# Susan H. Rodger
# Professor of the Practice

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## I. Education

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|---|---|---|---|
| Ph.D. | Computer Science | Purdue University | August 1989 |
| | Advisor: Greg Frederickson | | |
| M.S. | Computer Science | Purdue University | May 1985 |
| B.S. | Computer Science | North Carolina State University | May 1983 |
| B.S. | Mathematics | North Carolina State University | May 1983 |

## II. Professional Appointments

*Professor of the Practice*
September 2008–present. Duke University, Durham, NC.

*Director of Undergraduate Studies*
July 2015–present. Duke University, Durham, NC.

*Associate Professor of the Practice*
September 1997–August 2008. Duke University, Durham, NC.

*Director of Undergraduate Studies*
July 1998–June 1999. Duke University, Durham, NC.

*Assistant Professor of the Practice*
September 1994–August 1997. Duke University, Durham, NC.

*Assistant Professor*
September 1989–August 1994, Rensselaer Polytechnic Institute, Troy, NY.

*Teaching Assistant and Research Assistant*
August 1983–August 1989, Purdue University, West Lafayette, IN.

*Programmer*
May 1984–August 1984, International Business Machines, Raleigh, NC.

*Programmer*
May 1983–August 1983, International Business Machines, Raleigh, NC.

*Undergraduate Research Assistant*
August 1982–May 1983, North Carolina State University, Raleigh, NC.

*Systems Programmer*
December 1981–January 1983, University Systems Control Center, Raleigh, NC.

## III. Honors and Awards

ACM SIGCSE 2023 Award for Outstanding Contribution to Computer Science Education.

Purdue University Distinguished Woman Scholar, 2022.

NCWIT Undergraduate Research Mentoring Award, 2020.

One of the top 5 ITiCSE Working Group papers over the first 24 years of ITiCSE conferences. The paper is: Thomas L. Naps (co-chair), Guido Rossling (co-chair), Vicki Almstrum, Wanda Dann, Rudolf Fleischer, Chris Hundhausen, Ari Korhonen, Lauri Malmi, Myles McNally, Susan Rodger and J. Angel Velazquez-Iturbide, "Exploring the Role of Visualization and Engagement in Computer Science Education," Report of the Working Group on "Improving the Educational Impact of Algorithm Visualization", from the Seventh Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2002). (Award given in 2020).

IEEE Computer Society 2019 Taylor L. Booth Education Award

Duke University Trinity College 2019 David and Janet Vaughn Brooks Distinguished Teaching Award

North Carolina State University (NCSU) Department of Computer Science (CSC) Alumni Hall of Fame, Induction Year 2019.

ACM 2013 Karl V. Karlstrom Outstanding Educator Award

IEEE Senior Member, February 2013

Finalist Candidate for NEEDS Premier Award for Excellence in Engineering Education Courseware, for software JFLAP. (Susan Rodger and her students Thomas Finley, Stephen Reading, Bartlett Bressler, Ryan Cavalcante, Jinghui Lim, Chris Morgan, and Kyung Min (Jason) Lee), 2007.

ACM Distinguished Educator, 2006.

Rensselaer Distinguished Teaching Fellowship, Rensselaer Polytechnic Institute, July 1994 (one of three awards campus-wide, declined due to departure).

Lilly Teaching Fellowship, July 1991-June 1992.

## IV. Publications

### Books, Monographs:

Peter Linz and Susan H. Rodger, An Introduction to Formal Languages and Automata (Seventh Edition), ISBN 9781284231601, Jones and Bartlett Learning, appeared in 2022, copyright 2023.

Susan H. Rodger and Peter Linz, JFLAP Activities for Formal Languages and Automata (CD Supplement to An Introduction to Formal Languages and Automata, Fourth Edition), ISBN 9780763772024, Jones and Bartlett, 2008.

Susan H. Rodger and Thomas W. Finley, JFLAP - An Interactive Formal Languages and Automata Package, ISBN 0763738344, Jones and Bartlett, 2006.

Susan H. Rodger, *Parallel Job Scheduling Algorithms,* Ph.D. thesis, Computer Science Department, Purdue University, December 1989.

### Journals:

S. H. Rodger, "Reflections on SIGCSE From the Past 30 Years," in *ACM Inroads*, Vol. 9, No. 4, p. 22-26, 2018.

S. H. Rodger, "Using Animation, Virtual Worlds, Pair Programming and Activities to Introduce Computer Science," in *Interactive Multimedia Electronic Journal of Computer-Enhanced Learning, imej.wfu.edu* Vol. 4, No. 2, 2002.

S. H. Rodger, "Integrating Hands-On Work into the Formal Languages Course via Tools and Programming," in *Lecture Notes in Computer Science: Automata Implementation: First International Workshop on Implementing Automata, WIA '96, London, Ontario,* Vol. 1260, Springer-Verlag, p. 132-148, 1997.

E. Walker and S. Rodger, "PipeLINK: Connecting Women and Girls in the Computer Science Pipeline," *Journal of Computer Science Education,* Vol. 11, No. 3, p. 25-29, 1997.

G. N. Frederickson and S. H. Rodger, "An NC Algorithm for Scheduling Unit-Time Jobs with Arbitrary Release Times and Deadlines," *SIAM Journal on Computing,* Vol. 23, No. 1, p. 185-211, 1994.

D. Caugherty and S. H. Rodger, "NPDA: A Tool for Visualizing and Simulating Nondeterministic Pushdown Automata," in *Computational Support for Discrete Mathematics, DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, Vol. 15, N. Dean and G. E. Shannon (ed.), p. 365-377, 1994.

G. N. Frederickson and S. H. Rodger, "A New Approach to the Dynamic Maintenance of Maximal Points," *Discrete and Computational Geometry,* Vol. 5, No. 4, p. 365-374, 1990.

**Refereed Conferences:**

Barbara J. Ericson, Janice L. Pearce, Susan H. Rodger, Andrew Csizmadia, Rita Garcia, Francisco J. Gutierrez, Konstantinos Liaskos, Aadarsh Padiyath, Michael James Scott, David H. Smith, Jayakrishnan M. Warriem, and Angela Zavaleta Bernuy, Multi-Institutional Multi-National Studies of Parson Problems, *ITiCSE-WGR '23: Proceedings of the 2023 Working Group Reports on Innovation and Technology in Computer Science Education*, p. 57-107, Turku, Finland, December 2023. (Appendix on parsonsproblems.github.io, 59 pages)

Barbara J. Ericson, Janice L. Pearce, Susan H. Rodger, Andrew Csizmadia, Rita Garcia, Francisco J. Gutierrez, Konstantinos Liaskos, Aadarsh Padiyath, Michael James Scott, David H. Smith, Jayakrishnan Warriem, and Angela Zavaleta Bernuy, Conducting Multi-Institutional Studies of Parson Problems, *The Twenty-eighth Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2023)*, p. 571-572, Turku, Finland, *extended abstract*, July 2023.

Barbara J. Ericson, Paul Denny, James Prather, Rodrigo Duran, Arto Hellas, Juho Leinonen, Craig S. Miller, Briana B. Morrison, Janice L. Pearce, Susan H. Rodger, Parsons Problems and Beyond: Systematic Literature Review and Empirical Study Designs, *The Twenty-seventh Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE-WGR 2022)*, p. 191-234, Dublin, Ireland, December 2022.

Barbara J. Ericson, Paul Denny, James Prather, Rodrigo Duran, Arto Hellas, Juho Leinonen, Craig S. Miller, Briana Morrison, Janice L. Pearce, Susan H. Rodger, Planning a Multi-institutional and Multi-national Study of the Effectiveness of Parsons Problems, *The Twenty-seventh Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2022)*, p. 576-577, Dublin, Ireland, *extended abstract*, July 2022.

Anshul Shah, Jonathan Liu, Kristin Stephens-Martinez, Susan H. Rodger, The CS1 Reviewer App: Choose Your Own Adventure or Choose for Me! *The Twenty-sixth Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2021)*, p. 331-337, Virtual Event, Germany, June 2021.

Mostafa Mohammed, Cliff A. Shaffer, and Susan H. Rodger, Teaching Formal Languages with Visualizations and Auto-Graded Exercises, *Fifty-second SIGCSE Technical Symposium on Computer Science Education (SIGCSE '21)*, p. 569-575, Virtual Event, USA, March 2021.

Mostafa Mohammed, Susan Rodger, and Cliff Shaffer, Using Programmed Instruction to Help Students Engage with ETextbook Content, *2019 AIED Workshop on Intelligent Textbooks at the 20th International Conference on Artificial Intelligence in Education*, p. 135-145, Chicago, IL, June 2019.

Drew Hilton, Genevieve Lipp, and Susan H. Rodger, Translation from Problem to Code in Seven Steps, *First ACM Global Computing Education Conference (CompEd 2019)*, p. 78-84, Chengdu, Sichuan, China, May 2019.

Clifford A. Shaffer, Jeremy Ernst, Thomas L. Naps, and Susan H. Rodger, "OpenDSA: Interactive eTextbooks for Computer Science," AAAS and NSF Envisioning the Future of Undergraduate STEM Education: Research and Practice(EnFUSE), 6 pages, Washington, D.C., April 2016.

Stephen Cooper, Susan H. Rodger, Wanda Dann, Madeleine Schep, RoxAnn H. Stalvey, Growing a K-12 Community of Practice, *Fourty-sixth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '15)*, p. 290-295, Kansas City, Missouri, 2015.

Susan Rodger, Dwayne Brown, Michael Hoyle, Daniel MacDonald, Michael Marion, Elizabeth Onstwedder, Bella Onwumbiko, and Edwin Ward, Weaving Computing into all Middle School Disciplines, *The 19th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2014)*, p. 207-212 Uppsala, Sweden, 2014.

Ari Korhonen, Thomas Naps, Charles Boisvert, Pilu Crescenzi, Ville Karavirta, Linda Mannila, Bradley Miller, Briana Morrison, Susan H. Rodger, Rocky Ross, and Clifford A. Shaffer, "User Requirements and Design Strategies for Open Source Interactive Computer Science eBooks," Proceedings of the ITiCSE Working Group Reports conference on Innovation and Technology in Computer Science Education-working group reports, p. 53-72, Canterbury, United Kingdom, 2013.

Richard A. Lucic and Susan H. Rodger, VCL-Enhanced Alice for Education, 1st International IBM Cloud Academy Conference (ICA CON 2012), Research Triangle Park, NC, 6 pages, April 19, 2012.

Susan Rodger, Melissa Dalis, Chitra Gadwal, Jenna Hayes, Peggy Li, Liz Liang, Francine Wolfe, and Wenhui Zhang, Integrating Computing into Middle Schools Disciplines Through Projects, *Fourty-third SIGCSE Technical Symposium on Computer Science Education (SIGCSE '12)*, Raleigh, NC, p. 421-426, 2012.

Stephen Cooper, Wanda Dann, Dan Lewis, Pam Lawhead, Susan Rodger, Madeleine Schep, and RoxAnn Stalvey, A Pre-College Professional Development Program, *The 16th Annual Conference on Innovation and Technology in Computer Science Education* (ITiCSE 2011), Darmstadt, Germany, p. 188-192. 2011.

Susan Rodger, Henry Qin, and Jonathan Su, Tips/Techniques: Changes to JFLAP to increase its use in courses, *The 16th Annual Conference on Innovation and Technology in Computer Science Education* (ITiCSE 2011), Darmstadt, Germany, p. 339, 2011.

Susan Rodger, Henry Qin, and Jonathan Su, Increasing the use of JFLAP in Courses, *Sixth Program Visualization Workshop* (PVW 2011), Darmstadt, Germany, p.53-56, 2011.

Susan H. Rodger, Maggie Bashford, Lana Dyck, Jenna Hayes, Liz Liang, Deborah Nelson, and Henry Qin, Enhancing K-12 Education with Alice Programming Adventures, *The 15th Annual Conference on Innovation and Technology in Computer Science Education* (ITiCSE 2010), Ankara, Turkey, p.234-238, 2010.

Susan H. Rodger, Jenna Hayes, Gaetjens Lezin, Henry Qin, Deborah Nelson, Ruth Tucker, Mercedes Lopez, Stephen Cooper, Wanda Dann and Don Slater, Engaging Middle School Teachers and Students with Alice in a Diverse Set of Subjects, *Fourtieth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '09)*, Chattanooga, TN, p.271-275, 2009.

Susan H. Rodger, Eric Wiebe, Kyung Min Lee, Chris Morgan, Kareem Omar, and Jonathan Su, Increasing Engagement in Automata Theory with JFLAP, *Fourtieth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '09)*, Chattanooga, TN p.403-407, 2009.

Susan Horwitz, Susan Rodger, Maureen Biggers, David Binkley, C. Kolin Frantz, Dawn Gundermann, Susanne Hambrusch, Steven Huss-Lederman, Ethan Munson, Barbara Ryder, and Monica Sweat, Using Peer-Led Team Learning to Increase Participation and Success of Under-Represented Groups in Introductory Computer Science, *Fourtieth SIGCSE Technical Symposium on Computer Science Education(SIGCSE '09)*, Chattanooga, TN, p.163-167, 2009.

Susan H. Rodger, Jinghui Lim, and Stephen Reading, Increasing Interaction and Support in the Formal Languages and Automata Theory Course, *The 12th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2007)*, Dundee, Scotland, p.58-62, 2007.

Susan H. Rodger, An Innovative Approach with Alice for Attracting K-12 Students to Computing, *International Conference on the Virtual Computing Initiative* (IBM University Days), Research Triangle Park, NC, p. 17, May 2007.

Susan H. Rodger, Bart Bressler, Thomas Finley, and Stephen Reading, Turning Automata Theory into a Hands-on Course, *Thirty-seventh SIGCSE Technical Symposium on Computer Science Education (SIGCSE '06)*, p. 379-383, 2006.

Casey Alt, Owen Astrachan, Jeffrey Forbes, Richard Lucic, and Susan Rodger, Social Networks Generate Interest in Computer Science, *Thirty-seventh SIGCSE Technical Symposium on Computer Science Education (SIGCSE '06)*, p. 438-442, 2006.

Susan H. Rodger, "Learning Automata and Formal Languages Interactively with JFLAP," *The Eleventh Annual Conference on Innovation and Technology in Computer Science Education* (ITiCSE 2006), University of Bologna, p.360, 2006.

Guido Rossling, Thomas L. Naps, Mark S. Hall, Ville Karavirta, Andreas Kerren, Charles Leska, Andres Moreno, Rainer Oechsle, Susan H. Rodger, Jaime Urquiaz-Fuentes, and J. Angel Velazquez-Iturbide, "Merging Interactive Visualizations with Hypertextbooks and Course Management," ITiCSE 2006 Working Group Report, SIGCSE Bulletin, Vol. 38, No. 4, p. 166-181, 2006.

Ryan Cavalcante, Thomas Finley and Susan H. Rodger, "A Visual and Interactive Automata Theory Course with JFLAP 4.0," *Thirty-fifth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '04)*, p. 140-144, 2004.

Ayonike Akingbade, Thomas Finley, Diana Jackson, Pretesh Patel and Susan H. Rodger, "JAWAA: Easy Web-Based Animation from CS 0 to Advanced CS Courses," *Thirty-fourth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '03)*, p. 162-166, 2003.

Thomas L. Naps (co-chair), Guido Rossling (co-chair), Vicki Almstrum, Wanda Dann, Rudolf Fleischer, Chris Hundhausen, Ari Korhonen, Lauri Malmi, Myles McNally, Susan Rodger and J. Angel Velazquez-Iturbide, "Exploring the Role of Visualization and Engagement in Computer Science Education," Report of the Working Group on "Improving the Educational Impact of Algorithm Visualization", from the Seventh Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2002). Appeared in ACM SIGCSE Bulletin, Vol. 35, No. 2, p. 131-152, June 2003.

**At ITiCSE 2020, this paper was awarded one of the top 5 ITiCSE Working Group papers from the past 24 years (1996-2019).**

Owen L. Astrachan, Robert C. Duvall, Jeff Forbes, and Susan H. Rodger, "Active Learning in Large to Small Courses," *Frontiers in Education 2002*, Boston, Massachusetts, p. T2A:16–20, November 2002.

S. H. Rodger, Using Hands-on Visualizations to Teach Computer Science from Beginning Courses to Advanced Courses, *Second Program Visualization Workshop*, Hornstrup Centert, Denmark, p. 103-112, June 2002.

S. H. Rodger, "Introducing Computer Science Through Animation and Virtual Worlds," *Thirty-third SIGCSE Technical Symposium on Computer Science Education (SIGCSE '02)*, p. 186-190, 2002.

T. Hung and S. H. Rodger, "Increasing Visualization and Interaction in the Automata Theory Course," *Thirty-first SIGCSE Technical Symposium on Computer Science Education (SIGCSE '00)*, p. 6-10, 2000.

E. Gramond and S. H. Rodger, "Using JFLAP to Interact with Theorems in Automata Theory," *Thirtieth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '99)*, p. 336-340, 1999.

W. Pierson and S. H. Rodger, "Web-based Animations of Data Structures Using JAWAA," *Twenty-ninth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '98)*, p. 267-271, 1998.

O. Astrachan and S. H. Rodger, "Animation, Visualization, and Interaction in CS 1 Assignments," *Twenty-ninth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '98)*, p.317-321, 1998.

A. O. Bilska, K. H. Leider, M. Procopiuc, O. Procopiuc, S. H. Rodger, J. R. Salemme and E. Tsang, "A Collection of Tools for Making Automata Theory and Formal Languages Come Alive," *Twenty-eighth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '97)*, p. 15-19, 1997.

M. Procopiuc, O. Procopiuc, and S. Rodger, "Visualization and Interaction in the Computer Science Formal Languages Course with JFLAP," *1996 Frontiers in Education Conference*, Salt Lake City, Utah, p. 121-125, 1996.

E. L. Walker and S. H. Rodger, "PipeLINK: Connecting Women and Girls in the Computer Science Pipelink," *National Educational Computing Conference '96*, p. 378-384, 1996.

S. H. Rodger, "Integrating Animations into Courses," *ACM SIGCSE/SIGCUE Conference on Integrating Technology in Computer Science Education* (ITiCSE 1996), Barcelona, Spain, p. 72-74, 1996.

S. H. Rodger and E. L. Walker, "Activities to Attract High School Girls to Computer Science," *Twenty-seventh SIGCSE Technical Symposium on Computer Science Education (SIGCSE '96)*, p. 373-377, 1996.

S. H. Rodger, "An Interactive Lecture Approach to Teaching Computer Science," *Twenty-sixth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '95)*, p.278-282, March 1995.

S. A. Blythe, M. C. James, and S. H. Rodger, "LLparse and LRparse: Visual and Interactive Tools for Parsing," *Twenty-fifth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '94)*, p. 208-212, March 1994.

E. Luce and S. H. Rodger, "A Visual Programming Environment for Turing Machines," *Proceedings of the 1993 IEEE Symposium on Visual Languages*, p. 231-236, August 1993.

M. LoSacco and S. H. Rodger, "FLAP: A Tool for Drawing and Simulating Automata," *ED-MEDIA 93, World Conference on Educational Multimedia and Hypermedia,* p. 310-317, June 1993.

R. Trahan and S. H. Rodger, "Simulation and Visualization Tools for Teaching Parallel Merge Sort," *Twenty-fourth SIGCSE Technical Symposium on Computer Science Education (SIGCSE '93)*, p. 237-241, February 1993.

S. H. Rodger, "An Optimal Parallel Algorithm for Preemptive Job Scheduling that Minimizes Maximum Lateness," *Proceedings of the Twenty-Sixth Annual Allerton Conference on Communication, Control and Computing,* p. 293-302, 1988.

G. N. Frederickson and S. H. Rodger, "A New Approach to the Dynamic Maintenance of Maximal Points In a Plane," *Proceedings of the Twenty-fifth Annual Allerton Conference on Communication, Control and Computing,* p. 879-888, 1987.

**Unrefereed Reports:**

Susan Rodger, Maria Gini, Julia Hirschberg, and Heather Wright, "Expanding the Pipeline: CRA-WP holds Virtual Grad Cohort for Women," Computing Research News, Vol. 33, No. 6, June 2021.

Susan Rodger, Vote for the next SIGCSE Board, ACM SIGCSE Bulletin, Volume 51, Issue 2, p. 11, April 2019.

Susan Rodger, SIGCSE Board 2019-2022 Election Slate, ACM SIGCSE Bulletin, Volume 51, Issue 1, p. 8, January 2019.

Susan Rodger, SIGCSE Global - Chengdu, China, May 17-19, 2019 , ACM SIGCSE Bulletin, Volume 50, Issue 3, p. 8-9, July 2018.

Susan Rodger, Notable Women In Computing Playing Cards Project, Blog post for CSforALL blog, https://medium.com/csforall-stories/notable-women-in-computing-playing-cards-project-8c6739ce4494, Posted March 22, 2018.

Susan Rodger, New SIGCSE Chapter - China, ACM SIGCSE Bulletin, Vol. 49, No. 1, p. 2, January 2017.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 7, No. 3, p. 6-8, September 2016.

Susan Rodger, SIGCSE Chair's Report, ACM SIGCSE Bulletin, Volume 48, Issue 3, p. 9-10, July 2016.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 7, No. 2, p. 6-8, June 2016.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 7, No. 1, p. 8-10, March 2016.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 6, No. 4, p. 14-15, December 2015.

Renee McCauley and Susan Rodger, 2016 SIGCSE Elections, ACM SIGCSE Bulletin, Volume 47, Issue 4, p. 4, October 2015.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 6, No. 3, p. 10-11, September 2015.

Susan Rodger, SIGCSE Chair's Report, ACM SIGCSE Bulletin, Volume 47, Issue 3, p. 6-7, July 2015

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 6, No. 2, p. 13-14, June 2015.

Susan Rodger, New SIGCSE Vounteers, ACM SIGCSE Bulletin, Volume 47, Issue 2, p. 5, April 2015.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 6, No. 1, p. 18-19, March 2015.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 5, No. 4, p. 18-19, December 2014.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 5, No. 3, p. 9-10, September 2014.

Susan Rodger, Three Days at ITiCSE 2014, ACM SIGCSE Bulletin, Volume 46, Issue 3, p. 6-8, July 2014.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 5, No. 2, p. 13, June 2014.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 5, No. 1, p. 12-13, March 2014.

Susan Rodger, Spotlight on SIGCSE, ACM Inroads, Vol. 4, No. 4, p. 88-89, December 2013.

Susan Rodger and Sheila Casteneda, "CRA-W Career Mentoring Workshop held at SIGCSE 2013," Computing Research News, October 2013, Vol. 25, No. 9.

Susan Rodger and Amber Settle, "SIGCSE Travel Grant Program," SIGCSE Bulletin, Vol. 45, No. 3, page 6, July 2013.

Sheila Castendeda and Susan Rodger, "Expanding the Pipeline, Career Mentoring for Faculty from Primarily Undergraduate Academic Institutions," Computing Research News, Vol. 23, No. 5, p. 2, November 2011.

Valerie J. Harvey and Susan H. Rodger, Editorial for the Special Issue on Software Support for Teaching Discrete Mathematics, Journal on Educational Resources in Computing (JERIC), Vol. 5, Issue 2, p. 1-16, June 2005.

Susan Horwitz, Steve Huss-Lederman, Susan Rodger, Maureen Biggers, David Binkley, Hubert Dunsmore, Barbara Ryder, and Ethan Munson, "Increasing the Representation of Undergraduate Women and Minorities in Computer Science," Proceedings The National Science Foundation's ITWF & ITR/EWF Principal Investigator Conference, p. 206-208, Philadelphia, Pennsylvania, October 2004.

Susan H. Rodger, "Teaching Automata Theory with JFLAP, Guest Column" SIGACT News, Vol. 30, No. 4, p.53-56, 1999.

O. L. Astrachan, G. Chapman, S. H. Rodger, and M. A. Weiss, "The Reasoning for the Advanced Placement C++ Subset," SIGCSE Bulletin, Vol. 29, No. 4, p.62-65, 1997.

Susan H. Rodger, "Report on The First International Workshop on Implementing Automata 1996," SIGACT News, Vol. 27, No. 4, p.38-39, 1996.

J. Bergin, K. Brodie, M. Goldweber, R. Jimenez-Peris, S. Khuri, M. Martinez, M. McNally, T. Naps, S. Rodger, and J. Wilson, "An Overview of Visualization: Its Use and Design," Report of Visualization Working Group, *ACM SIGCSE/SIGCUE Conference on Integrating Technology in Computer Science Education,* Barcelona, Spain, p. 192-200, 1996.

S. H. Rodger, "Tools for Automata, Parsing, and Parallel Mergesort," SIGACT News, Vol. 25, No. 2, p. 48-49, June 1994.

B. Sinharoy, A. Marron, B. Szymanski, and S. H. Rodger, "A Survey of Large Systems," IBM Technical Report TR 00.3681, Apr. 1992.

**Software: JFLAP**

JFLAP - JFLAP is a package of tools for teaching formal languages and automata theory including experimenting with automata, pushdown automata, multi-tape Turing machines, building block Turing machines, Moore and Mealy machines, regular grammars, regular expressions, context-free grammars, unrestricted grammars, brute-force parsing, LL parsing, SLR parsing, and L-systems. Furthermore, one can interactively explore construction type proofs such as converting an NFA to a DFA to a minimal state DFA and then to a regular expression, or convert a CFG to an NDPA. JFLAP and other tools have been under development since 1990, first as NPDA, then FLAP, and now JFLAP. Other tools developed that eventually got integrated into JFLAP include LLParse, LRparse, JeLLRap, Pate, and Lsystem. JFLAP is used around the world in over 160 countries. The JFLAP web site has over 1,226,726 hits according to webcounter since June 2005. Just from Jan. 2003 to June 2006, JFLAP was downloaded over 35,000 times from the JFLAP web site. From September 2012 to May 31, 2022 Google Analytics show 911,874 sessions, 714,535 new users, and 3,344,414 pageviews. For more information see `www.jflap.org`

JFLAP Version 7.1 - Modifications to update JFLAP to Java 8. Reorganized Turing machines and added nondeterministic Turing machine. There are now three window options for Turing machines: Turing machine (single tape with nondeterminism), Multi-tape Turing machine, and Turing machine with building blocks. Also added more text sliders to enlarge views. 2018 (with Jay Patel).

JFLAP Version 8.0 Beta - New version of JFLAP including refactoring of design, new algorithms and more formal representation of automata and grammars. 2011-2015 (with Ian McMahon, Aohui (Lawrence) Lin, John Godbey and J. Genkins)

JFLAP 7.0 - Modifications include redesigning Turing machines, adding zooming to panes, editor undo, saving an image, and parsing a range of values. 2009. (with J. Su and H. Qin).

JFLAP 6.4 - Modifications include an algorithm for converting a Turing machine program to an equivalent unrestricted grammar and several small features such as automatically adding a trap state to make a DFA complete, using a file as input, and JFLAP identifying the type of grammar. 2008 (with K. Lee and J. Su).

JFLAP - Modifications and additions including JFLAP Tutorial, CYK Parsing, User-Control Parser, Graph layouts, and improvements to Pumping Lemma. 2007 (with C. Morgan and K. Lee).

JFLAP - Modifications and additions including Moore and Mealy machines, Regular and Context-Free Pumping Lemma, and Batch Testing. 2006 (with S. Reading and J. Lim)

JFLAP - Modifications and additions including Building Block Turing machines. 2005 (with S. Reading and B. Bressler).

JFLAP 4.0b12 - Modifications and additions including changing file formats to XML. 2004 (with T. Finley).

JFLAP 4.0 - A complete rewrite of JFLAP below creates an easier to use interface and more interaction on algorithms. There are several new additions into JFLAP that double the number of topics taught. These additions include new algorithms (NFA to regular expression), LL and LR parsing, grammar transformations, L-systems, and brute-force parsing. 2002-2003 (with T. Finley and R. Cavalcante)

JFLAP - A tool written in Java for graphically designing and animating programs for four types of automata: finite automata, pushdown automata, 1-tape Turing machines and 2-tape Turing machines. Special features include handling nondeterminism, automatic verification of input,

and tracing capabilities. In addition, students can save and retrieve their designs. In 1998 additional features for exploring proofs for converting NFA to DFA, DFA to minimal state DFA, and NFA to regular grammar were added. In 1999, regular expressions and conversions from NFA to regular expression, and regular expression to NFA were added. 1996-1999, (with M. Procopiuc, O. Procopiuc, E. Gramond, and T. Hung).

FLAP - FLAP (Formal Languages and Automata Package) is the C++ predecessor of JFLAP. 1991-1995, (with D. Caugherty, M. LoSacco, and G. Badros).

**Software: Other items**

Availability: Many of the tools below are available on `http://www.cs.duke.edu/~rodger/tools/`

JSAWAA - Updated version of JAWAA. Create primititives and animate them. 2019. Used in CompSci 334, Spring 2019, (with Andy Ju).

JAWAA - Modifications and additions including graphs and layouts to JAWAA and additional functionality to the JAWAA editor. 2005 (with A. Gibson and V. Gartland).

JAWAA 2.0 and JAWAA Editor. JAWAA 2.0 is a new version of JAWAA that is more robust than the older version and includes new features. In addition, the JAWAA Editor is a new tool for novices to use to create an animation using key frames. One can layout the animation graphically and then modify it across time. 2001-2002(with P. Patel, T. Finley, D. Jackson, and A. Akingbade).

JAWAA 1.0 - JAWAA is a simple command language for creating animations of data structures and displaying them with a Web browser. Commands are stored in a script file that is retrieved and run by the JAWAA applet when the applet's Web page is accessed through the Web. JAWAA commands allow for creation and movement of primitive objects (circles, lines, text, rectangles) and data structure objects (arrays, stacks, queues, lists, trees and graphs). A JAWAA script can be generated as the output of a program written in any language. JAWAA was developed in 1996-1997 (with W. Pierson).

Animated CompSci Concepts - A collection of animations to teach computer science concepts written in Flash. 2002. (with J. Morgan, D. Presslar, and B. Byrnes).

LLparse and LRparse - Instructional tools for constructing parse tables in steps for LL(1), LL(2) and LR(1) grammars, and then simulating the parsing of input strings using the constructed table and a stack. 1992-1996, (with S. Blythe, U. Dogrusou, M. James, and E. Tsang).

JeLLRap - A Java version of LLparse and LRparse in one tool. 1997-1998, (with A. Karweit, E. Gramond, and R. Geer).

Lsystem - Tool for generation l-systems, 1998, (w/ L. Ramm).

Pate - Tool for parsing and transforming grammars. The parsing component allows one to parse restricted (regular and context-free) and unrestricted grammars, showing the actual derivation and parse tree. The transformation component is an instructional tool for converting a context-free grammar to CNF form with steps for removing lambda productions, unit productions, and useless productions. 1996, (with A. Bilska and J. Salemme). In 1999, Pate was updated to include more interaction and a parse tree for unrestricted grammars (with T. Hung).

PumpLemma - An instructional tool for applying the pumping lemma to nonregular languages to prove these languages are not regular. 1996, (with K. Leider).

Algorithm Animations - Algorithm animations were developed using Xtango. These animations include red-black trees, 2-3 trees, red-blue line intersection problem, and dynamic m-contour tree, 1992-1996, (with A. Candib, J. Diaz-Perez, N. Rose and E. Stretch).

TuBB - Tool for designing and simulating Turing machines that allows the user to construct large modular examples using previously defined Turing machines (building blocks). 1992-1993, (with E. Luce).

Xcs - A tool for visualizing and simulating the parallel merge sort algorithm developed by Cole. Different data and sampling strategies can be selected. 1991, (with R. Trahan).

**Online Tutorials/Materials:**

Adventures in Alice programming - This project is focused on integrating the programming language Alice into middle schools and high schools in the state of NC and beyond. Our website has information on workshops we ran from 2008-2017, with free curriculum material that includes tutorials and teacher lesson plans. The page also has information on our Alice Coursera course that ran in Beta mode in 2019 and launched in 2020. Google Analytics on this page from Sept 2012 to May 31, 2022 shows 72,692 sessions, 55,072 users and 95,895 pageviews. The website link is `www.cs.duke.edu/csed/alice/aliceInSchools`

Alice Tutorials (www.cs.duke.edu/csed/alice09) - reworked and created new tutorials on the Alice Programming language for Alice 2 and Alice 3, targetted towards Grades 5-12, Summers 2009-2017.

JFLAP Modules and Exercises (www.jflap.org/modules/) - Comprehensive set of JFLAP topics written as modules (description of the topic with an example) followed by exercises on the topic, with several faculty, July 2016.

Wikipedia Guide: Writing Wikipedia pages for Notable Women in Computing. (https://www2.cs.duke.edu/csed/wikipedia/) This online guide provides a template and instructions for writing a Wikipedia page on a notable woman in computing. A database of over 300 women and the status of their Wikipedia page is also listed. (2013-2014)

Alice Tutorials (www.cs.duke.edu/csed/alice/aliceInSchools/workshop08/tutorials.php) - Over 25 Tutorials on the Alice Programming language targetted towards Grades 5-12, 2008.

JFLAP Tutorial (www.jflap.org/tutorial) - extensive online tutorial on JFLAP including examples and files, 2007.

**Artifacts:**

Notable Women in Computing cards. Created a deck of playing cards with 54 different notable women from computing. Each card has the picture of a woman, a list of their awards, why they are notable and the status of their Wikipedia page. Over 8000 decks of cards have been printed up for conferences, events and individuals. A poster of the cards was also made. Both have creative commmons licenses and are open source. Aug 2014-January 2019 (published four editions). (with Katy Dickinson and Jessica Dickinson Goodman)

- 2014 - First Edition Notable Women in Computing Cards. 9 women as silhouettes, 45 photos of women. Listed affiliations and awards for each woman. 15 did not have a Wikipedia page. Simple white box with window cover.
- 2015 - Second Edition Notable Women in Computing Cards. 4 women as silhouettes, 50 photos of women. 14 did not have a Wikipedia page. Updated pictures and awards. Black decorated cover. Also printed Jumbo sized card decks with simple white box with window.
- 2016 - Third Edition of Notable Women in Computing Cards. 2 women as silhouettes, 52 photos of women. 4 did not have a Wikipedia page. Added what each woman is known for. Updated pictures and awards. Simple white box with window cover. Printed 3rd edition also in Jumbo size.
- 2019 - Fourth Edition Notable Women in Computing Cards. Now all cards have photos of all 54 women. All women now have a Wikipedia page. Updated photos and awards. Teal decorated box. Updated Jumbo size also with Teal decorated box.

**Pictures of Cakes published:**

The Wiggles Big Red Car Cake including the four Wiggles, *The Wiggles*, Issue 42, page 26, 2004.

## V. Service

### Service - Computer Science Community - Duke related

NCWIT Academic Alliance representative for Duke Computer Science Department, 2007-2023.

AccessComputing Partner co-representative for Duke Computer Science Department, 2022-2023 (with Nicki Washington).

Presenter Welcome/Rules Session for all contestants at the ACM Mid-Atlantic 2020 Contest that was delayed due to the Pandemic, March 6, 2021, Virtual event.

Site Director for the ACM Mid-Atlantic Regional Programming Contest, Duke University, 1996-2019.

### University Service - Duke

Pre-Major Advisor - 1995-1996, 1997-1999, 2000-2024.

Penny Pilgrim George Women's Leadership Initiative Mentor, 2023-2024.

Advisory Committee for Makeba Parramore Wilbourn, Psychology and Neuroscience, 2021-2023.

Search Committee for Vice Provost for Learning Initiatives & Digital Education, 2021-22.

Sophomore Spark Steering Committee, 2022.

Interviewer for A. B. Duke Scholarship Program, March 2022.

Bridgette Hard Promotion Committee, Psychology Department, 2022.

Advisory Committee for Online Education (ACOE), 2018-2021.

Mine Cetinkaya-Rundel Promotion Committee, Statistics Department, 2021.

Drew Hilton Promotion Committee, Electrical and Computer Engineering Department, 2020-21.

Shani Daily Promotion Committee, Electrical and Computer Engineering Department, 2020.

Goldwater Scholarship Selection Committee, 2019.

Tyler Bletsch Reappointment Committee, Electrical and Computer Engineering Department, 2019.

Committee on Computing in the Pratt Undergraduate Curriculum, 2017-2018, 2018-2019.

Electrical and Computer Engineering Faculty Search Committee Spring 2017

Arts and Sciences Courses Committee, 2014-2015.

Department Representative on Arts & Sciences Council, 2001-2003, 2008-2012. 2013-2014.

Mathematics Professor of the Practice Search Committee, 2011-2012.

Arts and Sciences Council Executive Committee, 2010-2012

Quantitative Studies Review Committee - Member. This is an Ad Hoc Sub-Committee of the Curriculum Committee to Review QS general Education requirements, 2010-2011.

Chair of the Interactive Computer Classroom Scheduling Committee, 1998-1999,2000-2004.

Chair of the Interactive Computer Classroom Task Force, 2000-2001.

Committee for The Suzanne E. and Margaret A. Franks Gender and Science Research Award, 1999, and 2000.

Chair of the Interactive Computer Classroom Task Force, 1998-1999.

Faculty Associate (Southgate Dorm) - 1995-96.

### Computer Science Department Committees and Service - Duke

Professor of the Practice Search Committee Fall 2023, Chair.

Professor of the Practice Search Committee Fall 2022 - Spring 2023.

Undergraduate Majors Advising - 1995-2023.

Undergraduate Education Committee, 2017-23.

Women in Technology (was Wiring with Women) (Undergraduate) Faculty Advisor, 2018-2023.

Lecturer Search Committee Fall 2022, Chair.

ACM Duke Student Chapter (also known as CS Student Union) Faculty Advisor, 1996-2022.

Duvall Reappointment Committee, Spring 2022 (Chair), 2009 (Chair), 2005 (Chair), 2003.

ACM-W Duke Student Chapter Faculty Advisor, 2008-2022.

Broadening Participation in Computing (BPC) Working Group - Create Departmental BPC plan. 2020.

Task Force on Teaching in AY 20-21, Summer 2020.

Stephens-Martinez Reappointment Committee (Chair), Fall 2020.

Washington Full Professor Appointment Committee, Spring 2020.

Professor of the Practice Search Committee, Chair, Fall 2019-Spring 2020.

Wiring with Women (Undergraduate) Faculty Advisor, 2016-2018.

Forbes Reappointment Committee (Chair) - 2017-18.

Professor of the Practice Search Committee, Spring 2017.

Professor of the Practice Search Committee, Spring 2016.

Undergraduate Program Committee, 2010-2011, 2011-2012, 2013-2014, 2014-2015, 2015-2016.

Teaching Excellence Committee - 2015-2016.

Visiting Professor of the Practice Search Committee (Chair), Spring 2014.

Department Infrastructure Committee - 2013-2014

Lucic Reappointment Committee - 2014

Visiting Professor of the Practice Search Committee (Chair), Spring 2012.

Communications Committee, 2010-2011, 2011-2012.

Space Committee, 1998-2010

Strategic Planning Committee, 2009.

Forbes Promotion Committee, 2009.

Undergraduate Education Committee, 2004-2005

Computer Science Internship Program Director - 1995–1998.

Faculty Search Committee, 1996-1997

Graduate Admissions Committee - 1995–96, 1997–98, 1998–99, 1999–00, 2000–01, 2001–02, 2002–03, 2003–04, 2005–06.

Forbes Reappointment Committee, 2003 (Chair), 2006 (Chair).

ACM Programming Team Coach 1994, 1995, 1997. (with O. Astrachan) - In 1994, the Duke team won the Mid-Atlantic Regionals contest. In the International Finals Contest, Duke placed 23rd out of 38 teams. In 1995, in the ACM Mid-Atlantic Regional Programming Contest, Duke teams placed 9th, 11th, and 14th out of 74 teams. In 1997, Duke team placed third in the ACM Mid-Atlantic Regional Programming Contest.

**University Service - Rensselaer Polytechnic Institute**

Library Advisory Committee - 1991-92.

Conversation Partner Program, The Learning Center, 1990–1993 (student: Fei Meng).

Freshmen Computing Orientation Tutorials for RCS Workstations - August 1991, August 1992, August 1993.

Faculty Intervention Program - Spring 1991, Spring 1992.

Marshall at Commencement - May 1991, May 1992.

### Computer Science Department Committees and Service - Rensselaer

Computer Science Qualifying Exam Committee - 1993-94.

Undergraduate Curriculum Committee - 1993-1994.

Graduate Curriculum Committee - 1992-1993.

Computer Science Theory Preliminary Exam Committee - 1990–1993.

Computer Science Department Library Representative - 1991-1992.

Computer Science Mathematics Preliminary Exam Committee - 1992.

Colloquium Chair - 1990-91.

Undergraduate Retention Committee - 1989-90.

Accepted Students' Open House - April 1990, April 1991, April 1993, April 1994.

Computer Science Representative for Discover Rensselaer Day, demonstrated animations of algorithms and data structures - November 13, 1993.

Computer Science Representative at Open House for High School Students - October 12, 1992.

Undergraduate student advising and counseling, 1990–1994.

### Community and Public Service

Judge for Holy Spirit Elementary School Science Fair – April 23, 1993.

Judge for Holy Spirit Elementary School Science Fair – April 14, 1994.

## VI. Editorship of Journals, Reviews of Manuscripts, Books, and Research Proposals

### Editorship of Journals

2005 Co-Editor Special Issue on Software Support for Teaching Discrete Mathematics
Journal of Educational Resources in Computing, Vol. 5, Issue 2, June 2005 (with Valerie Harvey).

### Referee Journals and Conferences

2023 - SIGCSE 2024 (Associate Program Chair, 7 papers)

2021 - CACM (1 paper), ITiCSE 2021 (5 papers), Computer Science Education Journal (1 paper), SIGCSE 2022 (Associate Program Chair, 8 papers)

2020 - CACM (1 paper), ITiCSE 2020 (4 papers), SIGCSE 2021 (3 papers)

2019 - ITICSE 2019 (6 papers), SIGCSE 2020 (Associate Program Chair, 8 papers), CompEd 2019 (1 working group paper), CACM (1 paper)

2018 - ITiCSE 2018 (5 papers), SIGCSE 2019 (Associate Program Chair, 8 papers), CompEd 2019 (Associate Program Chair, 8 papers), ICER 2018 (6 papers)

2017 - ITiCSE 2017 (4 papers), SIGCSE 2018 (Associate Program Chair, 8 papers), IEEE Transactions on Learning Technologies (1 paper)

2016 - ITiCSE 2016 (3 papers), ACM Inroads (1 paper), TOCE (1 paper)

2015 - SIGCSE 2016 (3 papers)

2014 - Transactions on Learning Technologies (1 paper), SIGCSE 2015(3 papers), ITiCSE 2014(4 papers)

2013 - Transactions on Learning Technologies (1 paper)

2012 - SIGCSE 2013 (3 papers), ACM Transactions on Computing Education (2 papers)

2011 - SIGCSE 2012 (2 papers), ITiCSE 2011 (3 Working Groups, 1 Panel), Transactions on Computing Education (1 paper)

2010 - SIGCSE 2011 (3 papers, 3 workshops), ACM Transactions on Visualization and Computer Graphics (1 paper), ACM Transactions on Computing Education (1 paper), SoftVis 2010 (7 papers)

2009 - Computer Science Education Journal (1 paper), SIGCSE 2010 (7 papers), ICVCI 3 Conference 2010 (5 papers), Journal of Visual Languages and Computing (1 paper), InfoVis Journal (2 papers)

2008 - Journal of Visual Languages and Computing (2 papers), SIGCSE 2009 (3 papers, 4 panels, 2 special sessions), SoftVis 2008 (4 papers)

2007 - Judge for ACMSE 2007 Digital Animation Festival (animations), Computer Science Education Journal (1 paper)

2006 - ITICSE 2006 (2 papers)

2005 - SoftVis 2005 (9 papers), SIGCSE 2006 (1 paper), Journal of Educational Resources in Computing (1 paper)

2003 - Computer Surveys (1 paper), SIGCSE 2004 (3 papers)

2002 - FIE 2002 (4 papers), Computer Science Education Journal (1 paper), SIGCSE 2003 (8 special sessions), ITiCSE 2003 (3 papers)

2001 - ACM Journal on Educational Resources in Computing (JERIC) (1 paper), International Journal of Human Computer Studies (1 paper), Computer Science Education Journal (1 paper), FIE 2001 (3 papers), SIGCSE 2002 (3 papers), ITiCSE 2002 (3 papers)

2000 - SIGCSE 2001 (2 papers), The Tenth International World Wide Web Conference 2001 (5 papers)

1999 - SIGCSE 2000 (3 papers), ITiCSE 99 (3 papers)

1998 - SIGCSE 1999 (3 papers), Workshop on Implementing Automata 1998 (3 papers)

1997 - SIGCSE 1998 (3 papers), Workshop on Implementing Automata 1997 (3 papers)

1996 - SIGCSE 1997 (2 papers), Workshop on Implementing Automata 1996 (6 papers)

1995 - SIGCSE 1996 (3 papers), SIAM Journal on Computing (1 paper)

1994 - Discrete & Computational Geometry (1 paper), IEEE Computer (2 papers), SIGCSE 1995 (1 paper)

1993 - Transactions on Knowledge and Data Engineering (1 paper), IEEE Symposium on Visual Languages (3 papers)

1992 - IEEE Symposium on Parallel and Distributed Processing (1 paper), Transactions on Knowledge and Data Engineering (1 paper)

1991 - Information Processing Letters (1 paper)

**Referee Grant Proposals or other**

| | | |
|---|---|---|
| 2021 | 7 proposals | National Science Foundation Panelist |
| 2018 | 8 proposals | National Science Foundation Panelist |
| 2013 | 10 proposals | National Science Foundation Panelist |
| 2012 | 11 proposals | National Science Foundation Panelist |
| 2012 | 1 proposal | National Science Foundation Panelist |
| 2011 | 10 proposals | National Science Foundation Panelist |
| 2009 | 12 proposals | National Science Foundation Panelist |
| 2007 | 10 proposals | National Science Foundation Panelist |
| 2003 | 10 proposals | National Science Foundation Panelist |
| 2001 | 10 proposals | National Science Foundation Panelist |
| 1997 | 1 proposal | MONTS, Montana State University |
| 1996 | 10 proposals | National Science Foundation Panelist |
| | 1 proposal | MONTS, Montana State University |
| 1992 | 6 proposals | NASA |

### Referee Fellowships

2013 Panelist, National Science Foundation
2011 Panel Chair, National Science Foundation
2010 Panel Chair, National Science Foundation
2009 Panel Chair, National Science Foundation
2008 Panelist, National Science Foundation
2007 Panelist, National Science Foundation
2005 Panelist, National Science Foundation
2004 Panelist, National Science Foundation
1998 Panelist, National Science Foundation

### Referee Books

2009 Pearson (1 book)
2005 Thomson Course Technology (1 book)
2003 Prentice Hall (2 books)
2002 Prentice Hall (1 book)
2001 Addison Wesley (1 book)
1997 McGrawHill (1 book)
1996 Oxford University Press (1 book), Addison Wesley (1 book)
1995 Oxford University Press (1 book), Harper Collins (1 book)
1994 John Wiley & Sons (1 book), Addison Wesley (1 book)
1993 John Wiley & Sons (1 book)
1992 John Wiley & Sons (1 book)

### Referee (other)

2014 Reviewer for Student Members for Anita Borg Institute Board of Trustees 2014
2012 Reviewer for Student Travel Scholarships for Grace Hopper 2012
2011 Reviewer for Student Travel Scholarships for Grace Hopper 2011
2010 Reviewer for Student Travel Scholarships for Grace Hopper 2010
2009 Reviewer for Student Travel Scholarships for Grace Hopper 2009
2008 Reviewer for Student Travel Scholarships for Grace Hopper 2008
2007 Reviewer for Student Travel Scholarships for Grace Hopper 2007

## VII. Committees, Conference, Programs, and Workshop Activities

### Conference and Program Chairs

Symposium Co-Chair for Thirty-ninth SIGCSE Technical Symposium on Computer Science Education 2008 - Coordinate all conference activities including evaluating conference sites, assembling a conference committee, making arrangements for food and meeting spaces, lining up sponsors, and serving as host of the conference. Created first SIGCSE Kids camp/daycare (still continuing in 2021). SIGCSE 2008 was attended by over 1200 educators. (2005-2008)

Program Co-Chair for Thirty-eighth SIGCSE Technical Symposium on Computer Science Education 2007 - Responsible for technical content of complete program including papers, panels, special sessions, posters, workshops, and birds of a feather. (2006-2007)

### Program Committee Members and Session Chairs

Program Committee Member for ACM CompEd 2023, Doctoral Consortium Co-Chair (with S. Cooper), held on December 6, 2023 at IIIT Hyderabad, in Hyderabad, India (6 student participants).

Session Chair, ITiCSE 2022, Dublin, Ireland, July 11, 2022.

Session Chair, ITiCSE 2018, Larnaca, Cyprus, July 2, 2018.

Session Chair, ITiCSE 2017, Bologna, Italy, July 3, 2017.

Session Chair, ITiCSE 2016, Arequipa, Peru, July 13, 2016.

Session Chair, ITiCSE 2014, Uppsala, Sweden, June 25, 2016.

SIGCSE Supporter/Exhibitor Liaison for Forty-fifth SIGCSE Technical Symposium on Computer Science Education 2013-2014.

SIGCSE Supporter/Exhibitor Liaison for Forty-fourth SIGCSE Technical Symposium on Computer Science Education 2012-2013.

SIGCSE Supporter/Exhibitor Liaison for Forty-third SIGCSE Technical Symposium on Computer Science Education 2011-12.

Program Committee Member for Grace Hopper Celebration of Women and Computing Conference, Panels and Workshops Committee, 2010.

Program Committee Member for SoftVis 2010, reviewing and acceptances of papers, 2010.

SIGCSE Supporter/Exhibitor Liaison for Forty-second SIGCSE Technical Symposium on Computer Science Education 2010-11.

Program Committee Member for The Third International Conference on the Virtual Computing Initiative (ICVCI 3), October 22-23, 2009.

SIGCSE Supporter/Exhibitor Liaison for Forty-first SIGCSE Technical Symposium on Computer Science Education 2009-10.

SIGCSE Supporter/Exhibitor Liaison for Fortieth SIGCSE Technical Symposium on Computer Science Education 2008-09.

Program Committee Member for SoftVis 2008, reviewing and acceptances of papers, 2008.

Program Committee Member for Thirty-sixth SIGCSE Technical Symposium on Computer Science Education 2005, Panels and Special Sessions Chair - organized the submission, reviewing and acceptances of panels and special sessions, 2004-2005.

Program Committee Member for SoftVis 2005, reviewing and acceptances of papers, 2004-2005.

Program Committee Member for Tenth International World Wide Web Conference, May 2001.

Program Committee Member for Third International Workshop on Implementing Automata, September, 1998.

Program Committee Member for Second International Workshop on Implementing Automata, September, 1997.

Program Committee Member and Session Chair for First International Workshop on Implementing Automata, August 1996.

Session chair at IEEE Symposium on Visual Languages, August 25-27, 1993.

## Committees/Boards

*Co-Chair, CRA-WP Board* — *Computing Research Association*
2022-2025.

*Member, CRA-WP Board (formerly CRA-W)* — *Computing Research Association*
2010-2025.

*Steering Committee Member, SIGCSE CompEd Conferences* — *SIGCSE*
2018-2023.

*Member, Runestone Board of Directors.* — *Runestone, Inc.*
2022-2024.

*Member, Level Up BPC Alliance Committee* *Computing Research Association*
2023-2024. Committee on Managing Booming Enrollments without Damaging Diversity Efforts.

*Chair, ACM Karl V. Karlstrom Outstanding Educator Award Committee* *ACM*
2023-2024.

*Member, ACM Karl V. Karlstrom Outstanding Educator Award Committee* *ACM*
2020-2024.

*Member, IEEE Computer Society Taylor Booth Education Award Committee* *IEEE*
2021-2023.

*Member, ACM India Outstanding Contribution to Computing Education Award Committee* *ACM*
2020,2021,2022,2023.

*Member, ACM/IEEE-CS George Michael Memorial HPC Fellowships Committee* *ACM/IEEE*
2019,2020,2021,2022.

*Member, NCWIT Mentoring Award for Undergraduate Research (MAUR) Committee* *NCWIT*
2020-2021.

*Immediate Past Chair, SIGCSE Board* *Association of Computing Machinery*
2016-2019.

*Member, ACM Education Policy Committee* *Association of Computing Machinery*
2008-2017.

*Chair, SIGCSE Board* *Association of Computing Machinery*
2013-2016.

*Member, ACM SIG Governing Board* *Association of Computing Machinery*
2013-2016.

*Secretary, SIGCSE Board* *Association of Computing Machinery*
2010-2013.

*Chair, ACM Senior Member Award Committee* *Association of Computing Machinery*
2012-2013.

*Member, ACM Senior Member Award Committee* *Association of Computing Machinery*
2006-2013. Awards for Senior Member are decided on four times a year.

*Member, AlgoViz Steering Committee* *AlgoViz*
2009-2011.

*Member, ACM Java Task Force* *Association of Computing Machinery*
2003-2005. Responsible for reviewing the Java Language, APIs and tools from the perspective of the introductory level and to develop a collection of stable resources helpful in teaching Java.

*Member, ACM JETT Committee* *Association of Computing Machinery*
2002-2003. JETT (Java Engagement for Teacher Training). Responsible for developing materials and planning workshops to prepare teachers for the Computer Science Advanced Placement exam as it moves to Java.

*Chair, AP Computer Science Development Committee* *The College Board*
1997–2000. Responsible for developing curriculum and devising tests for the Computer Science Advanced Placement exam.

*Member, AP Computer Science Development Committee* *The College Board*
1995–2001. Responsible for developing curriculum and devising tests for the Computer Science Advanced Placement exam.

### Organization of Workshops/Symposiums

"Computing Research Association Widening Participation (CRA-WP) Graduate Cohort for Women 2022 Workshop", for female graduate students. The goal of the workshop is to increase the

percentage of women graduate students by providing mentoring talks and advising to female graduate students in their first three years. There were 231 grad students, 28 speakers and mentors, 17 sponsors, and 17 staff attending, Virtual Event, April 22-23, 2022 (with Jeanine Cook, Maria Gini and Julia Hirschberg).

"Computing Research Association Widening Participation (CRA-WP) Graduate Cohort for Women 2021 Workshop", for female graduate students. The goal of the workshop is to increase the percentage of women graduate students by providing mentoring talks and advising to female graduate students in their first three years. There were 428 grad students, 35 speakers and mentors, 36 sponsors, and 14 staff attending, Virtual Event, April 23-24, 2021 (with Maria Gini and Julia Hirschberg).

"Computing Research Association Widening Participation (CRA-WP) Mid-Career Mentoring Workshop", for female and underrepresented Associate Professors and the equivalent level in industry and labs. The goal of the workshop is to increase the percentage of women faculty and researchers who reach the top of their career tracks. There were 17 participants at the workshop, in addition to 23 speakers, and 5 additional mentors. Virtual Workshop, December 4, 2020 (with Holly Rushmeier, Deb Agarwal, Jaime Moreno and Rita Wouhaybi).

"Computing Research Association Widening Participation (CRA-WP) Early-Career Mentoring Workshop", for female and underrepresented Assistant Professors and the equivalent level in industry and labs. The goal of the workshop is to increase the percentage of women faculty and researchers who reach the top of their career tracks. There were 50 participants at the workshop, in addition to 22 speakers, and 2 additional mentors. Virtual Workshop, November 13, 2020 (with Holly Rushmeier, Deb Agarwal, Jaime Moreno and Rita Wouhaybi).

"Computing Research Association Widening Participation (CRA-WP) Early-Career Mentoring Workshop for PhD Students", for female and underrepresented PhD students about to graduate and post-docs. The goal of the workshop is to increase the percentage of women faculty and researchers who reach the top of their career tracks. There were around 50 participants at the workshop, in addition to 16 speakers, and 3 additional mentors. Virtual Workshop, November 12, 2020 (with Holly Rushmeier, Deb Agarwal, Jaime Moreno and Rita Wouhaybi).

"Computing Research Association Women (CRA-W) Mid-Career and Early-Career Mentoring Workshops", for female associate and assistant professors and the equivalent levels in industry or government labs. The goal of the workshop is to increase the percentage of women faculty and researchers who reach the top of their career tracks. There were 86 participants at the Early-Career workshop, 25 participants at the Mid-Career, plus 34 speakers for the two workshops, Phoenix, AZ, November 3-4, 2018 (with Holly Rushmeier and Deb Agarwal).

"Computational Thinking Through Mobile Apps Workshop" for K-12 teachers. Three-day workshop (over 35 participants) July 17-19, 2017, and there were five presenters. This workshop was held at Duke University, Durham, NC. (with Richard Lucic)

"Adventures in Alice Programming Workshop" for K-12 teachers. Two-week beginner workshop with 32 participants and eight presenters. This workshop consisted of instruction on Alice and working with teachers to develop lesson plans. The workshop was held June 19-28, 2017 at Duke University, Durham, NC.

"The Fourth Alice Symposium," had 81 participants and included 1 keynote talk, 5 invited talks, and teacher demos. It was held on June 20, 2017, at Duke University, Durham, NC. Part of the Alice Symposium included a one-day Alice2 to Alice3 Workshop on June 21, 2017 run by W. Dann and D. Slater with 28 attendees.

"Computing Research Association Women (CRA-W) Managing the Early Academic Career for Women Faculty in Undergraduate Computing Programs," One-day workshop the day before SIGCSE 2017, 15 participants plus seven speakers, Seattle, Washington, March 8, 2017. (with Sheila Castaneda).

"Computing Research Association Women (CRA-W) Managing the Early Academic Career for Women Graduate Students Pursuing Faculty Positions in Undergraduate Computing

Programs," One-day workshop the day before SIGCSE 2017, 19 participants plus six speakers, Seattle, Washington, March 8, 2017. (with Sheila Castaneda).

"Computing Research Association Women (CRA-W) Mid-Career and Early-Career Mentoring Workshops", for female associate and assistant professors and the equivalent levels in industry or government labs. The goal of the workshop is to increase the percentage of women faculty and researchers who reach the top of their career tracks. There were 58 participants at the Early-Career workshop, 35 participants at the Mid-Career, plus 24 speakers for the two workshops, Washington, DC, November 19-20, 2016 (with Holly Rushmeier and Deb Agarwal).

"Computational Thinking Through Mobile Apps Workshop" for K-12 teachers. Two-day workshop (36 participants) July 19-20, 2016, and there were five presenters. This workshop was held at Duke University, Durham, NC. (with Richard Lucic)

"Adventures in Alice Programming Workshop" for K-12 teachers. Two-day followup workshop (9 participants) June 14-15, 2016, and two-week beginner workshop (33 participants), June 20-30, 2016. There were six presenters. The longer workshop consisted of instruction on Alice and working with teachers to develop lesson plans. All workshops were held at Duke University, Durham, NC.

"Using OpenDSA eTextbooks in Your Class," Three-hour workshop, SIGCSE Technical Symposium on Computer Science Education, Memphis, TN, March 2, 2016 (with Cliff Shaffer, and Thomas L. Naps).

"Adventures in Alice Programming Workshop" for K-12 teachers. Four-day followup workshop (7 participants) July 13-16, 2015, and two-week beginner workshop (30 participants), June 16-20,22-26, 2015. There were six presenters. The longer workshop consisted of instruction on Alice and working with teachers to develop lesson plans. All workshops were held at Duke University, Durham, NC.

"Computing Research Association Women (CRA-W) Mid-Career Mentoring Workshop", for female associate professors and the equivalent level in industry or government labs. The goal of the workshop is to increase the percentage of women faculty and researchers who reach the top of their career tracks. There were thirty-six participants plus seventeen speakers. Portland, Oregon, June 13-14, 2015 (with Holly Rushmeier and Deb Agarwal).

"Computing Research Association Women (CRA-W) Managing the Academic Career for Women Faculty in Undergraduate Computing Programs," One-day workshop the day before SIGCSE 2015, 26 participants plus seven speakers, Kansas City, Missouri, March 4, 2015. (with Sheila Castaneda).

"JFLAP workshop for developing online curriculum materials", July 22-23, 2014 (12 participants), Duke University, Durham, NC.

"Adventures in Alice Programming Workshop" for K-12 teachers. Four-day followup workshop (6 participants) June 16-19, 2014, and two-week beginner workshop (26 participants), July 7-11,14-18, 2014. There were six presenters. The longer workshop consisted of instruction on Alice and working with teachers to develop lesson plans. All workshops were held at Duke University, Durham, NC.

"Adventures in Alice Programming workshop," Two hour workshop at NC A&T State University, College of Education, Greensboro, NC, September 27, 2013.

"Adventures in Alice Programming Workshop," Two-hour workshop at NC Career and Technical Education Summer Conference, Greensboro, NC, July 24, 2013.

"Adventures in Alice Programming Workshop" for K-12 teachers. One-week followup workshop (12 participants) June 17-21, 2013, and two-week beginner workshop (31 participants), July 8-12,15-19, 2013. There were six presenters. The longer workshop consisted of instruction on Alice and working with teachers to develop lesson plans. All workshops were held at Duke University, Durham, NC.

"The Third Alice Symposium," Over 120 participants, 5 papers presented, 1 panel, 1 Keynote, 1 invited talk, 10 posters and the results of an Alice contest. June 19, 2013, at Duke University,

Durham, NC. Includes one week of activities, with two-day workshops on June 17-18 and on June 20-21, 2013. (with W. Dann and S. Cooper).

"Experimenting with and Integrating Alice 2.3 into Many Disciplines," Three-hour workshop, SIGCSE Technical Symposium on Computer Science Education, Denver, CO, March 8, 2013 (with Steve Cooper, Wanda Dann, Chris Brown, and Jacobo Carrasquel).

"Making the Most of Undergraduate Research," Three-hour workshop, SIGCSE Technical Symposium on Computer Science Education, Denver, CO, March 6, 2013 (with Andrea Danyluk, Nancy Amato, Ran Libeskind-Hadas and Lori Pollock).

"Managing the Academic Career for Women Faculty in Undergraduate Computing Programs," One-day workshop the day before SIGCSE 2013, thirty participants, six speakers, Denver, CO, March 6, 2013. (with Sheila Castaneda).

"CRA-W Advanced Career Mentoring Workshop (CAPP)," for female associate professors and the equivalent level in industry or government labs. The goal of the workshop is to increase the percentage of women faculty and researchers who reach the top of their career tracks. There were fifty participants and an additional twenty-one speakers. San Francisco, CA, November 16-17, 2012 (with Holly Rushmeier and Deb Agarwal).

"Adventures in Alice Programming Workshop" for K-12 teachers. One-week followup workshop (9 participants) July 9-13, 2012, two-week beginner workshop (25 participants), June 18-22,25-29, 2012 and six presenters. The longer workshop consisted of instruction on Alice and working with teachers to develop lesson plans. All workshops were held at Duke University, Durham, NC.

"Career Mentoring Workshop," for graduate students and faculty early in their career. Organize participants and speakers (23 participants and 8 speakers) One-day workshop held the day before SIGCSE 2012, Raleigh, NC, Feb 29, 2012 (with Sheila Castaneda and David Reed).

"Adventures in Alice Programming Workshop" for K-12 teachers. One two-day followup workshop (8 participants), one two-week beginner workshop (27 participants), and seven presenters, June 22-23, July 11-22, 2011. The longer workshop consisted of instruction on Alice and working with teachers to develop lesson plans. All workshops were held at Duke University, Durham, NC.

"Making the Most of Undergraduate Research," Three hour workshop at the Forty-second SIGCSE Technical Symposium on Computer Science Education, Dallas Texas, March 11, 2011. (with Andrea Danyluk, Lori Pollock, Margaret Martonosi, and Kathryn McKinley).

"Managing the Academic Career for Women Faculty in Undergraduate Computing Programs," One-day workshop the day before SIGCSE 2011, Dallas, TX, March 9, 2011. (with Sheila Castaneda).

"How to Use Algorithm Visualizations in Your Class," Three hour evening workshop at the Forty-second SIGCSE Technical Symposium on Computer Science Education, Dallas Texas, March 9, 2011. (with Cliff Shaffer, Tom Naps, and Stephen Edwards).

"HarambeNet Workshop" Two-day workshop on Computer Science and Social Networks, 46 participants, July 8-9, 2010 at Duke University, Durham, NC. (with Forbes)

"Adventures in Alice Programming Workshop" for K-12 teachers. Two one-week workshops, two two-day followup workshops, 45 teacher participants total and five presenters, June 14-18, June 21-June 22, July 6-7, and July 12-July 16, 2010. These workshops consisted of instruction on Alice and working with teachers. We also ran a 2-day workshop July 29-30 as part of a longer Project Lead The Way workshop. All workshops were held at Duke University, Durham, NC.

"Peer-Led Team Learning in Introductory Computer Science", Three hour workshop at the Forty-first SIGCSE Technical Symposium on Computer Science Education, 8 participants attended. March 10, 2010, Milwaukee, WI (with S. Horwitz).

"HarambeNet Workshop" Two-day workshop on Computer Science and Social Networks, 21 participants, July 20-21, 2009 at Duke University, Durham, NC. (with Forbes)

"Adventures in Alice Programming Workshop" for K-12 teachers. Three one-week workshops, One hundred teacher participants total and eight presenters, June 22-26, June 28-July 2, and July 6-10, 2009 This workshop consisted of instruction on Alice. We also ran a two-day followup workshop June 15-16, 2009 for teachers from the 2008 workshop. Duke University, Durham, NC.

"The Second Alice Symposium," Over 120 participants, 25 papers presented in two parallel sessions. June 17, 2009 at Duke University, Durham, NC. Includes one week of activities, with two-day workshops on June 15-16 and on June 18-19, 2009. (with W. Dann and S. Cooper).

"Peer-Led Team Learning Workshop," Indiana Universiry, Bloomington, Indiana, 2 presenters, 12 participants, January 9, 2009.

"Adventures in Alice Programming Workshop" for K-12 teachers. Three week workshop, Thirty-seven teacher participants and seven presenters, June 16-20, June 23-27, July 7-11, and July 14-18, 2008 (the third week for teachers was split between two weeks). This workshop consisted of instruction on Alice and the development of lesson plans. Duke University, Durham, NC.

"Peer Led Team Learning in Computer Science Workshop," Two day workshop, 73 participants, April 28-29, 2007 at Duke University, Durham, NC.

"HarambeNet Workshop" Two-day workshop on Computer Science and Social Networks, 12 participants, July 11-12-2006 at Duke University, Durham, NC. (with Astrachan, Forbes, and Lucic)

"Alice Symposium," Tracks for Beginners and Advanced users of the software Alice. 110 participants. June 19-21, 2006 at Duke University, Durham, NC. (with W. Dann and S. Cooper).

"JFLAP Faculty Adopter Workshop", Two-day workshop for Faculty adopters and evaluators involved with the JFLAP NSF grant. 17 participants. June 12-13, 2006 at Duke University, Durham, NC.

"A Hands-on Approach to Formal Languages and Automata with JFLAP", Three hour workshop at the Thirty-seventh SIGCSE Technical Symposium on Computer Science Education, 8 participants attended. March 4, 2006, Houston, Texas (with T. Finley and P. Linz).

"Alice Workshop," Two-day workshop for learning the software Alice. June 11-12, 2005 at Duke University, Durham, NC. 29 participants attended. (with W. Dann and S. Cooper).

"JFLAP Faculty Adopter Workshop", Two-day workshop for Faculty adopters and evaluators involved with the JFLAP NSF grant. 18 Participants. June 9-10, 2005 at Duke University, Durham, NC.

"ACM JETT AP Computer Science Workshops". Two one day workshops on beginning Java for AP CS high school teachers. March 29, 2003 and May 17, 2003 at Duke University, Durham, NC. 20 Participants for the first workshop and 19 for the second workshop (with O. Astrachan).

"Workshop on First Year Instruction: FYI 2000". Two day workshop on the first year of computer science instruction held at Duke University, July 15-16, 2000. 63 participants attended (with O. Astrachan).

"AP Computer Science Workshops," Two 2-day workshops for high school teachers. The first workshop was about C++ in AP CS A, and was held June 20-21, 1998 at Duke University. . The second workshop was about C++ in AP CS AB, and was held June 22-23, 1998 at Duke University. Twenty-five people attended each workshop. (with O. Astrachan).

"Workshop on Interactive and Visual Tools," Workshop to examine available interactive and visual tools for computer science and their integration into the classroom, Attended by 35 faculty from over 20 colleges and universities, Duke University, Saturday, March 30, 1996.

"Workshop 4: PipeLINK - Connecting Women across the CS Pipeline," Participants included teachers from sixteen high schools, Rensselaer Polytechnic Institute, Saturday, October 21, 1995 (with E. Walker).

"Workshop 3: PipeLINK - Connecting Women across the CS Pipeline," Participants included teachers from sixteen high schools, Rensselaer Polytechnic Institute, Saturday, May 13, 1995 (with E. Walker).

"Workshop 2: PipeLINK - Connecting Women across the CS Pipeline," Participants included teachers from sixteen high schools, Rensselaer Polytechnic Institute, Saturday, January 28, 1995 (with E. Walker).

"Workshop 1: PipeLINK - Connecting Women across the CS Pipeline," Participants included teachers from sixteen high schools, Rensselaer Polytechnic Institute, Saturday, October 1, 1994 (with E. Walker).

### Organization of Programs

Redesigned Duke Emerging Scholars in Computer Science program - Redesigned the DES-CS one-year program for first-year students with little or no experience with computer science. Students take four computer science courses, CompSci 6 and CompSci 18S in the fall, and CompSci 100 and CompSci 18S again in the spring. The revised program ran from Fall 2010 to Spring 2011.

Duke Emerging Scholars in Computer Science program - Developed a one-year program for first-year students with little or no experience with computer science. Students take four computer science courses, CompSci 4 and CompSci 18S in the fall, and CompSci 6 and CompSci 18S again in the spring. The program ran from Fall 2005 to Spring 2008, Fall 2009-Spring 2010.

Adventures in Alice Programming. - Ran two one-week summer camps introducing Alice for grades 5-12 at Duke University, Durham, NC. Week 1 was July 7-11, 2008 and was attended by 16 students. Week 2 was July 14-18, 2008 and was attended by 20 students.

PipeLINK Summer Program - Organized and ran a two-week computer science residence program for 20 high school girls. The girls learned about many areas in computer science through hands-on activities, talks, visits to labs, and visits to nearby companies. Rensselaer Polytechnic Institute, July 30, 1995 - August 11, 1995 (with E. Walker).

## VIII. Professional and Public Lectures

### Conferences

"Diversifying the Faces in Computing", Spark! Junivator Innovation Summit 2023, Juniper Networks, San Jose, CA, June 27, 2023, **( Keynote Talk)**.

"Learning How to Teach Computer Science - And Why I Teach the Way I Do", SIGCSE TS 2023, Toronto, Canada, March 17, 2023, **( Keynote Talk)**.

"Increasing the Diversity in Computing at All Levels," SIGCSE China at ACM Turing Celebration Conference (ACM TURC 2019), Chengdu, Sichuan, China, May 18, 2019, **( Keynote Talk)**.

"Translation from Problem to Code in Seven Steps," First ACM Global Education Conference 2019 (CompEd '19), Chengdu, Sichuan, China, May 17, 2019.

"Implementation and Evolution of PLTL in Introductory Computer Science Courses," for session in Chemical Education track in honor of the recipient Pratibha Varma-Nelson, American Chemical Society (ACS) National Meeting, New Orleans, LA, March 20, 2018 **(Invited talk)**.

"SIGCSE - Passionate Educators on the Teaching and Research of Computer Science Education," 2016 Beijing Summit on Computer Education Research, Peking University, Beijing, China, July 23, 2016. (**Keynote Talk**)

"Career Path and Passions - So Many Decisions Along the Way," University Day - Women in Academe and Research, November 13, 2015, Research Triangle Park, NC **( Invited Talk)**.

"Integrating Computing into K-12 Disciplines," 4th Annual Bridging the Gap Conference, Raleigh, NC, October 27, 2015.

"Creating Animations with Alice for Projects in all Disciplines," NC Career and Technical Education Summer Conference, Greensboro, NC, July 15, 2015. **(Invited talk)**.

"Engaging Students in Active Learning of Computer Science Concepts," ACM India iSIGCSE Event, Birla Institute of Technology Pilani, K K Birla Goa Campus, Goa, India, February 7, 2015. (**Keynote Talk**)

"Computer Science Concepts Come Alive," ACM India Annual Event, Birla Institute of Technology Pilani, K K Birla Goa Campus, Goa, India, February 6, 2015. (**Keynote Talk**)

"Integrating Computing into K-12 Disciplines with Alice," IBM University Days, Research Triangle Park, Raleigh, NC, November 14, 2014. **( Invited Talk)**

"Engaging Students by Making Computer Science Concepts Come Alive," Computer Science Education Research Conference (CSERC 2014) and The 9th Workshop in Primary and Secondary Computing Education (WiPSCE 2014), Berlin, Germany, November 5, 2014 (**Keynote talk** for both conferences which were held together).

"Creating Animations with Alice for Projects in all Disciplines," NC Career and Technical Education Summer Conference, Greensboro, NC, July 16, 2014.

"Weaving Computing into all Middle School Disciplines," at The 19th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2014), Uppsala, Sweden, June 25, 2014.

"Creating Animations with Alice for Projects with All Disciplines," at the NC Career and Technical Education Summer Conference, Greensboro, NC, July 24, 2013. **(Invited talk)**

"Integrating 3D Animation with Alice into All Disciplines," North Carolina Catholic Schools Education Conference 2012, Greensboro, NC, Sept, 28, 2012 **(Invited talk).**

"Integrating Animation and Computer Programming with Alice into All Disciplines," North Carolina Career and Technical Education Summer Conference, Greensboro, NC, July 26, 2012 **(Invited talk).**

"Integrating Computing into Middle School Disciplines Through Projects," *Fourty-third SIGCSE Technical Symposium on Computer Science Education*, Raleigh, NC, March 2, 2012.

"Through Visualization and Interaction, Computer Science Concepts Come Alive," Carolina Women In Computing (CWIC) 2012, Columbia, SC, February 17, 2012 (**Keynote talk**).

"Tips/Techniques: Changes to JFLAP to increase its use in courses," The 16th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2011), Darmstadt, Germany, June 29, 2011.

"Enhancing K-12 Education with Alice Programming Adventures," The 15th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2010), Ankara, Turkey, June 30, 2010.

"Adventures in Alice Programming," North Carolina Computer Instructor's Association (NCCIA) Spring Conference 2010, Wake Technical Community College, Raleigh, NC, March 19, 2010 (**Invited talk**).

"Adventures in Alice Programming - Part 2," North Carolina Computer Instructor's Association (NCCIA) Spring Conference 2010, Wake Technical Community College, Raleigh, NC, March 19, 2010 **(Invited talk).**

"Engaging Middle School Teachers and Students with Alice in a Diverse Set of Subjects," *Fourtieth SIGCSE Technical Symposium on Computer Science Education*, Chattanooga, TN, March 6, 2009.

"Increasing Engagement in Automata Theory with JFLAP," *Fourtieth SIGCSE Technical Symposium on Computer Science Education*, Chattanooga, TN, March 7, 2009.

"Attracting Kids to Computer Science via Programming in Virtual Worlds," Duke Virtual Reality and Serious Games Symposium, Duke University, Durham, NC, October 23, 2008, **(Invited talk).**

"The Teaching of Computing Should be Challenging, Exciting and Hands-On: Then They Will Come," Broadening Participation in Computing Disciplines Conference, Virginia Beach, VA, October 10, 2008, **(Invited talk).**

"Adventures in Alice Programming: K-12 Outreach," K-12 Day at IBM University Days, Research Triangle Park, NC, October 30, 2007.

"Increasing Interaction and Support in the Formal Languages and Automata Theory Course," The 12th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2007), Dundee, Scotland, June 25, 2007.

"An Innovative Approach with Alice for Attracting K-12 Students to Computing," International Conference on the Virtual Computing Initiative (IBM University Days), Research Triangle Park, NC, May 7, 2007.

"Turning Automata Theory into a Hands-on Course," Thirty-seventh SIGCSE Technical Symposium on Computer Science Education, Houston, Texas, March 3, 2006.

"A Visual and Interactive Automata Theory Course with JFLAP 4.0," *Thirty-fifth SIGCSE Technical Symposium on Computer Science Education*, Norfolk, Virginia, March 4, 2004.

"JAWAA: Easy Web-Based Animation from CS 0 to Advanced CS Courses," *Thirty-fourth SIGCSE Technical Symposium on Computer Science Education*, Reno, Nevada, February 21, 2003.

"Introducing Computer Science Through Animation and Virtual Worlds," *Thirty-third SIGCSE Technical Symposium on Computer Science Education*, Northern Kentucky, March 1, 2002.

"Increasing Visualization and Interaction in the Automata Theory Course," *Thirty-first SIGCSE Technical Symposium on Computer Science Education*, Austin, TX, March 9, 2000.

"Using JFLAP to Interact with Theorems in Automata Theory," *Thirtieth SIGCSE Technical Symposium on Computer Science Education*, New Orleans, LA, March 27, 1999.

"Web-based Animations of Data Structures Using JAWAA," *Twenty-ninth SIGCSE Technical Symposium on Computer Science Education*, Atlanta, GA, February 27, 1998.

"Animation, Visualization, and Interaction in CS 1 Assignments," *Twenty-ninth SIGCSE Technical Symposium on Computer Science Education*, Atlanta, GA, February 28, 1998.

"A Collection of Tools for Making Automata Theory and Formal Languages Come Alive," *Twenty-eighth SIGCSE Technical Symposium on Computer Science Education*, San Jose, CA, February 27, 1997.

"Integrating Hands-On Work into the Formal Languages Course via Tools and Programming," *Workshop on Implementing Automata*, London, Ontario, August 30, 1996.

"PipeLINK: Connecting Women and Girls in the Computer Science Pipelink," *National Educational Computing Conference '96*, Minneapolis, MN, June 20, 1996.

"Integrating Animations into Courses," *ACM SIGCSE/SIGCUE Conference on Integrating Technology in Computer Science Education,* Barcelona, Spain, June 4, 1996.

"Activities to Attract High School Girls to Computer Science," *Twenty-seventh SIGCSE Technical Symposium on Computer Science Education*, Philadelphia, PA, February 16, 1996.

"An Interactive Lecture Approach to Teaching Computer Science," SIGCSE Technical Symposium on Computer Science Education, Nashville, TN, March 3, 1995.

"LLparse and LRparse: Visual and Interactive Tools for Parsing," SIGCSE Technical Symposium on Computer Science Education, Phoenix, Arizona, March 11, 1994.

"A Visual Programming Environment for Turing Machines," IEEE Symposium on Visual Languages 1993, Bergen, Norway, August 26, 1993.

"FLAP: A Tool for Drawing and Simulating Automata," ED-MEDIA 93, World Conference on Educational Multimedia and Hypermedia, Orlando, FL, June 24, 1993.

"Simulation and Visualization Tools for Teaching Parallel Merge Sort," SIGCSE '93 Technical Symposium, Indianapolis, IN, February 19, 1993.

"An Optimal Parallel Algorithm for Preemptive Job Scheduling that Minimizes the Maximum Lateness," Twenty-sixth Annual Conference on Communication, Control, and Computing, Monticello, Illinois, September 28, 1988.

"A New Approach to the Dynamic Maintenance of Maximal Points in a Plane," Twenty-fifth Annual Conference on Communication, Control, and Computing, Monticello, Illinois, October 1, 1987.

**Workshops**

"Changes From Teaching in a Pandemic: You Have to Make Your Own Cookies Now," Illinois Summer Computer Science Teaching Workshop, Virtual, August 11, 2021. **(Invited talk)**

"Computer Science Upper Division Pathways," TPSE Math Partners' Meeting. Miami, Florida, April 1, 2019. (**Invited talk**).

"Engaging Students in Active Learning of Computer Science Concepts," ACM-iSIGCSE Workshop, University of Pune, Pune, India, Feb 3, 2015. (**Keynote Talk**)

"Early Career Advice," at The First Diversity in Games Research (DiGR) Workshop, North Carolina State University, Raleigh, NC, October 4, 2014.

"Integrating Computing into K-12 Disciplines Via Alice," CS4HS@Duke Workshop, Duke University, Durham, NC, October 27, 2012.

"Increasing the use of JFLAP in Courses," Sixth Program Visualization Workshop (PVW 2011), Darmstadt, Germany, June 30, 2011.

"Increasing Engagement in Automata Theory," Visual Thinking Workshop, Duke University, Durham, NC, May 4 2009 **(Invited talk).**

"Teaching Strategies and Learning Styles," CRAW Workshop - Managing the Academic Career for Faculty Women at Undergraduate Computer Science and Engineering Institutions, Chattanooga, TN, March 4, 2009, (Invited talk).

"Teaching Strategies and Learning Styles," CRAW Workshop - Managing the Academic Career for Faculty Women at Undergraduate Computer Science and Engineering Institutions, Cincinnati, OH, March 7, 2007, (Invited talk).

"Teaching Computer Science with Interaction and Visualization," Workshop on Current Progress of Education and Research in Computer Science, Duke University, Dec. 4, 2006. (Invited talk)

"Integrating Visualization and Interaction into Automata Theory," JHave Workshop, Grand Valley State University, June 14, 2006. (Invited talk)

"Current and Future CS Projects for Women and Minorities at Duke," IBM University Day, IBM, Research Triangle Park, NC, April 26, 2006. (Invited talk)

"Duke Emerging Scholars in CS," NSF ITWF Workshop on Peer-Led Team Learning, University of Wisconsin-Madison, Madison, Wisconsin, April 23, 2006.

"Attracting and Retaining Under-represented Groups in CS," NSF ITWF Workshop on Peer-Led Team Learning, University of Wisconsin-Madison, Madison, Wisconsin, April 24, 2006 (with Horwitz, Ryder, Munson, Binkley, Huss-Lederman, Sweat, and Biggers).

"Teaching Strategies and Learning Styles," CRAW Workshop - Managing the Academic Career for Faculty Women at Undergraduate Computer Science and Engineering Institutions, St. Louis, MO, February 23, 2005, (Invited talk).

"Using Hands-on Visualizations to Teach Computer Science from Beginning Courses to Advanced Courses", Second Program Visualization Workshop, Hornstrup Centret, Denmark, June 28, 2002.

"Using JFLAP for Visualization and Interaction in the Automata Theory Course," Software Visualization Workshop, Dagstuhl, Germany, May 25, 2001.

"Visual Demonstrations of Automata and Parsing," Interactive and Visual Tools Workshop, Duke University, March 30, 1996.

"Interactive Lecture on Binomial Heaps," Interactive Learning Workshop, Rensselaer Polytechnic Institute, April 13, 1994.

"Computers in Teaching the Foundations of Computer Science," Computers in Science Education and Training Workshop, Acadia University, Wolfville, Nova Scotia, June 15, 1992.

**Colloquia**

"Through Visualizations and Interaction, Computer Science Concepts Come Alive," Computer Science Department, Purdue University, West Lafayette, IN, March 29, 2022.

"Adventures in Alice Programming - Integrating Computing into K-12," Fall 2021 LSIS 5010: Information Systems in Organizations, Siobahn Day's graduate course, NCCU, Durham, NC, November 15, 2021.

"Through Visualization and Interaction, Computer Science Concepts Come Alive," The Plato Royalty Lecture Series, The Evergreen State College, Olympia, WA, May 11, 2016.

"Wikipedia Project - Pages for Notable Women in Computing," Microsoft Research Gender Diversity Lecture Series 5: History of Women in Computing and Women Leaders in Computing, Microsoft Research, Bellevue, WA, June 9, 2015. (one of three speakers with Telle Whitney and Katy Dickinson)

"Weaving Computing into all Middle School Disciplines," University of Mumbai, Mumbai, India, Feb. 2, 2015.

"Theoretical Computer Science Concepts Come Alive," IIT Bombay, Mumbai, India, Feb. 2, 2015.

"Engaging Students by Making Computer Science Concepts Come Alive," at Indiana University, Bloomington, IN, November 21, 2014.

"Creating Animations with Alice for Projects with All Disciplines," NC A&T State University, School of Education, Greensboro, NC, September 27, 2013

"Integrating Computing with Alice into K-12 Disciplines Through Projects," at What's STEM Got to Do with IT? Region 5 School Library Media and Technology Directors/Supervisors, Orange County, Hillsboro, NC, April 25, 2013.

"Computer Science Concepts Come Alive," Computer Science Seminar Series, Virginia Tech, Blacksburg, VA, April 1, 2011.

"Computer Science Concepts Come Alive," Computer Science Department and Distinquished Visitors Program, Haverford College, Philadelphia, PA, April 18, 2010.

"Computer Science Concepts Come Alive," Department of Computer Science and Engineering, Helsinki University of Technology, Espoo, Finland, Dec. 16, 2009.

"Computer Science Concepts Come Alive," Department of Computer Science, University of Helsinki, Helsinki, Finland, Dec. 15, 2009.

"Engaging Middle School Teachers and Students with Alice in a Diverse Set of Subjects," Department of Computer Science, University of Wisconsin Oshkosh, July 17, 2009.

"Concepts Come Alive through Visualization and Interaction," Department of Computer Science, University of Wisconsin Oshkosh, July 16, 2009.

"Computer Science Concepts Come Alive," Computer Science Department Colloquium, The Citadel, Charleston, SC, Feb. 20, 2007.

"A New Approach to Introductory Programming - Building Virtual Worlds with Alice," Computer Science Department, Durham Technical Community College, Durham, NC, October 7, 2005.

"A New Approach to Introductory Programming - Building Virtual Worlds with Alice," Visualization Seminar, Duke University, Durham, NC, September 23, 2005.

"An Interactive and Visual Approach to Learning Computer Science," Department of Computer Science, University of Houston, Houston, Texas, November 30, 2004.

"Learning Computer Science Concepts via Interactive Visualizations," Department of Computer Science, Johns Hopkins University, Baltimore, MD, July 24, 2003.

"Animation, Visualization and Interaction with Computer Science Concepts," Department of Mathematics and Computer Science, Wake Forest University, Winston-Salem, NC, December 1, 1998.

"Animations as a Foundation in Computer Science Courses, Visualizations as an Integral Component to Understanding," Department of Computer Science, Georgia Tech, Atlanta, GA, February 25, 1998. (with O. Astrachan)

"Interactive Algorithm Animation Tools," Algorithms and Complexity Seminar, Department of Computer Science, Duke University, Durham, NC, April 7, 1995.

"Introduction to Computational Geometry," Department of Computer Science, Duke University, Durham, NC, April 22, 1994.

"Interactive Algorithm Animation," Department of Computer Science, Vassar College, Poughkeepsie, NY, April 30, 1993.

"An NC Algorithm for Scheduling Unit-Time Jobs with Arbitrary Release Times and Deadlines," Computer Science Department, State University of New York, Albany, NY, March 13 1991.

"Sequential and Parallel Algorithms for Scheduling Problems," Computer Science Department, Williams College, Williams, MA, November 2, 1990.

"An Optimal Parallel Algorithm for Preemptive Job Scheduling that Minimizes the Maximum Lateness," Computer Science Department, Rensselaer Polytechnic Institute, Troy, NY, April 18, 1989.

"The Design of Efficient Algorithms for Some Geometric Problems," Computer Science Department, Union College, Schenectady, NY, April 13, 1989.

"An Optimal Parallel Algorithm for Preemptive Job Scheduling that Minimizes the Maximum Lateness," Computer Science Department, University of Pittsburgh, Pittsburgh, PA, April 11, 1989.

"The Design of Efficient Algorithms for Some Geometric Problems," Computer Science Department, Albright College, Reading, Pennsylvania, March 23, 1989.

"The Design of Efficient Algorithms for Some Geometric Problems," Computer Science Department, Juniata College, Huntingdon, Pennsylvania, March 17, 1989.

"The Design of Efficient Algorithms for Some Geometric Problems," Computer Science Department, Bucknell University, Pennsylvania, March 16, 1989.

"An Optimal Parallel Algorithm for Preemptive Job Scheduling that Minimizes the Maximum Lateness," Computer Science Department, Villanova University, Philadelphia, PA, March 13, 1989.

"An Optimal Parallel Algorithm for Preemptive Job Scheduling that Minimizes the Maximum Lateness," Computer Science Department, University of Tennessee, Knoxville, TN, February 27, 1989.

"An Optimal Parallel Algorithm for Preemptive Job Scheduling that Minimizes the Maximum Lateness," Research Triangle Park Theory Seminar, North Carolina State University, Raleigh, NC, December 2, 1988.

### Panels and Special Sessions

CRA-WP Panel: "Strategies for Your Career," Early Career Mentoring Workshop (CMW), Chicago, IL, November 3, 2023 (with Ann Quiroz Gates)

CRA-WP Panel: "Building Your Brand, Influence, Impact," Career Mentoring Workshop (CMW), Chicago, IL, November 4, 2023 (with Ann Almgren, Kyla McMullan, and Alan Bivens)

CRA-WP Panel: "Teaching Your First Class," CRA-WP Graduate Cohort for Women, San Francisco, CA, April 22, 2023 (with Jodi Tims)

CRA-WP Panel: "Ph.D. Academic Career Paths and Job Search," CRA-WP Graduate Cohort for IDEALS, Honolulu, Hawaii, March 24, 2023 (with Ron Metoyer)

CRA-WP Panel: "Empowerment of People with Disabilities," CRA-WP Graduate Cohort for IDEALS, Honolulu, Hawaii, March 22, 2023 (with Shaun Kane, Raja Kushalnagar, and Ather Sharif ).

CRA-WP Panel: "Effective Teaching Tactics: In-person, Hybrid, Virtual - Wow!," *Twenty-second Grace Hopper Celebration of Women in Computing*, Orlando, Florida, September 22, 2022 (with Colleen Lewis).

CRA Panel: "Development of Teaching Faculty," CRA Conference at Snowbird 2022, Snowbird, Utah, July 21, 2022 (with Ran Libeskind-Hadas, Christine Alvarado, Nancy Amato, Dan Grossman).

CRA-WP Panel: "Academia vs Industry: Choose Your Own Adventure," CRA-WP Graduate Cohort for Women, New Orleans, LA, April 22, 2022 (with A.J. Brush ).

CRA-WP Panel: "Empowerment of People with Disabilities," CRA-WP Graduate Cohort for IDEALS, San Diego, CA, March 25, 2022 (with Raja Kushalnagar, Richard Ladner, and Ather Sharif ).

NCWIT Panel: "NCWIT Academic Alliance Panel on Academic Mentoring," Featuring Mentoring Undergraduate Research Award (MAUR), and Harold and Notkin Award winners, Virtual Event, May 17, 2021, (with Barbara Ryder, Damla Turget, Diba Mirza, Haiyan Cheng, and Gloria Washington), (Rodger was moderator).

CRA-WP Panel: "Academic Career Paths and Job Search," CRA-WP Graduate Cohort for Women Workshop, Virtual Event, April 23, 2021 (with Kim Hazelwood).

RESET (Re-Entering STEM Through Emerging Technology) PANEL: "Graduate Programs as Path to Re-entry in Emerging Tech Domain," Virtual Event, March 4, 2021 (with Jan Cuny, Katie Siek, Maria Gini, and Moderator: Farzana Rahman).

CRA-WP CMW Panel: "How to Succeed in a Research Career (Education)," CRA-WP Early-Career Mentoring Workshop for PhD Students, Virtual Event, November 12, 2020 (with Richard Ladner).

CRA-E Panel: "Building a Successful Teaching-Track Faculty Career," *Professional Development Workshop for Teaching-Track Faculty, SIGCSE 2020 Pre-Symposium*, Portland, Oregon, March 11, 2020 (with Steve Wolfman and Phillip Conrad).

CRA-W Panel: "Effective Teaching Tactics," *Nineteenth Grace Hopper Celebration of Women in Computing*, Houston, Texas, October 3, 2019 (with Helen Hu).

CRA-W Panel: "Entrepreneurship," CRA-W Graduate Cohort Workshop, Chicago, IL, April 13, 2019 (with Ayanna Howard).

CRA-W Panel: "Effective Teaching Tactics," *Eighteenth Grace Hopper Celebration of Women in Computing*, Houston, Texas, October 25, 2018 (with Cynthia Lee).

"Best Practices in Academia To Remedy Gender Bias in Tech," Panelist, *Fourty-ninth SIGCSE Technical Symposium on Computer Science Education*, Baltimore, Maryland, February 23, 2018. (with Ursula Wolz, Lina Battestilli, Bruce Maxwell, and Michelle Trim).

CRA-W Panel: "Ph.D Academic Career Paths and Job Search," CRA-W Graduate Cohort Workshop, San Diego, CA, April 16, 2016 (with Julia Hirschberg).

CRA-W Panel: "Building Your Academic Professional Network," *Seventeenth Grace Hopper Celebration of Women in Computing*, Orlando, Florida, October 4, 2017 (with Ayanna Howard).

"Surviving 50 Shades of Academic Motherhood," *Sixteenth Grace Hopper Celebration of Women in Computing*, Houston, Texas, October 21, 2016 (with Quincy Brown, Marie des Jardins, Farzana Rahman, and Katie Siek).

CRA-W Panel: "Effective Teaching Tactics," *Sixteenth Grace Hopper Celebration of Women in Computing*, Houston, Texas, October 20, 2016 (with Valerie Barr).

"Computing Education Research in the Future," *2016 Beijing Summit on Computer Education Research*, Peking University, Beijing, China, July 23, 2016 (with Dan Garcia, Steve Edwards, Ren Youqun, Li Wenxin, Chen Yue, and Guo Yao).

"Technology We Can't Live Without!, revisited" Panelist, *Fourty-seventh SIGCSE Technical Symposium on Computer Science Education*, Memphis, Tennessee, March 3, 2016 (with Daniel D. Garcia, Leslie Aaronson, Shawn Kenner, and Colleen Lewis).

CRA-W Panel: "Effective Teaching and Class Management," CRA-W Early-Career Mentoring Workshop, Portland, OR, June 14, 2015.

CRA-W Panel: "Representing Yourself Outward (Web Presence, meetings, PR, CV)," CRA-W Mid-Career Mentoring Workshop, Portland, OR, June 14, 2015 (with Lori Diachin and Kathryn McKinley).

CRA-W Panel: "Promotion to the Next Technical Step", for CMW-E - Professor Track, CRA-W Mid-Career Mentoring Workshop, Portland, OR, June 13, 2015 (with Mary Anne Egan and Ingrid Russell).

CRA-W Panel: "Ph.D Academic Career Paths and Job Search," CRA-W Graduate Cohort Workshop, San Francisco, CA, April 11, 2015 (with Padma Raghavan).

CRA-W Panel: "Academic Career Paths and Job Search", CRA-W Graduate Cohort Workshop, Santa Clara, April 12, 2014 (with Margaret Martonosi).

CRA-W Grad Students: "Presentation and Other Verbal Communication Skills," *Fifteenth Grace Hopper Celebration of Women in Computing*, Houston, Texas, October 14, 2015 (with Kathryn McKinley).

"Visibility Everywhere, Building Web/Social Media Presence for Women in Computing," Panelist, *Fourteenth Grace Hopper Celebration of Women in Computing*, Phoenix, Arizona, October 9, 2014 (with Ruth Farmer, A. J. Brush, Tracy Camp, and Patty Lopez)

CRA-W: "Starting, Managing, and Growing Your Own Research Program," Panelist, *Fourteenth Grace Hopper Celebration of Women in Computing*, Phoenix, Arizona, October 8, 2014 (with Gillian Hayes).

CRA-W: "Senior Career Mentoring Topic Tables," Organized special mentoring session for mid-senior women faculty. *Fourteenth Grace Hopper Celebration of Women in Computing*, Phoenix, Arizona, October 8, 2014 (with Deb Agarwal, Nancy Amato, Tracy Camp, Kathryn McKinley and Lori Pollock).

"How to Apply to Graduate School," Panelist, *CRA-W Career Mentoring Workshops at the Twelth Grace Hopper Celebration of Women in Computing*, Baltimore, Maryland, October 3, 2012 (with Tracy Camp).

"Pursuing a Ph.D. with Fellowship Support: Options, Choices and Opportunities," Panelist, *Eleventh Grace Hopper Celebration of Women in Computing* Portland, Oregon, November 11, 2011 (with Laura Adolfie, Susanne Hambrusch, Jane Prey, and Yolanda Rankin).

"Progress in Surfacing Computer Science in STEM," Panelist for Special Session, *Fourty-second SIGCSE Technical Symposium on Computer Science Education*, Dallas, TX, March 12, 2011 (with Mark Stehlik, Cameron Wilson, and Chris Stephenson).

"Moving Up the Ladder - to Full Professor or Senior Scientist," Panelist, Tenth Grace Hopper Celebration of Women in Computing Conference, September 30, 2010 (with Joan Francioni, Susanne Hambrusch, and Mary Fernandez).

"Computer Algebra in Education: The Next Challenges", Panelist, East Coast Computer Algebra Day ECCAD 2010, Emory University, Atlanta, Georgia, May 15, 2010 (with Stephen Watt, Jeremy Johnson, Mika Seppala, Robert Miner, and Mark Giesbrecht)

"Building an Online Educational Community for Algorithm Visualization," Panelist for Special Session, 41st SIGCSE Technical Symposium on Computer Science Education, Milwaukee, Wisconsin, March 13, 2010 (with Thomas Naps, Stephen Edwards, and Clifford Shaffer).

"Surfacing Computer Science in STEM Education," Panelist for Special Session, 41st SIGCSE Technical Symposium on Computer Science Education, Milwaukee, Wisconsin, March 12, 2010 (with Mark Stehlik, John White, Robert Schnabel, and Chris Stephenson).

"Effective Delivery of Computing Curriculum in Middle School - Challenges and Solutions," Panelist, 41st SIGCSE Technical Symposium on Computer Science Education, Milwaukee, Wisconsin, March 12, 2010 (with Youwen Ouyang, and Ursula Wolz).

"Best Practices for Introductory Computer Science," Panelist, The Grace Hopper Celebration of Women in Computing Conference, Tucson, Arizona, October 1, 2009 (with Valerie Barr, Jessica Bayliss, Monisha Pulimood, and Ursula Wolz).

"Findings, Challenges and Recommendations for Teaching in Academia," Panelist, The Grace Hopper Celebration of Women in Computing Conference, Keystone, Colorado, October 2, 2008 (with Joyce Little, Patricia Joseph, and Suzanne Westbrook).

"Automata Theory - Its Relevance to Computer Science Students and Course Contents," Panelist, *Thirty-seventh SIGCSE Technical Symposium on Computer Science Education*, Houston, Texas, March 2, 2006 (with Michal Armoni, Moshe Vardi, and Rakesh Verma).

"The ACM Java Task Force: Final Report," Panelist, *Thirty-seventh SIGCSE Technical Symposium on Computer Science Education*, Houston, Texas, March 2, 2006 (with Eric Roberts, Kim Bruce, James H. Cross, Robb Cutler, Scott Grissom, Karl Klee, Fran Trees, Ian Utting, and Frank Yellin).

"Animation and Visualization in the Curriculum: Opportunities, Challenges, and Successes," Panelist, *Thirty-seventh SIGCSE Technical Symposium on Computer Science Education*, Houston, Texas, March 3, 2006 (with Thomas Naps, Guido Rossling, and Rockford Ross).

"The ACM Java Task Force: Status Report," Panelist, *Thirty-sixth SIGCSE Technical Symposium on Computer Science Education*, St. Louis, Missouri, February 24, 2005 (with Eric Roberts, Kim Bruce, James H. Cross, Robb Cutler, Scott Grissom, Karl Klee, Fran Trees, Ian Utting, and Frank Yellin).

"Being an Effective Teacher," Panelist, *The Fifth Grace Hopper Celebration of Women In Computing*, Chicago, Illinois, October 8, 2004. (with Sheila Castaneda, Faith Ellen Fich, and Susan Horwitz).

"Panel on Teaching Faculty Positions," Panelist, *Thirty-fifth SIGCSE Technical Symposium on Computer Science Education*, Norfolk, Virginia, March 5, 2004 (with John P. Dougherty, Thomas B, Horton, and Daniel D. Garcia).

"How To Develop and Grade an Exam for 20,000 Students (or maybe just 200 or 20)," Panelist for Special Session, SIGCSE Technical Symposium on Computer Science Education, Northern Kentucky, p. 285-286, March 2, 2002 (with Fran Hunt, Joe Kmoch, Chris Nevison, and Julie Zelinski).

"AP CS Goes OO,", Panelist for Special Session, SIGCSE Technical Symposium on Computer Science Education, Charlotte, NC, p. 423-424, February 23, 2001 (David Gries, Kathleen Larson, Mark A. Weiss, and Ursula Wolz).

"Current and Future Direction of the Advanced Placement Exam," Panelist, SIGCSE Technical Symposium on Computer Science Education, New Orleans, LA, March 26, 1999 (with Mark Stehlik, Kathy Larson, Alyce Brady, and Chris Nevison).

"Advanced Placement Transition to C++," Panelist, SIGCSE Technical Symposium on Computer Science Education, Atlanta, GA, February 27, 1998 (Mark Stehlik, Sarah Fix, Chris Nevison, and Mark Weiss).

"AP Computer Science Panel," Televised to High Schools, Panelist, Hartford, Connecticutt, January 16, 1998.

"Using Visual Demonstrations," SIGCSE Technical Symposium on Computer Science Education, Nashville, TN, March 2, 1995 (with S. Grissom, R. Ross, D. Schweitzer, T. Naps, and D. Hunkins).

**Poster Sessions, Videos, and Demos**

Poster: "Using Interactive Visualization and Programmed Instruction to Teach Formal Languages," SIGCSE 19: Proceedings of the 50th ACM Technical Symposium on Computer Science Education, p. 1263, Minneapolis, MN, March 1, 2019 (with Mostafa Mohammed and Clifford A. Shaffer).

Poster: "A Technique for Translation from Problem to Code ," ITICSE 18: Proceedings of the 23nd ACM conference on Innovation and technology in computer science education, Larnica, Cyprus, July 2, 2018 (with Drew Hilton, Genevieve M. Lipp).

Poster: "Scaling up an Attractive Approach for Attracting Students to Computing," STELAR ITEST PI and Evaluator Summit 2018, Arlington, VA, May 14, 2018 (with M. Schep, R. Stalvey, S. Cooper and W. Dann)

Poster: "K-12 Teachers Experiences with Computing: A Case Study," ITICSE 17: Proceedings of the 22nd ACM conference on Innovation and technology in computer science education, Bologna, Italy, July 3, 2017 (with Steve Cooper, Kathy Isbister, Madeleine Schep, RoxAnn Stalvey and Lance Perez).

VIDEO: "Adventures in Alice Programming for Attracting Students to Computing," 2016 NSF Video Showcase: Advancing STEM Learning for All: Sharing cutting edge work and community discourse, Online, May 17-23, 2016. http://stemforall2016.videohall.com/presentations/759 (with S. Cooper, R. Stalvey, M. Schep, and W. Dann)

Poster: "Scaling up an Innovative Approach for Attracting Students to Computing," STELAR ITEST PI and Evaluator Summit 2016, Arlington, VA, May 2, 2016 (with M. Schep, R. Stalvey, S. Cooper and W. Dann)

Poster: "Integrating Visualization and Interaction into the Formal Languages and Automata Course," AAAS and NSF Envisioning the Future of Undergraduate STEM Education: Research and Practice (EnFUSE), Washington, D.C., April 28, 2016.

Hands On Expo: "Integrating Computing into All STEM Disciplines," 3rd Annual Bridging the Gap Conference, Raleigh, NC, October 29, 2014.

Poster: "Notable Women in Computing", Grace Hopper Celebration of Women in Computing Conference, Phoenix, AZ, Oct 8, 2014 (with Katy Dickinson and Jessica Dickinson Goodman).

Poster: "Integrating computer science and mathematics in middle school with Alice," SIGCSE Technical Symposium on Computer Science Education, Atlanta, GA, March 7, 2014 (with Daniel MacDonald, Elizabeth Onstwedder, Bella Onwumbiko, and Edwin Ward).

Poster: "Increasing the experimentation of theoretical computer science with new features in JFLAP," ITICSE 13: Proceedings of the 18th ACM conference on Innovation and technology in computer science education, Canterbury, United Kingdom, July 2, 2013 (With Julian Genkins and Ian McMahon).

Poster: "Integrating Computer Science into Middle School Mathematics", SIGCSE Technical Symposium on Computer Science Education, Denver, CO, March 8, 2013 (with Chris Brown, Mike Hoyle, and Michael Marion).

Poster: "Integrating Visualization and Interaction into the Formal Languages and Automata Course,", NSF TUES PI Conference, Washington, DC, January 23, 2013.

Poster: "Integrating Computer Science into Middle School Disciplines with Alice," Bridging the Gap Conference: Uniting North Caroline K-16 STEM Education, Raleigh, NC, Oct 23, 2012.

Poster: "Integrating Computing into K-12 Mathematics," IBM Cloud Academy Conference, ICA CON 2012, Research Triangle Park, NC, April 19, 2012 (with R. Lucic, M. Dalis, P. Li, C. Gadwal, and W. Zhang).

Poster: "An Interactive Approach to Formal Languages and Automata with JFLAP", 2011 NSF CCLI PI Conference, Washington, DC, January 27, 2011.

Poster: "Integrating Computer Science into K-12 via Alice Projects," IBM University Day, IBM, Research Triangle Park, NC, November 19, 2010 (with Liz Liang, Richard Lucic, Jenna Hayes and Francine Wolfe).

Poster: "Integrating Computer Science and Engineering into K-12 Via Teacher Workshops and the Virtual Computing Laboratory," The 3rd International Conference on the Virtual Computing Initiative (ICVCI 3), Research Triangle Park, NC, October 22-23, 2009. (with R. Lucic and N. Shaw)

Poster: "Adventures in Alice Programming," National Workshop on Stimulating and Sustaining Excitement and Discovery in K-12 STEM Education, Friday Institute, NC State University, Raleigh, NC, August 2, 2007.

Demonstration: "An Interactive Approach to Formal Languages and Automata with JFLAP," NSF Showcase at Thirty-eighth SIGCSE Technical Symposium on Computer Science Education, Cincinnati, Ohio, March 9, 2007.

Demonstration: "Learning Automata and Formal Languages Interactively with JFLAP," The Eleventh Annual Conference on Innovation and Technology in Computer Science Education, University of Bologna, Italy, June 28, 2006.

"Learning How to Program through Animation and Virtual Worlds," Instructional Technology Showcase, Duke University, April 28, 2005.

"Converting Computer Science Courses into Visual, Interactive and Collaborative Courses," Instructional Technology Faculty Showcase, Duke University, April 27, 2001 (With O. Astrachan)

"JFLAP: An Aid to Studying Theorems in Automata Theory," Integrating Technology into Computer Science Education, Dublin, Ireland, August 20, 1998 (with E. Gramond).

Demo of JAWAA, Shaping Expectations: The Role of Technology in Science Education, NSF RAIRE Workshop, Duke University, Durham, NC, April 18, 1998.

Demo of JFLAP, *Workshop on Implementing Automata*, London, Ontario, August 30, 1996.

"Interactive Tools for Teaching and Learning the Foundations of Computer Science," American Society for Engineering Education (ASEE) Conference, Washington, DC, June 24, 1996.

"PipeLINK: Connecting Women across the Pipeline into Computer Science," National Science Foundation Conference on Women and Science, Washington, D.C. December, 13-15, 1995 (with E. Walker).

Poster and demos for "Visual and Interactive Tools for Teaching Computer Science," SIGCSE 94 Technical Symposium, Phoenix, Arizona, March 10, 1994.

"Computers and Interactive Learning," Lilly Teaching Fellows Conference, April 4, 1992, (with Curtis Breneman, Joel Plawsky, Bruce Piper, and Dimitris Lagoudas).

### Birds of a Feather Sessions

"Designing a Senior Faculty Track for GHC. Let's Brainstorm," Thirteenth Grace Hopper Celebration of Women in Computing Conference, Minneapolis, Minnesota, October 4, 2013 (with Andrea Danyluk, Tracy Camp, Lori Pollock, and Mary Lou Soffa).

"Teaming up to Change K-12 CS Education, One State-at-a-Time," 42nd SIGCSE Technical Symposium on Computer Science Education, Dallas, TX, March 11, 2011 (with Barbara Boucher Owens, Chris Stephenson, and Mark Guzdial).

"Teaching Track Faculty in CS," 41st SIGCSE Technical Symposium on Computer Science Education, Milwaukee, Wisconsin, March 11, 2010 (with Donald Slater).

### Talks/Panels/Activity Days – Undergraduates

"Applying to Graduate School and Preparing a Stellar Application," Rsearch Exposure in Socially Relevant Computing (RESORC 2023), April 9, 2023.

"Applying to Graduate School and Preparing a Stellar Application," Rsearch Exposure in Socially Relevant Computing (RESORC 2021), December 11, 2021.

"Applying to Graduate School and Preparing a Stellar Application," Rsearch Exposure in Socially Relevant Computing (RESORC 2021), April 24, 2021.

"IAmCS - A Panel on the Future of Computer Science Education," CSbyUs, Duke University, Durham, NC, November 19, 2019 (with Owen Astrachan, Mary Hemphill, and Aria Chernik).

"Student Opportunity Lab - Pathways to your Future", Co-organization of mentors to tables to talk to undergraduates about academic careers and graduate school. Thirteenth Grace Hopper Celebration of Women in Computing Conference, Minneapolis, Minnesota, October 2, 2013 (with A.J. Brush, Andrea Danyluk, and Maria Gini).

"Is Research For Me?" Interactive session for the CRA-W Undergraduate Workshop at Grace Hopper Celebration of Women in Computing 2010, Atlanta, Georgia, September 29, 2010.

"Adventures in Alice Programming," World of Computing Course, Haverford College, Haverford College, Philadelphia, PA, April 18, 2010.

"Integrating Visualization and Animation into the Teaching of Computer Science Courses," The Advance Program, Duke University, February 26, 2001.

"Growing Plants and Shapes," Carolinas & Ohio Science Education Network (COSEN) program, Duke University, Durham, North Carolina, June 1999.

"Growing Plants and Shapes," Carolinas & Ohio Science Education Network (COSEN) program, Duke University, Durham, North Carolina, May 31, 1995.

**Talks/Activity Days/Panels – K-12 Teachers and Students**

"An Introduction to Alice Programming," Duke FEMMES Event, Duke University, February 22, 2020, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"An Introduction to Alice Programming," Duke FEMMES Event, Duke University, August 23, 2019, (taught Alice to approximately 75 4th-6th grade girls over 4 one hour sessions) (part of a one week Femmes camp).

"An Introduction to Alice Programming," Duke FEMMES Event, Duke University, February 23, 2019, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"An Introduction to Alice Programming," Duke FEMMES Event, Duke University, August 20, 2018, (taught Alice to approximately 75 4th-6th grade girls over 3 one hour sessions) (part of a one week Femmes camp).

"An Introduction to Alice Programming," Duke FEMMES Event, Duke University, February 17, 2018, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"Adventures in Programming with Alice," Ragazze Digitali Camp, at University of Modena, Modena, Italy, July 6, 2017 (gave a talk on Alice to about 50 high school girls attending this computing camp).

"Learn a bit about Computer Science - An Introduction to Alice," Duke FEMMES Event, Duke University, February 25, 2017, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"Adventures with Alice Programming," Talk to Maurice Carter's students from Western Harnett High at Duke University, October 28, 2016 (about 30 students).

"Learn a bit about Computer Science - An Introduction to Alice," Duke FEMMES Event, Duke University, February 27, 2016, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"Adventures in Alice Programming Workshop," Four hour class on programming for 14 students, (5th to 8th grade students), Duke University, November 21, 2015. (with Yossra Hamid).

"Adventures in Alice Programming Workshop," Four hour class on programming for 13 students, (5th to 8th grade students), Duke University, November 14, 2015. (with Yossra Hamid).

"Adventures in Alice Programming Workshop - Part III," Third three hour class on programming for 10 students, (6th and 7th grade students), Duke University, March 21, 2015. (with Samantha Huerta and Ellen Yuan).

"Adventures in Alice Programming Workshop - Part II," Second three hour class on programming for 17 students (6th and 7th grade students), Duke University, February 28, 2015. (with Samantha Huerta and Ellen Yuan).

"Learn a bit about Computer Science - An Introduction to Alice," Duke FEMMES Event, Duke University, February 21, 2015, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"Adventures in Alice Programming Workshop - Part I," Three hour class on programming for 19 students (6th and 7th grade students), Duke University, February 14, 2015. (with Samantha Huerta and Ellen Yuan).

"How Does Google Search for Everything? Searching for and Organizing Data," Durham Public Schools Eighth graders visit Duke University, Durham, NC, October 31, 2014. (two sessions)

"Creating a 3D Interactive Story," Duke FEMMES Event, Duke University, February 22, 2014, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"Adventures in Alice," Two three-hour sessions on Alice Programming for sixth graders (14 students morning, 12 students afternoon for 26 total students), Duke University, March 23, 2013 (with Chris Brown).

"Creating a 3D Interactive Story," Duke FEMMES Event, Duke University, February 23, 2013, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"Adventures in Alice Programming", Taught Alice and showed how it can be used with mathematics to three 6th grade math/science classes (about 90 students total) at Oak Grove Middle School. Invited by teacher Kyle Mendenhall, Winston-Salem, NC, November 30, 2012 (with Chris Brown).

Poster and Demos: "Adventures in Alice Programming," Technology Showcase, Durham Public School System, Durham Public School Resource Center, Durham, NC, March 21, 2011.

"Creating a 3D Interactive Story," Duke FEMMES Event, Duke University, February 26, 2011, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"How Does Google Search for Everything? Searching for and Organizing Data," Durham Public Schools Eighth graders visit Duke University, Durham, NC, October 29, 2010.

"Creating a 3D Interactive Story," Duke FEMMES Event, Duke University, February 27, 2010, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"How Does Google Search for Everything? Computer Science at Work," Durham Public Schools Eighth graders visit Duke University, Durham, NC, October 16, 2009.

Blue Devil Days, Table for advertising DES-CS program. Duke University. April 6, 2009, April 10, 2009, April 14, 2009 and April 20, 2009.

Poster and Demos: "Adventures in Alice Programming," Technology Showcase, Durham Public School System, Durham Public School Resource Center, Durham, NC, March 19, 2009.

Creating a 3D Interactive Story, Duke FEMMES Event, Duke University, February 21, 2009, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

Met with teacher Kristin Bedell's Alice class, Efland Cheeks Elementary School, Efland, NC, November 7, 2008.

"Adventures in Programming with Alice," Durham Public Schools "School Days", Duke University, Durham, NC, October 23, 2008 (attended by about 32 middle schoolers from the Durham Public Schools).

Creating a 3D Interactive Story, Duke FEMMES Event, Duke University, March 1, 2008, (taught Alice to approximately 60 4th-6th grade girls over 4 sessions).

"Adventures in Alice Programming," Back to School Science and Math Professional Development Institute for Grade 6-12 Science and Math Teachers in the Durham Public School System, Riverside High School, Durham, NC, August 21, 2007. (gave three two-hour hands-on presentations throughout the day, 32 people total attended.)

Creating a 3D Interactive Story, Duke University, July 19, 2007 (taught Alice to 15 high school girls participating in the Howard Hughes PreCollege program in the Biological Sciences at Duke University).

Poster: "Adventures in Alice Programming," Technology Showcase, Durham Public School System, Rogers-Herr Year-Round Middle School, Durham, NC, May 31, 2007.

"Experimenting with Grammars to Generate L-Systems," Duke Up Close Faculty Seminar, Duke University, April 10, 2007.

Blue Devil Days, Table for advertising DES-CS program. Duke University. April 6, 2007, April 20, 2007, and April 23, 2007.

Creating a 3D Interactive Story, Duke FEMMES Event, Duke University, February, 24, 2007 (taught Alice to approximately 60 4th-6th grade girls over 4 sessions.).

Math CS Panel, Open House for High School Students in NC and SC, Duke University, September 16, 2006.

Blue Devil Days, Table for advertising DES-CS program. Duke University. April 10, 2006, April 14, 2006, and April 17, 2006.

"Creating Animations and 3D Virtual Worlds - Programming for Beginners", Duke Up Close Faculty Seminar, Duke University, April 2, 2006.

Blue Devil Days, Table for advertising DES-CS program. Duke University. April 11, 2005, April 18, 2005, and April 25, 2005.

"Animated Computer Science Concepts," Roger-Herrs Middle School students activity day, Duke University, November 18, 2002 (with Jeremy Morgan and Drew Presslar).

"AP CS Exam Development Process," High School Teachers Conference, Arlington High School, Arlington, TX, December 9, 2000.

"C++ Programs, some examples," High School Teachers Conference, University High School, Irvine, CA, October 24, 1998.

"Activity Day 3 - Algorithm Animation and Statrad - The Computer Detective," PipeLINK Activity Day, Participants included high school girls from sixteen high schools, Rensselaer Polytechnic Institute, Saturday, November 4, 1995 (with E. Walker).

"Using C++ in CS1 and CS2," High School Teachers Conference, Rice University, Houston, TX, October 28, 1995.

"The Animator," PipeLINK Summer Program, Rensselaer Polytechnic Institute, August 9, 1995.

"C++ Programming," PipeLINK Summer Program, Rensselaer Polytechnic Institute, August 7, 1995.

"Growing Shapes and Trees," PipeLINK Summer Program, Rensselaer Polytechnic Institute, August 4, 1995.

"Getting Started: Introduction to RCS, e-mail and emacs," PipeLINK Summer Program, Rensselaer Polytechnic Institute, July 31, 1995.

"Activity Day 2 - More on the Internet and Building Home Pages," PipeLINK Activity Day, Participants included high school girls from sixteen high schools, Rensselaer Polytechnic Institute, Saturday, April 29, 1995 (with E. Walker).

"What is Computer Science?," Troy High School, Troy, New York, Jan. 10, 1995.

"What is Computer Science?," Guilderland High School, Guilderland, New York, Jan. 9, 1995.

"Activity Day 1 - Internet Treasure Hunt and Growing Trees," PipeLINK Activity Day, Participants included high school girls from sixteen high schools, Rensselaer Polytechnic Institute, Saturday, January 7, 1995 (with E. Walker).

"What is Computer Science?," Lansingburgh High School, Troy, New York, Dec. 13, 1994.

"What is Computer Science?," Albany High School, Albany, New York, Dec. 12, 1994.

"What is Computer Science?," Watervliet High School, Watervliet, New York, Dec. 2, 1994.

"What is Computer Science?," Emma Willard, Troy, New York, Dec. 1, 1994.

"What is Computer Science?," Albany Academy for Girls, Albany, New York, Oct. 28, 1994.

"What is Computer Science?," Averill Park High School, Averill Park, New York, Oct. 27, 1994.

"Sorting Numbers as Shapes," Young Scholars Program, Rensselaer Polytechnic Institute, July 28, 1994.

"Sorting Numbers as Shapes," Shapes Across the Sciences program for high school teachers, Rensselaer Polytechnic Institute, August 7, 1993.

"Modeling Plants Using L-Systems," Shapes Across the Sciences program for high school teachers, Rensselaer Polytechnic Institute, August 5, 1993.

"On Being A Computer Scientist," Young Scholars Program, Rensselaer Polytechnic Institute, August 13, 1992.

"On Being a Computer Scientist," Young Scholars Program for High School Students, Rensselaer Polytechnic Institute, Aug. 5, 1991.

"On Being a Computer Scientist," Young Scholars Program for High School Students, Rensselaer Polytechnic Institute, Aug. 6, 1990.

### Other Talks

"Why did my dog's head fall off? Teaching Computing with Visualization, Interaction, and Animation," Duke Family Weekend, Duke University, Durham, NC, October 25, 2019.

"Adventures in Alice Programming: K-12 Outreach," Durham FM Association, Durham, NC, November 13, 2007.

"Experience the Interactive Computer Classroom," Duke Alumni Association, Duke University, Duke University, April 21, 2001.

### Interviews

Duke Chronicle, "Why do women drop CompSci?," December 11, 2017.

Duke Chronicle, "With large classes and waitlists, CompSci feels growing pains. But are those pains unique to Duke?," October 24, 2017.

Duke Chronicle, "New computer science chair seeks solution for small faculty size," September 13, 2017.

Duke Chronicle, "CompSci enrollment increases as faculty size stays stagnant," September 1, 2017.

Duke Chronicle, "Students more often choose BS over AB degree in majors that offer both," July 18, 2017.

Duke Chronicle, "Breaking the code: Examining female representation in computer science," November 1, 2016.

Duke Chronicle, "CompSci department sees increased student demand," April 25, 2016.

Duke Research Blog, "Teachers Look to 'Alice' for Help," Guest Post by Leah Montgomery - NC Central University, July 18, 2014.

TechNewsWorld, "Hour of Code Aims to Take the Mystery Out of Computer Science," by Rachelle Dragani, Dec 10, 2013. (Quoted in last three paragraphs)

Duke Chronicle, "Alice Project to introduce children to computer science," June 22, 2011.

Duke Today, "Reviving Interest in Math and Science," June 13, 2011.

"Reviving the Interest in Math and Science", Gist From The Mill, p. 4, Spring 2011.

Duke News Mutimedia Services, Animating Computer Programming, Video, July 6, 2009.

Duke News and Communication, "Bringing Girls and Boys to Computer Science with 'Alice', June 22, 2009.

Duke News and Communication, "Getting Students Excited about Computer Science," July 10, 2008.

Instructify, "Adventures in Alice Programming Workshop at Duke University," www.instructify.com, July 24, 2008. Blog about the Alice workshop for teachers.

Duke Magazine, "Crossing the Digital Divide," Sarah Bray, p. 14-19, May-June 2000. Interviewed about PipeLINK and women in computer science.

"Does Jane Compute?: Preserving Our Daughter's Place in the Cyber Revolution," Roberta Furger, Warner Brothers, 1998. Mentions PipeLINK program.

## IX. Professional Societies

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|---|---|
| 1986 – present | Association of Computing Machinery (ACM) |
| 1986 – present | Special Interest Group on Algorithms and Computation Theory (SIGACT) |
| 1992 – present | Special Interest Group on Computer Science Education (SIGCSE) |
| 1992 – present | Society for Industrial and Applied Mathematics (SIAM) |
| 1995 – present | IEEE Computer Society |
| 2012 – present | The Institute of Electrical and Electronics Engineers (IEEE) |
| 2014 – present | IEEE Education Society |
| 2014 – present | Special Interest Group on Computers and Society (SIGCAS) |
| 2018 – present | Computer Science Teachers Association (CSTA) |
| 2018 – present | American Association for the Advancement of Science (AAAS) |
| 1992 – 1998 | Special Interest Group on Computer and Human Interaction (SIGCHI) |
| 1986 – 2000 | European Association for Theoretical Computer Science (EATCS) |

## X. Consulting

*Consultant* *College Board*
Reviewed materials for the AP CS Principles Course October 2022.

*Consultant* *Hunter College*
Review of Computer Science Department, Hunter College, New York, NY. November 27-28, 2012.

*Consultant* *University at Albany-SUNY*
Review of Computer Science Department, University at Albany - SUNY, Albany, NY. February 23-24, 2009.

*Consultant* *College Board*
Attended AP Computer Science Faculty Colloquium, Chicago, Illinois, October 24-26, 2008.

*Consultant* *ETS*
2004, 2005, 2006. Reviewing/writing AP CS Materials.

*Reader, AP Computer Science Exam* *ETS*
1997, 1999. Spent one week grading AP Computer Science Exams.

*Consultant* *IBM, Myers Corners Laboratory, Poughkeepsie, NY*
June 1991-August 1991. Evaluated projects at IBM.

## XI. Research Grants and Contracts

### Proposals approved and funded

Supplement to "The Association of Computing Machinery's Special Interest Group in Computer Science Education's New Global Computing Education Conference 2019," National Science Foundation DUE 1901755, $9,999, March 2023 - January 31, 2024. (Rodger is PI, funds are for conference participants of CompEd 2019 and CompEd 2023).

"Improving the Advancement of Researchers from Populations Underrepresented in Computer and Computational Science Research with the CRA-WP Career Mentoring Workshops", Department of Energy DE-SC0023506, $204,263, September 1, 2022 - August 31, 2024 (Rodger is PI, but all funds go to Computing Research Association.).

"The Association of Computing Machinery's Special Interest Group in Computer Science Education's New Global Computing Education Conference 2019," National Science Foundation DUE 1901755, $50,000, February 1, 2019 - January 31, 2024. (Rodger is PI, funds are for conference participants of CompEd 2019 and CompEd 2023).

"Improving the Advancement of Women in Computer and Computational Science Research with the CRA-W Career Mentoring Workshops," Department of Energy DUNS 604064386, $130,600, September 1, 2018 to August 31, 2019. (Rodger is PI, but all funds go to Computing Research Association.).

"Beginner Programming and Animation with Alice," Duke University, Advance Award for Coursera Course, $10,000, August 2018 (with S. Cooper).

"Object Oriented Programming in Java," Coursera, Advance Award, $20,000, June 2017 (with A. Astrachan, R. Duvall, A. Hilton, C. Alvarado, M. Minnes, L. Porter).

"Increasing Diversity in Computer Science in Secondary Schools through Teachers," International Business Machines, IBM Faculty Award, $20,000, September 2016.

"Increasing Diversity in Computer Science Through Teachers in Secondary Schools," International Business Machines, IBM Faculty Award, $20,000, October 2015.

"Introduction to Software Development," Google and Coursera, $300,000, June 2015 (with Owen Astrachan, Drew Hilton, and Robert Duvall).

"Collaborative Research: Assessing and Expanding the Impact of OpenDSA, an Open-Source, Interactive eTextbook for Data Structures and Algorithms," National Science Foundation IUSE DUE-1431667, $183,398 (part of a collaborative grant for $998,392), January 2015 - December 2018 (with Cliff Shaffer (Virginia Tech) and Tom Naps (University of Wisconsin-Oshkosh).

"Integrating Computational Thinking into K-12 Disciplines Through Virtual Worlds," International Business Machines, IBM Faculty Award, $10,000. November 2013.

"The Alice Symposium: A venue for sharing Innovative Alice Ideas," International Business Machines, IBM Faculty Award, $10,000. August 2011.

"Collaborative Research: Scaling up an Innovative Approach for Attracting Students to Computing," National Science Foundation DRL-1031351, NSF ITEST Scale up program, $2,005,339 (Duke amount, includes subcontracts) (Part of $2,499,870 collaborative grant), June 2011-May 2018, (with S. Cooper(Stanford), W. Dann (CMU), M. Schep (Columbia College), R. Stalvey (College of Charleston), and P. Lawhead (University of Mississippi)).

"Integration of Alice into Middle Schools," Computing Research Association Distributed Research Experiences for Undergraduates, $3,000, May 2011 – August 2011.

"Integrating Visualization and Interaction into the Formal Languages and Automata Course," National Science Foundation DUE-1044191, NSF TUES program, $199,996, April 2011-March 2015.

"Integrating Computing into K-12 through the Adventures in Alice programming," International Business Machines, IBM Faculty Award, $40,000, (with Richard Lucic). August 2010.

"Integration of Alice into Middle Schools," Computing Research Association Distributed Mentor Project, $6,000, May 2010 – July 2010.

"Integrating Computer Science and Engineering into K-12 Via Teacher Workshops and the Virtual Computing Laboratory," International Business Machines, IBM Faculty Award, $30,000, (with Nancy Shaw and Richard Lucic). July 2009.

"Integration of Alice into Middle Schools," Computing Research Association Distributed Mentor Project, $6,000, June 2009 – August 2009.

"Facilitating pre-College Education with the Virtual Computing Laboratory," International Business Machines, IBM Faculty Award, $40,000, (with Nancy Shaw and Richard Lucic). July 2008

Supplement to "An Innovative Approach for Attracting Students to Computing: A Comprehensive Proposal," National Science Foundation ESI ITEST DRL-0826661, $29,920, June 2008 - January 2011.

"Integration of Alice into Middle Schools," Computing Research Association Distributed Mentor Project, $6,000, June 2008 – August 2008.

"An Innovative Approach with Alice for Attracting Students to Computing," $30,000, IBM Faculty Award, June 2007.

"CPATH CB: Building Community via the Science of Networks," National Science Foundation CNS 0722288, $318,360, August 1, 2007 - July 31, 2011. (with J. Forbes).

"Doctoral Program in Management and Analysis of Large Data Acquired from Sensors," Department of Education Graduate Assistance in Areas of National Need (GAANN), $383,643 ($479,554 with Duke matching funds) September 1, 2007 - August 31, 2010 (with Agarwal, Lucic, Tomasi, Chase, Parr, Forbes, Babu, Ellis, Yang, Bell, Harer, and Absher).

"A Web Tool for Easy Animation of Data Structures, Algorithms and More and its Integration into Computer Science Courses," Computing Research Association Distributed Mentor Project, $6,000, June 2007 – August 2007.

"An Innovative Approach for Attracting Students to Computing: A Comprehensive Proposal," National Science Foundation ESI ITEST 0624642, $161,436, February 2007 - January 2011 (This is a collaborative proposal for $1,297,456 with St. Joseph's University, Colorado School of Mines, Ithaca College, and Santa Clara University).

Supplement to "ITWF: Collaborative Research: Increasing the Representation of Undergraduate Women and Minorities in Computer Science," National Science Foundation, CNS 0638510, $39,624, July 2006.

"An Interactive Approach to Formal Languages and Automata with JFLAP," National Science Foundation CCLI 0442513, $359,440. May 2005–April 2010.

"A Web Tool for Easy Animation of Data Structures, Algorithms and More and its Integration into Computer Science Courses," Computing Research Association Distributed Mentor Project, $16,000, May 2005 – August 2005.

"ITWF: Collaborative Research: Increasing the Representation of Undergraduate Women and Minorities in Computer Science," National Science Foundation, CNS 0420343, $60,000, (part of a $708,913 collaborative grant with University of Wisconsin - Madison, University of Wisconsin - Milwaukee, Georgia Tech, Purdue, Rutgers, Loyola University, Beloit College), September 2004 – August 2010.

"A Web Tool for Easy Animation of Data Structures, Algorithms and More and its Integration into Computer Science Courses," Computing Research Association Distributed Mentor Project, $8500, May 2002 – August 2002.

OOPSLA Educator's Grant, $2,000, October 2001.

IBM Sur Grant, (with Astrachan, Chase, Lucic, Trivedi, and Vahdat), $1,700,000, July 2001. (includes $120,000 for establishing teaching/cluster classrooms).

"Microsoft Teaching Lab," Microsoft, (with Astrachan, Chase, Ellis, Lucic, Ramm, Vahdat, Vitter), $1,191,470, June 2000.

"Converting Computer Science Courses into Visual, Interactive, and Collaborative Courses," Duke University Instructional Technology Incentive Grant, (with O. Astrachan), $5000, 1999-2000.

OOPSLA Educator's Grant, $1,600, October 1998.

"Visualizing and Animating Proofs in the Mathematical Foundations of Computer Science," National Science Foundation, NSF DUE 9752583, $48,075, Sept 1998 - August 2002.

"A Visual, Interactive, and Collaborative Classroom," Hewlett-Packard Company $223,179 for equipment, (with O. Astrachan), July 1998.

Microsoft Education Development Grant, Microsoft, $50,000, 1998 (with O. Astrachan, and J. Vitter).

"CURIOUS: Center for Undergraduate Education and Research: Integration ThrOUgh Performance and ViSualization," National Science Foundation, Grant Number 9634475, $405,200, Sept 1996 - Aug. 2000. (with O. Astrachan, P. Agarwal, A. Biermann, G. Kedem, A. Lebeck, J. Reif, D. Rose, X. Sun, and J. Vitter,).

"Algorithm Animation", Computing Research Association Distributed Mentor Project, $5000, July 1996–September 1996.

"Visual and Interactive Tools Incorporated into the Mathematical Foundations of Computer Science," National Science Foundation, Grant number DUE-9555084, $69,844 , July 1996–June 1998.

"Algorithm Animation", Computing Research Association Distributed Mentor Project, $5000, June 1995–August 1995.

"Connecting Women Across the Computer Science Pipeline: From High School through the Ph.D.," National Science Foundation Model Projects for Women and Girls, Grant number HRD-9450007, $104,963, September 1994–August 1996 (with E. Walker).

"A Visual and Interactive Approach to the Foundations of Computer Science," National Science Foundation Course and Curriculum Development, Grant number DUE-9354791, $66,426, July 1994–December 1996. (NOTE: $53,618 of this grant was transferred to Duke, new Grant number DUE-9596002).

"Algorithm Animation", Computing Research Association Distributed Mentor Project, $5000, May 1994–August 1994.

"Making Theoretical Concepts in Computer Science Come Alive," Rensselaer CIUE Development Grant Program for Educational Innovation, $10,800, July 1993–June 1994.

"Computer Science I: Case Studies, Graphics, Animation," AT&T, $9000, July 1993–June 1994 (with Robert Walker, Michael Skolnick, and David Spooner).

"Tools for Automata and Formal Languages," Lilly Teaching Fellowship awarded by Lilly Endowment, Inc., $6500, July 1991–June 1992.

**Proposals with Participation, but not PI**

Advisory Board, National Science Foundation DRK12 2010256, Reaching Across the Hallway: An Interdisciplinary Approach to Teaching Computer Science in Rural Schools, CodeVA, Bryan Wallace, $811,581, (2020-2024)

Advisory Board, National Science Foundation IUSE 1819546, Automated Feedback in Computing Theory, Ivona Bezakova, $299,417, (2018-2023).

Senior Personnel, National Science Foundation ADVANCE 1310792, Mentoring Women Faculty in Computer Science and Engineering (Camp - Lead PI), $548,929, I run workshops to mentor women faculty. (2013-2019)

Consultant, National Science Foundation CCF CPATH Grant 0722261. CPATH: Revitalizing Computer Science Education through the Science of Digital Media, Jennifer Burg. My role was to attend a two-day advisory meeting at the end of her grant to evaluate the materials and to advise on future directions. (2012)

Consultant, National Science Foundation REU Site Grant 0851569, " REU Site: Exploring Open Source Software: Development and Efficacy of Online Learning Environments in Computer Science," Thomas Naps. My role is visiting the REU site, presenting, and mentoring undergraduate researchers. (2009-2010)

Consultant, National Science Foundation CCLI-Phase 1(Exploratory) Grant 0837505, "A Cognitive-Apprenticeship Learning Curriculum Augmented by Cognitive Tutors (CAL-CT) for Fundamental Programming Concepts," PI Wei Jin. My role is reviewing materials. (2009-2011)

Consultant, National Science Foundation CPATH CNS Grant 0722339, "CPATH-CB: A community for lab-centric computer science instruction," PI Michael Clancy. My role was to attend a workshop May 31-June 1, 2008 and review material. (2008-2010)

Faculty Adopter, National Science Foundation CCLI EMD Grant 0339734, "Program Visualization Using Virtual Worlds," PI's Stephen Cooper, Barbara Moskel, and Wanda Dann. My role was to use the Alice Programming language in a course for non-majors, CompSci 4, and to organize two summer workshops. The course CompSci 4 was taught twice in Spring 2005 and Fall 2005 with students surveyed on their attitudes. I ran an Alice workshop in June 2005 (29 participants) and an Alice Symposium in June 2006 (110 participants).

Consultant, National Science Foundation CCLI EMD Grant 0341148, "Integrating Algorithm Visualization Into Computer Science Education," PI's Scott Grissom, Tom Naps, and Myles McNally. My role is reviewing materials created. (2005-2007)

Consultant, National Science Foundation CCLI A&I Grant 0311407, "Increasing Interaction and Visualization in the Computability Course," PI Rakesh Verma. My role is reviewing JFLAP materials created. (2004)

Project ADVANCE: Developing A Resilient Cohort of Women in Quantitative Sciences, National Science Foundation Grant Number 9979478, $99,924, (Thompson and Bertozzi), Jan. 2000 – Dec. 2000. My Role was advisor to 12 students, taught a course CPS 49S, and gave a talk on my research.

## XII. Research Interests

Interactive and Visual Tools for Theoretical Computer Science, Parsons problems, Peer Instruction, Computer Science Education, Algorithm Animation, Analysis of Algorithms, Parallel Algorithms, Data Structures, Computational Geometry.

## XIII. Teaching

### Coursera Online Courses

Introduction to Programming and Animation with Alice (January 2020-present)

- 8-week course on Alice programming (with Stephen Cooper) (launched January 2020)
- Summer 2019 Beta tested with 100 middle and high school teachers.
- Fall 2019-Spring 2020 Five middle/high school courses Beta testing.

Object Oriented Programming in Java, a four course series joint with UCSD (Sept 2017-present):

- Java Programming: Solving Problems with Software, 4 week course, first launched October 2015, relaunches every two weeks (with O. Astrachan, D. Hilton and R. Duvall).
- Java Programming: Arrays, Lists and Structured Data, 4 week course, first launched November 2015, relaunches every two weeks (with O. Astrachan, D. Hilton and R. Duvall).
- Object Oriented Programming in Java, 4 week course, first launched in September 2017 (UCSD course by C. Alvarado, M. Minnes, and L. Porter).

- Data Structures and Performance, 4 week course, first launched in September 2017 (UCSD course by C. Alvarado, M. Minnes, and L. Porter).

Java Programming: An Introduction to Software Specialization, a five course series (Sept 2015-present):

- Programming and The Web for Beginners, 4 week course, first launched September 2015, relaunches every two weeks (with O. Astrachan, D. Hilton and R. Duvall).
- Java Programming: Solving Problems with Software, 4 week course, first launched October 2015, relaunches every two weeks (with O. Astrachan, D. Hilton and R. Duvall).
- Java Programming: Arrays, Lists and Structured Data, 4 week course, first launched November 2015, relaunches every two weeks (with O. Astrachan, D. Hilton and R. Duvall).
- Java Programming: Principles of Software Design, 4 week course, first launched December 2015, relaunches every two weeks (with O. Astrachan, D. Hilton and R. Duvall).
- Java Programming: A DIY Version of Netflix and Amazon Recommendation Engines, 4 week course representing a capstone project, first launch January 2016, relaunches several times a year (with O. Astrachan, D. Hilton and R. Duvall).

Here are statistics for the five courses above (including those two that are also in the specialization with UCSD above). As of January 2, 2024, we have over 726,000 course starts and over 142,000 course completions over the five courses (with over 63,000 of the course completions for the first course).

**Courses Taught at Duke University**

| **Date** | | **Number** | **Title** | **Enrollment** |
|---|---|---|---|---|
| 2023 | Spring | Compsci 101 | Introduction to Computer Science | 217 |
| | Spring | Compsci 334 | Mathematical Foundations of CS | 18 |
| 2022 | Fall | Compsci 101 | Introduction to Computer Science | 261 |
| | Fall | Compsci 94 | Introduction to Programming/Virtual Worlds | 39 |
| | Spring | Compsci 101 | Introduction to Computer Science | 221 |
| | Spring | Compsci 334 | Mathematical Foundations of CS | 12 |
| 2021 | Fall | Compsci 94FS | Introduction to Programming/Virtual Worlds | 12 |
| | | Compsci 94 | Introduction to Programming/Virtual Worlds | 35 |
| | Spring | Compsci 101 (Sec 1) | Introduction to Computer Science (online) | 156 |
| | | (Team taught with Nicki Washington) | | |
| | Spring | Compsci 101 (Sec 2) | Introduction to Computer Science (asynchronous) | 59 |
| | | (Team taught with Nicki Washington) | | |
| | Spring | Compsci 334 | Mathematical Foundations of CS (online) | 8 |
| 2020 | Fall | Compsci 94 | Intro to Programming/Virtual Worlds (online) | 45 |
| | Fall | Compsci 101 (Sec 1) | Introduction to Computer Science (online) | 141 |
| | Fall | Compsci 101 (Sec 2) | Introduction to Computer Science (online) | 55 |
| | Spring | Compsci 201 | Algorithms and Data Structures (partly online) | 286 |
| | Spring | Compsci 249 | Computer Science Education Research | 10 |
| | | (Team taught with K. Stephens-Martinez, R. Duvall) | | |

| Date | | Number | Title | Enrollment |
|---|---|---|---|---|
| 2019 | Fall | Compsci 94 (Sec 1) | Introduction to Programming - Virtual Worlds | 14 |
| | Fall | Compsci 94 (Sec 2) | Introduction to Programming - Virtual Worlds | 45 |
| | Fall | Compsci 249 | Computer Science Education Research | 10 |
| | | (Team taught with K. Stephens-Martinez, R. Duvall) | | |
| | Spring | Compsci 94 | Introduction to Programming - Virtual Worlds | 48 |
| | Spring | Compsci 334 | Mathematical Foundations of Computer Science | 11 |
| 2018 | Fall | Compsci 94 (Sec 1) | Introduction to Programming - Virtual Worlds | 38 |
| | Fall | Compsci 94 (Sec 2) | Introduction to Programming - Virtual Worlds | 46 |
| | Spring | Compsci 94 | Introduction to Programming - Virtual Worlds | 50 |
| | Spring | Compsci 334 | Mathematical Foundations of Computer Science | 10 |
| 2017 | Fall | Compsci 101 (Sec 1) | Introduction to Computer Science | 154 |
| | Fall | Compsci 101 (Sec 2) | Introduction to Computer Science | 187 |
| | Spring | Compsci 101 (Sec 1) | Introduction to Computer Science | 104 |
| | Spring | Compsci 101 (Sec 2) | Introduction to Computer Science | 159 |
| 2016 | Fall | Compsci 101 (Sec 1) | Introduction to Computer Science | 156 |
| | Fall | Compsci 101 (Sec 2) | Introduction to Computer Science | 190 |
| | Spring | Compsci 101 (Sec 1) | Introduction to Computer Science | 121 |
| | Spring | Compsci 101 (Sec 2) | Introduction to Computer Science | 171 |
| 2015 | Fall | Compsci 101 (Sec 1) | Introduction to Computer Science | 157 |
| | Spring | Compsci 101 (Sec 1) | Introduction to Computer Science | 144 |
| | Spring | Compsci 101 (Sec 2) | Introduction to Computer Science | 153 |
| 2014 | Fall | Compsci 101 (Sec 1) | Introduction to Computer Science | 158 |
| | Fall | Compsci 101 (Sec 2) | Introduction to Computer Science | 160 |
| | Spring | Compsci 334 | Mathematical Foundations of Computer Science | 12 |
| 2013 | Fall | Compsci 94 | Introduction to Programming - Virtual Worlds | 44 |
| | Fall | Compsci 230 | Discrete Mathematics | 67 |
| 2012 | Spring | Compsci 140 | Mathematical Foundations of Computer Science | 21 |
| | Spring | Compsci 102 | Discrete Mathematics | 25 |
| 2011 | Fall | Compsci 4 | Introduction to Programming - Virtual Worlds | 13 |
| | Fall | Compsci 6 | Introduction to Computer Science | 108 |
| | Spring | Compsci 18S | Introduction to Problem Solving | 9 |
| | Spring | Compsci 140 | Mathematical Foundations of Computer Science | 22 |
| | Spring | CPS 100E | Program Design and Analysis II | 68 |
| 2010 | Fall | Compsci 4 | Introduction to Programming - Virtual Worlds | 44 |
| | Fall | CPS 100 | Program Design and Analysis II | 42 |
| | Fall | Compsci 18S | Introduction to Problem Solving | 15 |
| | Spring | Compsci 140 | Mathematical Foundations of Computer Science | 21 |
| | Spring | CompSci 6 | Introduction to Program Design and Analysis I | 58 |
| | Spring | Compsci 18S | Introduction to Problem Solving | 12 |
| 2009 | Fall | Compsci 4 | Introduction to Programming - Virtual Worlds | 50 |
| | Fall | CompSci 6 | Introduction to Program Design and Analysis I | 22 |
| | Fall | Compsci 18S | Introduction to Problem Solving | 13 |
| | Spring | Compsci 4 (Sec 1) | Introduction to Programming - Virtual Worlds | 49 |
| | Spring | Compsci 140 | Mathematical Foundations of Computer Science | 12 |
| 2008 | Fall | Compsci 4 (Sec 1) | Introduction to Programming - Virtual Worlds | 50 |
| | Fall | Compsci 4 (Sec 2) | Introduction to Programming - Virtual Worlds | 50 |
| | Spring | CompSci 18S | Introduction to Problem Solving | 12 |
| | Spring | Compsci 140 | Mathematical Foundations of Computer Science | 24 |
| | Spring | CompSci 6 | Introduction to Program Design and Analysis I | 44 |
| 2007 | Fall | CompSci 18S | Introduction to Problem Solving | 11 |
| | Fall | Compsci 4 (Sec 1) | Introduction to Programming - Virtual Worlds | 39 |
| | Fall | Compsci 4 (Sec 2) | Introduction to Programming - Virtual Worlds | 45 |
| | Spring | CompSci 18S | Introduction to Problem Solving | 13 |
| | Spring | CompSci 6 | Introduction to Program Design and Analysis I | 40 |
| | Spring | Compsci 140 | Mathematical Foundations of Computer Science | 12 |

| Date | | Number | Title | Enrollment |
|---|---|---|---|---|
| 2006 | Fall | Compsci 18S | Introduction to Problem Solving | 10 |
| | Fall | Compsci 4 (Sec 1) | Introduction to Programming - Virtual Worlds | 29 |
| | Fall | Compsci 4 (Sec 2) | Introduction to Programming - Virtual Worlds | 35 |
| | Spring | CompSci 18S | Introduction to Problem Solving | 10 |
| | Spring | CompSci 6 | Introduction to Program Design and Analysis I | 34 |
| | Spring | Compsci 140 | Mathematical Foundations of Computer Science | 26 |
| 2005 | Fall | Compsci 18S | Introduction to Problem Solving | 14 |
| | Fall | Compsci 4 | Introduction to Programming - Virtual Worlds | 31 |
| | Fall | CompSci 6 (1) | Introduction to Program Design and Analysis I | 13 |
| | Fall | CompSci 6 (2) | Introduction to Program Design and Analysis I | 15 |
| | | (Duvall's section - taught most of the semester while he was out) | | |
| | Spring | Compsci 4 | Introduction to Programming - Virtual Worlds | 30 |
| | Spring | Compsci 140 | Mathematical Foundations of Computer Science | 22 |
| 2004 | Spring | CPS 140 | Mathematical Foundations of Computer Science | 20 |
| 2003 | Fall | CPS 6 | Introduction to Program Design and Analysis I | 36 |
| | Fall | CPS 6X | Honors Introduction to Program Design and Analysis I | 20 |
| | | (Team taught with O. Astrachan) | | |
| | Spring | CPS 140 | Mathematical Foundations of Computer Science | 34 |
| 2002 | Fall | CPS 49S | Animation and Virtual Worlds | 16 |
| | Fall | CPS 100 | Program Design and Analysis II | 64 |
| | Spring | CPS 140 | Mathematical Foundations of Computer Science | 40 |
| 2001 | Fall | CPS 6 (1) | Introduction to Program Design and Analysis I | 40 |
| | Fall | CPS 6 (2) | Introduction to Program Design and Analysis I | 38 |
| | Spring | CPS 49S | Animation and Virtual Worlds | 15 |
| 2000 | Fall | CPS 6 (1) | Introduction to Program Design and Analysis I | 40 |
| | Fall | CPS 6 (2) | Introduction to Program Design and Analysis I | 40 |
| 1999 | Fall | CPS 6 | Introduction to Program Design and Analysis I | 180 |
| | | (Team taught with O. Astrachan) | | |
| | Fall | CPS 100E | Program Design and Analysis II | 42 |
| | | (Team taught with R. Duvall) | | |
| | Spring | CPS 100E | Program Design and Analysis II | 47 |
| | Spring | CPS 140 | Mathematical Foundations of Computer Science | 46 |
| 1998 | Fall | CPS 100E | Program Design and Analysis II | 60 |
| | Spring | CPS 6 | Introduction to Program Design and Analysis I | 140 |
| | Spring | CPS 140 | Mathematical Foundations of Computer Science | 33 |
| 1997 | Fall | CPS 100E | Program Design and Analysis II | 62 |
| | | (Team taught with R. Duvall) | | |
| 1996 | Fall | CPS 6 | Introduction to Program Design and Analysis I | 145 |
| | Fall | CPS 100 | Program Design and Analysis II | 50 |
| | Spring | CPS 6 | Introduction to Program Design and Analysis I | 107 |
| | Spring | CPS 140 | Mathematical Foundations of Computer Science | 18 |
| 1995 | Fall | CPS 6 | Introduction to Program Design and Analysis I | 121 |
| | | (Team taught with O. Astrachan) | | |
| | Fall | CPS 100 | Program Design and Analysis II | 56 |
| | | (Team taught with O. Astrachan) | | |
| | Fall | CPS 100E | Program Design and Analysis II | 55 |
| | | (Team taught with O. Astrachan) | | |
| | Fall | CPS 149S | Problem Solving Seminar | 14 |
| | | (Team taught with O. Astrachan) | | |
| | Spring | CPS 100 | Program Design and Analysis II | 55 |
| | Spring | CPS 140 | Mathematical Foundations of Computer Science | 15 |
| 1994 | Fall | CPS 6 | Introduction to Program Design and Analysis I | 52 |
| | Fall | CPS 149S | Problem Solving Seminar | 7 |
| | | (Team taught with O. Astrachan) | | |

**Notes on Duke Courses**

*Fall 2023 - Dean's Leave (sabatical)*

*Spring 2021 - during Covid-19 Pandemic, all courses online, CompSci 101 Sec 2 online asynchronous*

*Fall 2020 - during Covid-19 Pandemic, all courses online, CompSci 101 Sec 2 online asynchronous*

*Spring 2020 - during Covid-19 Pandemic, second half of course online*

*Fall 2015 - reduced load to teach Coursera courses*

*Spring 2014 - reduced load to prepare CompSci 101 course*

*Fall 2012 all Duke courses got renumbered. Courses from Fall 2012 on use the new numbering system.*

*Fall 2012-Spring 2013: Dean's Leave (sabbatical)*

*Fall 2004:* - on leave (sabbatical)

*Fall 2000 - Spring 2005* Working 3/4 time, reduced teaching load, 3 courses per year.

*Spring 2000:* on maternity leave.

*Fall 1997, Fall 1998* - one course relief each fall for NSF CURIOUS grant.

*Spring 1997:* on maternity leave.

**Courses Taught at Rensselaer Polytechnic Institute**

| Date | | Number | Title | Enrollment |
|---|---|---|---|---|
| 1994 | Spring | 66.217 | Fundamental Structures of Computer Science II | 42 |
| 1993 | Fall | 66.110 | Computer Science 1 | 245 |
| | Fall | 66.217 | Fundamental Structures of Computer Science II | 28 |
| | Spring | 66.110 | Computer Science 1 | 150 |
| 1992 | Fall | 66.621 | Design and Analysis of Algorithms | 13 |
| | Fall | 66.217 | Fundamental Structures of Computer Science II | 8 |
| | Spring | 66.217 | Fundamental Structures of Computer Science II | 60 |
| 1991 | Fall | 66.621 | Design and Analysis of Algorithms (Rensselaer Satellite Video Program) | 20 (on campus) 50 (off campus) |
| | Fall | 66.216 | Fundamental Structures of Computer Science I | 35 |
| | Spring | 66.217 | Fundamental Structures of Computer Science II (2 sections - 30 each) | 60 |
| 1990 | Fall | 66.446 | Compiler Design | 18 |
| | Spring | 66.217 | Fundamental Structures of Computer Science II | 30 |
| 1989 | Fall | 66.216 | Fundamental Structures of Computer Science I | 40 |

**Notes on Rensselaer Courses**

*Computer Science I* is the first computer science course, a required course of all undergraduates. The programming language is C.

*Fundamental Structures of Computer Science I and II* are the third and fourth computer science courses for majors. Material from Advanced Data Structures, Analysis of Algorithms, and Automata Theory and Formal Languages are blended throughout these two courses. The programming languages were Pascal, and then later C.

*Compiler Design* is a senior undergraduate course.

*Design and Analysis of Algorithms* is a graduate course.

**Course and Curriculum Development - Coursera**

Introduction to Programming with Python, Coursera specialization.

- January 2022-December 2023 - Designing and developing curriculum materials. (with Kristin Stephens-Martinez and Yesenia Velasco)

Introduction to Programming and Animation with Alice, 7 week course.

- January 2019-January 2020 - Developed programming assignments and quizzes for course.
- June 2018-January 2019 - Developed and filmed instructional videos for course.

Java Programming: An Introduction to Software Specialization, a five course series.

- June 2020-December 2020 - Created new assignments and assessments for the first course in our specialization.
- Summer 2017 - Revised parts of the second course with new material, new videos and new assessments so that the course would fit better with our second specialization.
- August 2015-January 2016 - Created five four-week courses on introductory programming. The first course teaches HTML, CSS, about the world wide web and JavaScript. The remaining four courses introduce Java. Curriculum development includes slides and scripts for professionally filmed instructional videos, support materials, programming assignments and assessments. (with Owen Astrachan, Drew Hilton and Robert Duvall).

**Course and Curriculum Development - Duke**

CompSci 334

- Spring 2021 - During Covid-19 Pandemic, transitioned material to teach course online.

CompSci 94 and CompSci 101

- Fall 2020 - During Covid-19 Pandemic, transitioned material to teach course online. For CompSci 101 created videos for students to watch before coming to lecture.

CompSci 201

- Spring 2020 - During Covid-19 Pandemic, Transitioned second half of the semester to online.

Course: CompSci 249 - Computer Science Education Research

- Fall 2019 - Designed a new course to train Undergraduate Teaching Assistants, using problem based learning. (with K. Stephens-Martinez and R. Duvall)

Course: CompSci 94 - Introduction to Programming via Animation and Virtual Worlds

- Spring 2019 - Used the videos developed in the Alice Coursera course to flip the classroom. Students watch videos before class and write a program during class.
- Spring 2018 - Redesigned the course to use Alice Version 3. Created all new lecture notes and assignments.

Course: CompSci 101 - Introduction to Computer Science

- Fall 2014 - Redesigned course to handle larger number of students. Utilized google forms for organization of 43 undergraduate teaching assistants teaching 14 labs. Utilized google forms for group activities in lecture. Created reading quizzes to encourage reading of material before coming to lecture.

Course: CompSci 102 - Discrete Math for Computer Science

- Spring 2012 - Taught this course for the first time. Developed all curriculum materials.

Course: CompSci 18S - Introduction to Problem Solving

- Fall 2005 and Spring 2006 - Developed a new course for learning techniques to solve challenging computer science problems and to introduce nonmajors to the areas of computer science. Students solve problems in groups. This course is part of the Duke Emerging Scholars in Computer Science program.

Course: CompSci 4 - Introduction to Programming via Animation and Virtual Worlds

- Fall 2006 - Modified course to include two weeks of Java at the end.
- Spring 2005 - Developed a new course to teach programming that uses the tool Alice to create virtual worlds. Course is taught in a workshop format with students working in pairs.

Course: CPS 6X - Honors Introduction to Program Analysis and Design I

- Fall 2003 - Developed honors version of CPS 6. A faster paced course with a unit of StarLogo to look at examples from physical and life sciences. (with O. Astrachan).

Course: CPS 49S - Animation and Virtual Worlds

- Spring 2001 - Developed new Freshmen seminar course in the Interactive Computer Classroom, which has 20 computers, two students per computer. Designed all lectures in a workshop format, with students working on animations on the computer during lecture.

Course: CPS 6 - Introduction to Computer Science

- Fall 2011 - Course name changed and course is now in Python. Redesigned all lectures from Java to Python.

Course: CPS 6 - Introduction to Program Analysis and Design I

- Spring 2006 - Converted the Java version of this course to a workshop format. Redesigned all lectures into a short lecture followed by discovery exercises for students to work on in pairs with a computer.
- Fall 2005 - Taught course for the first time in Java. (with Duvall)
- Fall 2000 - Taught course for the first time in the Interactive Computer Classroom with 20 computers, two students per computer. Redesigned all lectures into a workshop format in which I lecture for 5 to 15 minutes, and then the students "do the lecture" with discovery exercises on the computer.
- Fall 1995 and Spring 1996 - Used the Computer during lecture to show demos of programs and to present algorithm animations of concepts during lectures. Also introduced animations into students' programming assignments.
- Fall 1994 - Converted lectures to an interactive learning environment with group problem solving. Incorporated a lab component into this course. In addition to three lectures a week, students met one day a week in a 90 minute lab for short exercises and to learn how to use tools. The exercises consisted of short programs that needed to be debugged or modified. Tools taught included editors, newsgroups, mail, debuggers, and Mosaic.

Course: CPS 100 - Program Design and Analysis II

- Fall 2011 - Course now in Java. Converted lecture notes to Java.
- Spring 1995 - Converted lectures to an interactive learning environment with group problem solving and algorithm animations shown during lecture. Incorporated algorithm animation into programming assignments.

Course: CPS 100E - Program Design and Analysis II

- Fall 1999 - Course taught in an Interactive Computer Classroom. No lectures, but rather all material taught in an interactive lab format (with R. Duvall).

- Fall 1995 - Created a new course for students with CS 1 programming experience, but no C++ experience. This course reviews material in CPS 6, and then covers the same material as CPS 100. Course has a lab component. (with O. Astrachan).

Course: CPS 140 - Mathematical Foundations of Computer Science

- Spring 1995 - Spring 2002 Incorporated several tools (JFLAP, JeLLRap, Pate, Lsys, FLAP, LLparse, LRparse, and nfa2dfa) into the course. Tools were demonstrated during lectures and used outside of class for solving homework problems. Included group problem solving during lectures.

Course: CPS 149S - Problem Solving Seminar

- Fall 1994 - Created a new seminar course for problem solving, to prepare students for the ACM programming contest. Students worked previous contest problems once a week, and two mini-contests were held. Two teams participated in the regional contest with one team placing first. (with O. Astrachan)

**Course and Curriculum Development - Rensselaer**

Courses: Fundamental Structures of Computer Science I and II

- Designed and developed several interactive and visual computer tools for aiding in the understanding of the fundamentals of computer science, FLAP, LLparse, LRparse, and TuBB.
- Developed several algorithm animations with the tool Xtango: binary trees, red-black trees, insertion sort, select sort, and pairing points.
- Incorporated additional tools and animations developed by others into lectures and assignments.
- Created an interactive learning environment in lectures.
  - Class problem solving using the tools and animations listed above.
  - Group problem solving.

Course: Computer Science I

- Integrated algorithm animations of sorting and searching into lectures.

## XIV. Student Thesis and Project Supervision

**Doctoral Theses**

Joaquim Jorge, "Parsing Adjacency Grammars for Calligraphic Interfaces," Rensselaer Polytechnic Institute, May 1995. (co-advisor with E. Glinert). He is now a Full Professor in the Department of Computer Science and Engineering at the Instituto Superior Tecnico, in Lisboa, Portugal.

**Doctoral Committee Member**

Mostafa Kamel Osman Mohammed, "Teaching Formal Languages through Visualizations, Machine Simulations, Auto-Graded Exercises, and Programmed Instruction," Virginia Polytechnic Institute and State University, Doctor of Philosophy in Computer Science and Applications, Blacksburg, VA, July 2021.

Mohammed Fawzi Seddik Farghally, "Visualizing Algorithm Analysis Topics," Virginia Polytechnic Institute and State University, Doctor of Philosophy in Computer Science and Applications, Blacksburg, VA, December 2016.

Monika Akbar, "Integrating Community with Collections in Educational Digital Libraries," Virginia Polytechnic Institute and State University, Doctor of Philosophy in Computer Science and Applications, Blacksburg, VA, December 2013.

Ville Karavirta, "Facilitating Algorithm Visualization Creation and Adoption in Education," Helsinki Institute of Technology, the opponent in the PhD defense of the dissertation, Espoo, Finland, December 14, 2009.

Ugur Dogrusoz, "Cyclic Structure and Coloring of Graphs and Their Parallel Solutions," Rensselaer Polytechnic Institute, July 1995.

Jon Berry, "Path Optimization of Graph Partitioning Problems: A Case Study of Near Greedy Analysis," Rensselaer Polytechnic Institute, December 1994.

Badri Ramamurthy, "On the Bounded p-Contractability of Graphs," Rensselaer Polytechnic Institute, April 1994.

Clark Ray, "Representing Visibility for Siting Problems," Rensselaer Polytechnic Institute, April 1994.

### Masters Projects

Edwin Tsang, "Enhancement of LLparse and LRparse Instructional Tools," Duke University, December 1996.

Bhaskar Vasudevan, "Interactive Tool for Conversion of NFA to DFA," Rensselaer Polytechnic Institute, December 1994.

Gudmundur Thorri Johannesson, "Evaluation of New Approach to Dynamic Maintenance of Maximal Points in a Plane," Rensselaer Polytechnic Institute, May 1993.

Steve Blythe, "LLparse and LRparse: Interactive LL(1) and LR(1) Parsing Tutorials," Rensselaer Polytechnic Institute, May 1993.

Chris Moore, "Dynamic Maintenance of Maximal Elements," Rensselaer Polytechnic Institute, December 1992.

Mark LoSacco, "Automata Creation and Simulation Tools," Rensselaer Polytechnic Institute, December 1992.

Mike James, "A Software Tool to Aid in Understanding LL Parsing," Rensselaer Polytechnic Institute, September 1992.

Dan Caugherty, "NPDA: An Application for Building and Testing Pushdown Automata," Rensselaer Polytechnic Institute, December 1991.

Robin Trahan, "Simulation, Study, and Visualization of Cole's Parallel Merge Sort," Rensselaer Polytechnic Institute, December 1991.

Ed Stashluk, "Parallelization of an Electron Beam Lithography Post Processor," Rensselaer Polytechnic Institute, May 1990.

### Graduate Independent Study Projects/Summer Projects

Magda Procopiuc and Octavian Procopiuc, "JFLAP: A Java Implementation of FLAP," Duke University, July 1996.

Edwin Tsang, "Readings on Human-Computer Interaction," Duke University, May 1996.

Edwin Tsang, "Readings on Software Visualization," Duke University, May 1996.

Edwin Tsang, "Animation of LL and LR Parse Trees," Duke University, August 1995.

Mohan Nibhanupudi, "Interactive Tool for Converting a Context-free Grammar to CNF format," Rensselaer Polytechnic Institute, August 1994.

Ugur Dogrusoz, Graduate Research Project, "Automatic Layout of DFA in LR Parsing," Rensselaer Polytechnic Institute, August 1994.

**Undergraduate Research Projects**

Robert Hellinga, "Organic Chemistry Interactive Reaction Map", Duke University, December 2022.

Anshul Shah, "CS101 Database Analysis," Duke University, May 2021, ( second advisor, with Stephens-Martinez).

Anshul Shah, "CS101 Database Analysis," Duke University, December 2020, ( second advisor, with Stephens-Martinez).

Esther Brown, "Android Mobile Applications: Five Mobile Apps," Duke University, May 2020.

Anshul Shah, "CS101 Database Development," Duke University, May 2020, ( second advisor, with Stephens-Martinez).

Kevin Deng, "A Web-Based Application for Animation," Duke University, December 2019.

Andy Ju, "JSAWAA: A Scripting Language for Animations on the Web," Duke University, May 2019.

Andy Ju, "A Scripting Language for Animations on the Web," Duke University, December 2018.

Jay Patel, "Updating JFLAP Version 7 Turing machines and Integrating into Open DSA," Duke University, July 2018.

Colette Torres, "Why is this Girl Doing Tech?: A look into the journeys of Duke Women in Computer Science," Duke University, May 2018.

Wei-Ting Yeh, "JFLAP Integration into Open DSA", Duke University, July 2017.

Yanbo Fang, "JFLAP Integration into Open DSA", Duke University, July 2017.

Natalie Huffman, "Integrating Computing into K-12 with Alice and Mobile Apps", July 2017.

Jonathan Kuo, "Integrating Computing into K-12 with Alice and Mobile Apps", July 2017.

Vicki Zhang, "Integrating Computing into K-12 with Alice and Mobile Apps", July 2017.

Carolyn Sun, "Integrating Computing into K-12 with Alice and Mobile Apps", July 2016.

Ademola Olayinka, "Integrating Computing into K-12 with Alice and Mobile Apps", July 2016.

Anh Trinh, "Integrating Computing into K-12 with Alice and Mobile Apps", July 2016.

Brian Pester, "JFLAP Exercises in Open DSA", Duke University, July 2016.

Han "Bill" Yu, "JFLAP Integration into Open DSA", Duke University, July 2016.

Yossra Hamid, "Designing Assessment and Practice Materials for Novice Programmers in Alice," CSURF, Duke University, December 2015.

David Yan, "Integrating Computing into K-12 with Alice", Duke University, July 2015.

Alex Boldt, "Integrating Computing into K-12 with Alice", Duke University, July 2015.

Erin Taylor, "Integrating Computing into K-12 with Alice", Duke University, July 2015.

Martin Tamayo, "JFLAP Finite Automata Editors for OpenDSA", Duke University, July 2015.

Sung-Hoon Kim, "JFLAP Grammars and Turing Machines for OpenDSA", Duke University, July 2015.

Kannan Raju, Gamification of Programming for CS 101, Duke University, May 2015.

Samantha Huerta, "Mathematical Integration of Alice in Middle School Curriculum," CSURF, Duke University, received Graduation with Distinction, May 2015.

Ellen Yuan , "Assessing Computational Thinking Using Alice," Duke University, received Graduation with Distinction, May 2015.

James Cho, Integrating JFLAP into OpenDSA, Duke University, May 2015.

Samantha Huerta, "Mathematical Integration of Alice in Middle School Curriculum," CSURF, Duke University, December 2014.

Ellen Yuan , "Assessing Computational Thinking Using Alice," Duke University, December 2014.

Yossra Hamid, "Designing Assessment and Practice Materials for Novice Programmers in Alice," CSURF, Duke University, December 2014.

Yossra Hamid, "Designing Assessment and Practice Materials for Novice Programmers in Alice," CSURF, Duke University, July 2014.

Samantha Huerta, "Mathematical Integration of Alice in Middle School Curriculum," CSURF, Duke University, July 2014.

Ellen Yuan , "Assessing Computational Thinking Using Alice," Duke University, July 2014.

Aleis Murphy, "Early Exposure of Computer Science to Middle School Girls," Independent Research Project, Duke University, July 2014.

John Godbey, "Enhancements to JFLAP", Duke University, July 2014.

Aohui (Lawrence) Lin, "Enhancements to JFLAP", Duke University, July 2014.

Ian McMahon, "Improving the Capabilities of JFLAP- Creating Effective User Interfaces in Learning for Theoretical Computer Science," CSURF, Duke University, received Graduation with High Distinction, May 2014.

Chris Brown, "Integrating Computer Science into Middle School Mathematics", CSURF, Duke University, received Graduation with Distinction, August 2013.

Ian McMahon, "Enhancements to JFLAP," Duke University, August 2013.

Daniel MacDonald, "Integrating Computer Science into Middle School Subjects," Duke University, July 2013.

Elizabeth Onstwedder, "Integrating Computer Science into Middle School Mathematics," Duke University, July 2013.

Bella Onwumbiko, "Integrating Computer Science with Science in K-12," Duke University, July 2013.

Edwin Ward, "Integrating Computer Science into K-12 through both Alice Version 2 and Alice Version 3," Duke University, July 2013.

Ian McMahon, "Creating Effective User Interfaces in Learning for Theoretical Computer Science, Duke University, May 2013.

Chris Brown, "Integrating Computer Science into Middle School Mathematics", CSURF, Duke University, December 2012.

Chris Brown, "Integrating Computer Science into Middle School Mathematics", CSURF, Duke University, August 2012.

Mike Hoyle, "New Challenges in Adventures In Alice Programming," Duke University, August 2012.

Mike Marion, "Projects in Adventures in Alice Programming," Duke University, August 2012.

Peggy Li, "Sets in JFLAP," Duke University, July 2012.

Ian MacMahon, "CYK animation in JFLAP," Duke University, July 2012.

Julian Genkins, "Expanding the Visualization and Interaction of Formal Languages and Automata Theory in JFLAP", CSURF, received graduation with High Distinction, Duke University, May 2012.

Julian Genkins, "Expanding the Visualization and Interaction of Formal Languages and Automata Theory in JFLAP", CSURF, Duke University, December 2011.

Julian Genkins, "Expanding the Visualization and Interaction of Formal Languages and Automata Theory in JFLAP", CSURF, Duke University, August 2011.

Chitra Gadwal, "Enhancing Middle School Math with Alice Programming," CRA Distributed Research Experiences for Undergraduates, Duke University, August 2011.

Peggy Li, "Integrating Computing into K-12 with Focus on Mathematics," Duke University, August 2011.

Sarah Zhang, "Integrating Computing into K-12 with Focus on Mathematics," Duke University, August 2011.

Melissa Dalis, "Integrating Computing into K-12 with Focus on Mathematics," Duke University, July 2011.

Liz Liang, "Integrating Computing into K-12 Education Using Alice," CSURF, received Graduation with Distinction, Duke University, May 2011.

Liz Liang, "Integration of Alice into Middle Schools with Focus on Science," CSURF, Duke University, December 2010.

Liz Liang, "Integration of Alice into Middle Schools with Focus on Science," CSURF, Duke University, July 2010.

Francine Wolfe, "Integration of Alice into Middle Schools with Focus on Mathematics and Spanish," CRA Distributed Research Experiences for Undergraduates, Duke University, July 2010.

Jenna Hayes, "Integration of Alice into Middle Schools," Duke University, July 2010.

Lana Dyck, "Integration of Alice into Middle Schools," CRA Distributed Research Experiences for Undergraduates, Duke University, July 2009.

Maggie Bashford, "Integration of Alice into Middle Schools," Duke University, July 2009.

Liz Liang, "Integration of Alice into Middle Schools," Duke University, July 2009.

Deborah Nelson, "Integration of Alice into Middle Schools," Duke University, July 2009.

Jenna Hayes, "Integration of Alice into Middle Schools," Duke University, July 2009.

Jonathan Su, "JFLAP 7.0," Duke University, July 2009.

Henry Qin, "JFLAP 7.0," Duke University, August 2009.

Deborah Nelson, "Integration of Alice into Middle Schools," Duke University, August 2008.

Jenna Hayes, "Integration of Alice into Middle Schools," Duke University, August 2008.

Ruthie Tucker, "Integration of Alice into Middle Schools," Duke University, August 2008.

Henry Qin, "Integration of Alice into Middle Schools," Duke University, August 2008.

Gaetjens Lezin, "Integration of Alice into Middle Schools," CRA Distributed Research Experiences for Undergraduates, Duke University, August 2008.

Jonathan Su, "Usage and Updating of JFLAP," Duke University, August 2008.

Kyung Min (Jason) Lee, "JFLAP Additions for Flexibility," Duke University, July 2008.

Kyung Min (Jason) Lee, "Turing Machine to Unrestricted Grammar in JFLAP," Duke University, May 2008.

Kyung Min (Jason) Lee, "Updates to New Grammar and Parsing methods in JFLAP," Duke University, December 2007.

Mercedes Lopez, "Alice Programming at the Elementary School Level," CRA Distributed Mentor Program, Duke University, September 2007.

Chris Morgan, Duke University, "Graph Layouts and New Pumping Lemma Approach in JFLAP," August 2007.

Kyung Min (Jason) Lee, "New Grammar and Parsing methods in JFLAP," Duke University, August 2007.

Stephen Reading, "JFLAP Version 6.0" Duke University, Aug 2006.

Jinghui Lim, "Pumping Lemma, and Moore and Mealy Machines integrated into JFLAP." Duke University, Aug 2006.

Stephen Reading, "Enhancements to JFLAP including Batch Grading" Duke University, May 2006.

Stephen Reading, "Enhancements to Turing Machine Building Blocks in JFLAP," Duke University, December 2005.

Bart Bressler and Stephen Reading, "Turing Machine Building Blocks in JFLAP," Duke University, August 2005.

Andrea Gibson, "Tree Visualization in JAWAA," CRA Distributed Mentor Program, Duke University, August 2005.

Valerie Gartland, "Enhancements to the JAWAA editor including Array Capability," CRA Distributed Mentor Program, Duke University, August 2005.

Tim Church and Andy Chappell, "Enhancing Online Java Tutorial," both received Graduation with Distinction, Duke University, May 2003.

Thomas Finley, "JFLAP: The Next Iteration," Graduation with High Distinction, Duke University, December 2002.

Jeremy Morgan and Andrew Pressler, "Evaluation of Animated Computer Science Concepts," both received Graduation with Distinction, Duke University, December 2002.

Tim Church and Andy Chappell, "Online Java Tutorial," Duke University, December 2002.

Ryan Cavalcante, "Improving Interaction in JFLAP," Duke University, August 2002.

Thomas Finley, "Improving the GUI in JFLAP," Duke University, August 2002.

Diana Jackson, "A Web Tool for Easy Animation of Data Structures, Algorithms and More and its Integration into Computer Science Courses," CRA Distributed Mentor Program, Duke University, August 2002.

Ayonike Akingbade, "Enhancements to JAWAA," Duke University, August 2002.

Shawn Goldberg, "Animated topics for CS 1 using Starlogo", Duke University, August 2002.

Blake Byrnes, Jeremy Morgan and Andrew Pressler, "Animated Computer Science Concepts," Duke University, May 2002.

Thomas Finley, "An Interactive Editor for JAWAA," Duke University, August 2001.

Pretesh R. Patel, "Enhancements to JAWAA," Duke University, August 2001.

Ted Hung, "Regular Expressions to Enhance JFLAP," Duke University, August 1999.

Eric Gramond, "Extensions to JFLAP as an Aid to Proving Theorems," Duke University, August 1998.

Lenore Ramm, "Lsystems," Duke University, August 1998.

Michael Dean and Robyn Geer, "Traveling Salesman," Duke University, May 1998.

Eric Gramond, "Extensions to JFLAP: NFA to DFA to minimal DFA," Duke University, August 1997.

Robyn Geer, "JeLLRap: Java Enhanced LL and LR Animated Parsing," Duke University, August 1997.

Alex Karweit, "JeLLRap: Java Enhanced LL and LR Animated Parsing," Duke University, August 1997.

Will Pierson, "Algorithm Animation for the Classroom using Java and the Web," Graduation with Distinction, Duke University, May 1997.

Emily Stretch, "Algorithm Animation of Dynamic M-Contour with Polka," CRA Distributed Mentor Program, Duke University, September 1996.

Anna Bilska, "Pate: A Tool for a Brute Force Parser," Duke University, August 1996.

Jason Salemme, "Pate: A Tool for Grammar Transformations from Context-Free Form to CNF," Duke University, August 1996.

Ken Leider, "PumpLemma: A Tool for Exploring the Pumping Lemma," Duke University, August 1996.

Will Pierson, "Algorithm Animations for Non-Programmers," Duke University, May 1996.

Josefina Diaz-Perez, "Algorithm Animation of Dynamic M-contour," CRA Distributed Mentor Program, Duke University, August 1995.

Ben Hardekopf, "DFA to minimum DFA," Duke University, August 1995.

Steve Wolfman, "L-systems," Duke University, August 1995.

Greg Badros, "Modifications to FLAP," Duke University, May 1995.

Natasha Rose, "Algorithm Animation of 2-3 trees", CRA Distributed Mentor Program, Rensselaer Polytechnic Institute, August 1994.

Eric Luce, "Block Turing Machine Design," Rensselaer Polytechnic Institute, May 1993.

Sonia Price, "Algorithms for Graph Coloring," Rensselaer Polytechnic Institute, May 1993.

Aaron Candib, "Algorithm Animation," Rensselaer Polytechnic Institute, July 1992.

Ethan Magdovitz, "Compiler for PIE, Programming Is Easy," Rensselaer Polytechnic Institute, May 1992

Danny Daglas, Jeffrey Nesheiwat, and Jasper Wong, "Turing Machine Implementation," Rensselaer Polytechnic Institute, May 1992.

Eric Luce, "Turing Machine Simulation," Rensselaer Polytechnic Institute, May 1992.

Grant Poladian, "Tools for Automata," Rensselaer Polytechnic Institute, May 1991.

Cheryl Wilson, "Parallel Scheduling Algorithms," Rensselaer Polytechnic Institute, August 1990.