Course Definition,” SIGCSE 2005 Technical Symposium on Computer Science Education, St. Louis, MO
- Several presentations on NSF DUE programs to support undergraduate education in computer science, 2003-2005
- Workshop on teaching computer graphics, University of Botswana, Gaborone, Botswana, June 24–28, 2002; University of São Paulo, Brazil, February 3–7, 2003; SIBGRAPI conference, Manaus, Brazil, 2006; Fall School of Visual Computing, Mexico City, 2006
- Workshop on the computer graphics course for computational science (with Angela B. Shiflet), Supercomputing 2002, Baltimore, MD, November 2002
- Panel, “Undergraduate Computational Science and Engineering Programs and Courses,” SIGCSE 2002 Technical Symposium on Computer Science Education, Covington, KY
- Panel, “Computer Graphics Education in Southern Africa,” Afrigraph 2001, Cape Town, South Africa, November 2001
- Panel, “The Beginning Computer Graphics Course,” Eurographics 2001, Manchester, England
- Half-day workshop, “The Beginning Computer Graphics Course,” SIGCSE 2001 Technical Symposium on Computer Science Education, Charlotte, NC
- Panelist on Computer Graphics in Computing Curriculum 2001, Winter School of Computer Graphics, Plzen, Czech Republic
- Invited speaker on the computer graphics curriculum, Symposium of the Consortium for Computing in Small Colleges–Northwest, Portland, OR, October 2000
- Mini-symposium on undergraduate programs in computational sciences, SIAM Symposium on Computational Science, Washington DC, September 2000
- Colloquium on computer graphics in the computational sciences, San Diego State University, November 1999; Oregon State University, October 2000; Grinnell College, April 2001
- Panelist on curricula for beginning computer graphics courses, SIGGRAPH 99, Los Angeles
- Panelist on curricula for the first computer graphics course in computer science, SIGCSE Technical Symposium on Computer Science Education, New Orleans, 1999
- Invited plenary presentation, The Role of Professional Societies in Supporting Education, GraphiCon 98 Educators’ Program

Invited presentation, Electronic Publishing in the Technical World, Computación Visual 97 conference, Mexico City

Invited State of the Art presentation, Electronic Publishing, GraphiCon '95, St. Petersburg, Russia

Invited keynote speaker, Digital Media and Electronic Publishing conference, British Computing Society, Leeds, England, 1994

Tutorials on electronic publishing and CD-ROM: How To Publish Your Own CD-ROM, SIGGRAPH 94; CD-ROM Publishing, Digital Media and Electronic Publishing conference, British Computing Society, Leeds, England, 1994; Electronic Publishing on CD-ROM, SIGGRAPH 95, 1995; Electronic Publishing for the Technical Community, GraphiCon 96, St. Petersburg, Russia, 1996; Developing and Publishing High-Quality Electronic Documents for CD-ROM, SIGDOC 96 conference,

1996 Invited paper on CD-ROM production for conference proceedings, Documents System section of the conference of the Society for Imaging Science and Technology (IS&T), 1994

Invited presentation on Visualization in Mathematics: Pacific Northwest Computer Graphics Conference, 1990; University of Washington, 1991; University of Puget Sound, 1991; New York Chapter of ACM SIGGRAPH, 1991; De Paul University, 1992; University of Maryland, 1993

Invited speaker at UK Eurographics workshop on computer graphics education, University of Leeds, 1989

Organized invited paper session on parallel processing in computer graphics and image processing at SIGGRAPH request, ACM Computer Science Conference, February, 1989

Invited speaker, Symposium on Visualization in Scientific Computing: Trends, Tools, and Techniques, Princeton University, 1988

Organized invited panel on teaching computer graphics, SIGCSE Technical Symposium, 1988

Invited panelist on computer graphics education at Eurographics '86, Lisbon, Portugal

Organized and directed 3-week MAA workshop on computer graphics for mathematicians, summer 1986

Professional Development Seminar, Computer Graphics Techniques, Spokane, Washington ACM chapter, 1986; later presented at Applications on the Leading Edge conference, Eugene, Oregon, 1986; SIGCSE Technical Symposium, 1988; ACM Chapter, CSU Fresno, 1990

Organized invited panel on evaluating mathematical software, annual MAA meetings, 1986

Organized panel on Computer Graphics Education for 1985 SIGCSE Technical Symposium

## *Achievements:*

### Since retirement

Mike Bailey and I wrote a textbook for an undergraduate course on computer graphics shaders from AK Peters, published in 2009, and we are working on a second edition of this book. We have given conference courses based on this material at SIGGRAPH Asia (2008, 2010) and SIGCSE (2009). We have also given Introduction to Computer Graphics courses at SIGGRAPH Asia 2008 and 2010. I wrote a textbook for the beginning computer graphics course that was published by Prentice-Hall in 2007, and gave workshops on teaching computer graphics in Brazil and Mexico in 2006.

I was Noyce Visiting Professor at Grinnell College in spring, 2006. I have been co-chair of two conferences in China and in the Czech Republic and have been co-chair of several Eurographics conference education programmes. I was co-chair of the Working Groups program for ITiCSE 2009 in Paris and of the Tips & Techniques program for the ITICSE 2011 in Darmstadt, and was co-chair of the computer graphics education workshops in 2006 (for which I received an NSF travel grant to support participants from the US) and 2009. I work with the Council on Undergraduate Research annually on their summer proposal-writing institutes.

### National Science Foundation

I served as an Intermittent Expert with the DUE division of the EHR directorate in 2009 and was a full-time rotator in that division from 2003 to 2005. During that time I was computer science discipline lead on the CCLI EMD and A&I programs and second lead overall on the A&I program, second lead on the SFS program, and worked on the CSEMS, STEP, NSDL, and DTS programs. I presented NSF programs and talked with educators about their ideas and projects at several national and regional conferences on computer science education; some of these led directly to funded

projects. I was also production editor on the 2004 CCLI PI conference Proceedings.

### ACM SIGGRAPH

I co-created and co-chaired the SIGGRAPH Education Committee from 1983 to 1990, developing resources for computer graphics instructors, including directories of graphics courses; curriculum guidelines for computer graphics in several fields; the SIGGRAPH Career Handbook; several international events focused on education; and a grant program to provide conference fees for educators. I created and chaired the SIGGRAPH 91 Educators' Program, focused on issues in graphics instruction. This program was revived in 1995 and is now a part of the annual conference.

From 1991 until 1995 I managed SIGGRAPH's publications. I moved publications from being a one-person job to a committee with each person managing a focused set of publications. I managed most production areas long enough to understand them, then found a volunteer to join the committee and take over that area. My most innovative work was creating our electronic publishing program on CD-ROM. I guided SIGGRAPH publications through some tight financial years, from a budget of \$1.3 million the year before I took office to under \$500,000 within two years, still maintaining our quality and most of our products. By the end of my term I brought it back to \$800,000 while adding new print and electronic products, including fledgling online content.

I was elected SIGGRAPH chair in 1995 and worked to develop SIGGRAPH's values and goals, to integrate our annual conference more closely with the rest of our activities and to develop our model for managing the annual conference.

In 1999 I became SIGGRAPH Past Chair, leading SIGGRAPH nominations work as well as contributing to strategic development and other organizational work.

In recognition of my service I received the SIGGRAPH Outstanding Contributions Award in 2004.



### European Association for Computer Graphics

I have participated in Eurographics since the late 1980s and have worked to create closer ties between Eurographics and SIGGRAPH since then, including educational, policy, and publications activities. In 1998 I was elected Eurographics Fellow in recognition of these contributions, and in 1999 was elected to the Eurographics Executive Committee, reelected in 2002. In 2002 I was invited to chair a newly-created Eurographics Education Board to extend the educational activities of the Association, and in this position also serve on the Executive Board of the Association. I was on the EG 2003 conference committee as creator and chair of the conference program for computer graphics education, and was co-chair of the EG 04 and EG 08 education programmes. I helped organize the Eurographics/ SIGGRAPH computer graphics education workshops in 1999, 2001, 2004, 2006, and 2009, co-chairing several of these.

### CSU Stanislaus

I came to CSU Stanislaus to help found the Computer Science Department. I helped develop the curriculum and created several courses, and was PI on a 1988 NSF grant that helped us acquire the workstations that were the heart of our technical support in the late 1980s and early 1990s. I had a wide speaking and writing program that included several books, some technical papers, a number of articles, and extensive national and international conference work. In 2002 and 2003 I gave workshops on the beginning computer graphics course at the University of Botswana and the Technical University of São Paulo. I sponsored the student team that won the Pacific regional programming contest in 1983. In 1995 my student Brandon Fliflet won the statewide CSU undergraduate research award in computer science and engineering for an object-oriented animation system he developed under my direction, and in 1999 my student Ben Eadington placed second in

this statewide competition. In 1999 I received an NSF award to develop materials for a science focus in a beginning computer graphics course that helped fund a 1999-2000 sabbatical at the San Diego Supercomputer Center. In 2001 I was the first recipient of the Outstanding Professor in Research, Scholarship, and Creative Activities Award from the University, and was one of the first three faculty chosen as a Gemperle Distinguished Professor.

### Birmingham-Southern College

With the assistance of two NSF grants, one for equipment and one for curriculum development, I created a general statistics course that emphasized data visualization through laboratories that used computer graphics for data exploration (with the restrictions of 1970's computing and graphics systems). Based on that laboratory, I began to teach programming classes and, after an NSF-funded sabbatical, founded the computer science program at BS-C. A team of students from that program also went to the national programming contest in 1983; I may be the only person to have two teams from two different schools in one contest. I was also active in regional mathematics and computing organizations.

### University of Kansas

I taught primarily undergraduate courses in mathematics and had consistently high teaching evaluations from my students, ranking top in the department for a couple of terms. I also directed six Masters degrees in ring theory. I participated in an invitational ring theory seminar at the *Mathematisches Forschungsinstitut Oberwolfach* in Germany and had a modestly respectable research record.