Erin Wolf Chambers

Curriculum Vitæ

Department of Computer Science
Saint Louis University
221 N. Grand Ave
St. Louis, MO 63103, USA

http://cs.slu.edu/~chambers
echambe5@slu.edu
Phone: (314) 977-7002

Research Interests

Computational topology and geometry, graph theory, combinatorics and combinatorial algorithms, recruitment and retention in computer science.

Education

Ph.D. in Computer Science (August 2008)
University of Illinois at Urbana-Champaign
Advisor: Jeff Erickson

M.S. in Mathematics (May 2006)
University of Illinois at Urbana-Champaign

B.S. in Computer Science (May 2002)
Minor in Mathematics
University of Illinois at Urbana-Champaign

Professional Experience

Associate chair **August 2019–present**
Professor (with tenure) **August 2018–present**
Associate Professor (with tenure) **Fall 2013–July 2018**
Department of Computer Science, Saint Louis University
Secondary Appointment in Department of Mathematics and Statistics *St. Louis, MO*

Assistant Professor **Fall 2008–Spring 2013**
Department of Mathematics and Computer Science, Saint Louis University *St. Louis, MO*

Visiting Research Professor **Summer 2011**
Informatics Department, Saarland University *Saarbrücken, Germany*

Research Assistant **Summer 2006, August 2007–August 2008**
Teaching Assistant **Fall 2005, Spring 2006**
CS273 Visiting Lecturer **Summer 2003 and 2004**
Department of Computer Science, University of Illinois *Urbana, IL*

Research Experience for Undergraduates (REU) Participant **Summer 2002**
Math Department, University of Illinois *Urbana, IL*
Supervisor: Dr. A. J. Hildebrand

Co-op **January 2001 - August 2001**
CIRAS Program Office, Central Intelligence Agency *Washington D.C.*

Intern **Summer 2000**
Network Public Access Group, John Deere *Moline, IL*

Awards and Honoraries

Research and Academic Honors

- Simons Visiting Professorship (at Oberwolfach), 2015
- National Science Foundation CAREER Award, 2011-2016
- NSF Graduate Research Fellowship 2002-2007
- SURGE (Support for Under-Represented Groups in Engineering) Fellowship, 2002-2007
- Chancellor's Scholar and James Scholar at UIUC, 1998-2002
- Lockheed Martin Scholarship, 2001
- Spyglass Scholarship, 1999
- National Merit Scholar and Illinois State Scholar, 1998

Publications

Journal Articles

1. Erin Wolf Chambers, Gregory R Chambers, Arnaud de Mesmay, Tim Ophelders, and Regina Rotman. Constructing monotone homotopies and sweepouts. *Accepted to the Journal of Differential Geometry*, 2021

2. Dan Zeng, Erin Chambers, David Letscher, and Tao Ju. To cut or to fill: a global optimization approach to topological simplification. *ACM Transactions on Graphics (Proc. ACM Siggraph Asia 2020)*, 39(6):1–18, 2020

3. Erin Chambers, Brittany Terese Fasy, Yusu Wang, and Carola Wenk. Map-matching using shortest paths. *ACM Transactions on Spatial Algorithms and Systems (TSAS)*, 6(1):1–17, 2020. Extended abstract appeared in the Workshop on Interactive and Spatial Computing, 2018

4. Erin Wolf Chambers and Yusu Wang. Measuring similarity between curves on 2-manifolds via homotopy area. *Journal of Computational Geometry*, Vol 10:No 1 (2019), 2019. Extended abstract appeared in the Symposium on Computational Geometry, 2013

5. Erin W Chambers, Sándor P Fekete, Hella-Franziska Hoffmann, Dimitri Marinakis, Joseph SB Mitchell, Venkatesh Srinivasan, Ulrike Stege, and Sue Whitesides. Connecting a set of circles with minimum sum of radii. *Computational Geometry: Theory and Applications*, 68:62–76, 2018. Extended abstract appeared in the Workshop on Algorithms and Data Structures, 2011

6. Glencora Borradaile, Erin Wolf Chambers, Kyle Fox, and Amir Nayyeri. Minimum cycle and homology bases of surface-embedded graphs. *Journal of Computational Geometry*, 8(2):58–79, 2017. Extended abstract appeared in the Symposium on Computational Geometry, 2016

7. Tanya L Crenshaw, Erin W Chambers, Cinda Heeren, and Heather E Metcalf. Ten years toward equity: Preliminary results from a follow-up case study of academic computing culture. *Frontiers in psychology*, 8:816, 2017

8. Yajie Yan, Kyle Sykes, Erin Chambers, David Letscher, and Tao Ju. Erosion thickness on medial axes of 3d shapes. *ACM Transactions on Graphics (Proceedings of ACM Siggraph 2016)*, 35(4):1–12, 2016

9. Erin Wolf Chambers and Mikael Vejdemo-Johansson. Computing minimum area homologies. *Computer Graphics Forum*, 34(6):13–21, 2015

10. Erin W Chambers, Di Fang, Kyle A Sykes, Cynthia M Traub, and Philip Trettenero. The zipper foldings of the diamond. *Involve, a Journal of Mathematics*, 8(3):521–534, 2015

11. Erin W Chambers, Kyle Fox, and Amir Nayyeri. Counting and sampling minimum cuts in genus g graphs. *Discrete & Computational Geometry*, 52(3):450–475, 2014. Extended abstract appeared in the Symposium on Computational Geometry, 2013

12. Glencora Borradaile and Erin Wolf Chambers. Covering nearly surface-embedded graphs with a fixed number of balls. *Discrete & Computational Geometry*, 51(4):979–996, 2014

13. Sergio Cabello, Erin W Chambers, and Jeff Erickson. Multiple-source shortest paths in embedded graphs. *SIAM Journal on Computing*, 42(4):1542–1571, 2013

14. Erin Wolf Chambers and David Eppstein. Flows in one-crossing-minor-free graphs. *Journal of Graph Algorithms and Applications*, 17(3):201–220, 2013. Extended abstract appeared in International Symposium on Algorithms and Computation, 2010

15. Erin W. Chambers, David Eppstein, Michael T. Goodrich, and Maarten Löffler. Drawing graphs in the plane with a prescribed outer face and polynomial area. *Journal of Graph Algorithms and Applications*, 16(2):243–259, 2012. Extended abstract appeared in the Symposium on Graph Drawing, 2010

16. Erin W Chambers, Jeff Erickson, and Amir Nayyeri. Homology flows, cohomology cuts. *SIAM Journal on Computing*, 41(6):1605–1634, 2012. Extended abstract appeared in the ACM Symposium on Theory of Computing, 2009

17. Lu Liu, Erin W Chambers, David Letscher, and Tao Ju. Extended grassfire transform on medial axes of 2d shapes. *Computer-Aided Design (Proceedings of SPM 2011)*, 43(11):1496–1505, 2011

18. Erin W Chambers, Vin De Silva, Jeff Erickson, and Robert Ghrist. Vietoris–rips complexes of planar point sets. *Discrete & Computational Geometry*, 44(1):75–90, 2010

19. L. Liu, E. W. Chambers, D. Letscher, and T. Ju. A simple and robust thinning algorithm on cell complexes. *Computer Graphics Forum*, 29(7):2253–2260, 2010

20. Erin Wolf Chambers, Eric Colin De Verdiere, Jeff Erickson, Sylvain Lazard, Francis Lazarus, and Shripad Thite. Homotopic fréchet distance between curves or, walking your dog in the woods in polynomial time. *Computational Geometry: Theory and Applications*, 43(3):295–311, 2010. Extended abstract appeared in Symposium on Computational Geometry, 2008

21. Erin W Chambers, Bill Kinnersley, Noah Prince, and Douglas B West. Extremal problems for roman domination. *SIAM Journal on Discrete Mathematics*, 23(3):1575–1586, 2009

22. Erin W Chambers, Éric Colin De Verdière, Jeff Erickson, Francis Lazarus, and Kim Whittlesey. Splitting (complicated) surfaces is hard. *Computational Geometry: Theory and Applications*, 41(1-2):94–110, 2008. Extended abstract appeared in Symposium on Computational Geometry, 2006

23. David P Bunde, Erin W Chambers, Daniel Cranston, Kevin Milans, and Douglas B West. Pebbling and optimal pebbling in graphs. *Journal of Graph Theory*, 57(3):215–238, 2008

Refereed Conference Papers (without a corresponding journal publication)

24. Erin Wolf Chambers, Jeff Erickson, Patrick Lin, and Salman Parsa. How to morph graphs on the torus. *To appear in SODA 2021*, 2020. arXiv preprint arXiv:2007.07927

25. Glencora Borradaile, Erin Wolf Chambers, David Eppstein, William Maxwell, and Amir Nayyeri. Low-Stretch Spanning Trees of Graphs with Bounded Width. In Susanne Albers, editor, *17th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT 2020)*, volume 162 of *Leibniz International Proceedings in Informatics (LIPIcs)*, pages 15:1–15:19, Dagstuhl, Germany, 2020. Schloss Dagstuhl–Leibniz-Zentrum für Informatik

26. Therese Biedl, Erin Wolf Chambers, David Eppstein, Arnaud De Mesmay, and Tim Ophelders. Homotopy height, grid-major height and graph-drawing height. In *International Symposium on Graph Drawing and Network Visualization*, pages 468–481. Springer, Cham, 2019

27. Erin Wolf Chambers, Arnaud de Mesmay, and Tim Ophelders. On the complexity of optimal homotopies. In *Proceedings of the 29th Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 1121–1134. Society for Industrial and Applied Mathematics, 2018

28. Heather E Metcalf, Tanya L Crenshaw, Erin Wolf Chambers, and Cinda Heeren. Diversity across a decade: A case study on undergraduate computing culture at the university of illinois. In *Proceedings of the 49th ACM Technical Symposium on Computer Science Education*, pages 610–615, 2018

29. Erin W Chambers, Tao Ju, David Letscher, Mao Li, and Christopher Topp. Some heuristics for the homological simplification problem. In *Canadian Conference on Computational Geometry*, number August, 2018

30. Erin Wolf Chambers. Burning the medial axis. In *Canadian Conference on Computational Geometry*, page 77, 2017

31. Benjamin Burton, Erin Chambers, Marc Van Kreveld, Wouter Meulemans, Tim Ophelders, and Bettina Speckmann. Computing optimal homotopies over a spiked plane with polygonal boundary. In *25th Annual European Symposium on Algorithms (ESA 2017)*. Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik, 2017

32. Erin Chambers, Irina Kostitsyna, Maarten Löffler, and Frank Staals. Homotopy measures for representative trajectories. In *24th Annual European Symposium on Algorithms (ESA 2016)*. Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik, 2016

33. Victor Alvarez, Erin W Chambers, and László Kozma. Privacy by fake data: A geometric approach. In *Canadian Conference on Computational Geometry*, 2013

34. Erin W Chambers, Tao Ju, and David Letscher. Medial residues of piecewise linear manifolds. In *Canadian Conference on Computational Geometry*, 2013

35. Erin W Chambers, Kyle Sykes, and Cynthia Traub. Unfolding rectangle-faced orthostacks. In *Canadian Conference on Computational Geometry*, pages 23–28, 2012

36. Erin W Chambers, David Letscher, Tao Ju, and Lu Liu. Isotopic fréchet distance. In *Canadian Conference on Computational Geometry*, 2011

37. Erin W Chambers, Jeff Erickson, and Amir Nayyeri. Minimum cuts and shortest homologous cycles. In *Proceedings of the 25th Annual Symposium on Computational Geometry*, pages 377–385, 2009

38. Erin W Chambers and David Letscher. On the height of a homotopy. In *Canadian Conference on Computational Geometry*, volume 9, pages 103–106, 2009

39. Tanya L Crenshaw, Erin Wolf Chambers, and Heather Metcalf. A case study of retention practices at the university of illinois at urbana-champaign. In *Proceedings of the 39th SIGCSE Technical Symposium on Computer Science Education*, pages 412–416, 2008

40. Erin W Chambers, Jeff Erickson, and Pratik Worah. Testing contractibility in planar rips complexes. In *Proceedings of the 24th Annual Symposium on Computational Geometry*, pages 251–259, 2008

41. Sergio Cabello and Erin W Chambers. Multiple source shortest paths in a genus g graph. In *Proceedings of the 18th Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 89–97. Society for Industrial and Applied Mathematics, 2007

Book Chapters

41. Erin Chambers, Ellen Gasparovic, and Kathryn Leonard. Medial fragments for segmentation of articulating objects in images. In *Research in Shape Analysis*, pages 1–15. Springer, 2018

42. Erin Chambers, Tegan Emerson, Cindy Grimm, and Kathryn Leonard. Exploring 2d shape complexity. In *Research in Shape Analysis*, pages 61–83. Springer, 2018

43. Nina Amenta, Erin Wolf Chambers, Tegan Emerson, Rebecca Glover, Katharine Turner, and Shirley Yap. Density of local maxima of the distance function to a set of points in the plane. In *Research in Computational Topology*, pages 115–123. Springer, Cham, 2018

44. Erin Wolf Chambers and David Letscher. Persistent homology over directed acyclic graphs. In *Research in Computational Topology*, pages 11–32. Springer, Cham, 2018

45. Ivona Bezáková, Erin W Chambers, and Kyle Fox. Integrating and sampling cuts in bounded treewidth graphs. In *Advances in the Mathematical Sciences*, pages 401–415. Springer, Cham, 2016

46. Erin W. Chambers, Jeff Erickson, Kyle Fox, and Amir Nayyeri. Global minimum cuts in surface-embedded graphs. In Ming-Yang Kao, editor, *Encyclopedia of Algorithms*, pages 852–856. Springer New York, New York, NY, 2016

47. Gulce Bal, Julia Diebold, Erin Wolf Chambers, Ellen Gasparovic, Ruizhen Hu, Kathryn Leonard, Matineh Shaker, and Carola Wenk. Skeleton-based recognition of shapes in images via longest path matching. In *Research in Shape Modeling*, pages 81–99. Springer, Cham, 2015

Edited volumes

48. Asli Genctav, Kathryn Leonard, Sibel Tari, Evelyne Hubert, Geraldine Morin, Noha El-Zehiry, and Erin Chambers, editors. *Research in Shape Analysis*. Association for Women in Mathematics Series. Springer, 2018

49. Erin Wolf Chambers, Brittany Terese Fasy, and Lori Ziegelmeier, editors. *Research in Computational Topology*. Association for Women in Mathematics Series. Springer, 2018

50. Gail Letzter, Kristin Lauter, Erin Chambers, Nancy Flournoy, Julia Elisenda Grigsby, Carla Martin, Kathleen Ryan, and Konstantina Trivisa, editors. *Advances in the Mathematical Sciences: Research from the 2015 Association for Women in Mathematics Symposium*. Association for Women in Mathematics Series. Springer, 2016

Technical Reports, Theses, Abstracts, Posters, Code, etc.

51. Erin Wolf Chambers, Tanya Crenshaw, Cinda Heeren, Heather Metcalf, and Aspen Russell. University of illinois department of computer science culture survey. Technical report, 2019

52. KA Buchin, Erin Wolf Chambers, TAE Ophelders, and B Speckmann. Fréchet isotopies to monotone curves. In *Abstr. 33rd European Workshop on Computational Geometry (EuroCG)*, pages 41–44, 2017

53. Erin W. Chambers and Matthew Meyer. Implementation of the edf with applications to shape recognition, 2015

54. Erin W. Chambers and Dylan Lawrence. Implementation of Fréchet algorithm, 2015

55. Yajie Yan, Tao Ju, David Letscher, and Erin Chambers. Burning the medial axis. In *ACM SIGGRAPH 2015 Posters*, pages 1–1. 2015

56. Erin W. Chambers, Christopher Conlon, Richard Pham, and Kyle Sykes. The polylink package

57. Erin Wolf Chambers. *Computing interesting topological features*. PhD thesis, University of Illinois at Urbana-Champaign, 2008

58. Tanya L Crenshaw, Erin Wolf Chambers, Heather Metcalf, and Umesh Thakkar. Recruitment, preparation, retention: A case study of computing culture at the university of illinois at urbana-champaign. Technical Report UIUCDCS-R-2007-2811, University of Illinois at Urbana-Champaign, 2007

Submitted or In Preparation

59. Erin Wolf Chambers, Gregory R Chambers, Arnaud de Mesmay, Tim Ophelders, and Regina Rotman. Constructing monotone homotopies and sweepouts. *Accepted to the Journal of Differential Geometry*, 2021

60. Erin W Chambers, Jeff Erickson, Kyle Fox, and Amir Nayyeri. Minimum cuts in surface graphs. *arXiv preprint arXiv:1910.04278*, 2019

61. Erin Wolf Chambers, Elizabeth Munch, and Tim Ophelders. A family of metrics from the truncated smoothing of reeb graphs. *arXiv preprint arXiv:2007.07795*, 2020

62. Erin Wolf Chambers, Francis Lazarus, Arnaud de Mesmay, and Salman Parsa. Algorithms for contractibility of compressed curves on 3-manifold boundaries. *arXiv preprint arXiv:2012.02352*, 2020

63. Maike Buchin, Erin Chambers, Pan Fang, Brittany Terese Fasy, Ellen Gasparovic, Elizabeth Munch, and Carola Wenk. Distance measures for embedded graphs. In preparation, 2020

64. Levent Batakci, Abigail Branson, Bryan Castillo, Candace Todd, Erin Chambers, and Elizabeth Munch. Comparing embedded graphs using average branching distance. In submission, 2020

Courses Taught

At Saint Louis University

Numbers in the right margin are student evaluations of the instructor communication (left) and enthusiasm (right), with ratings from 1–4 (where 4 is the best possible score).

Fall 2020	CSCI 3100/5100: Algorithms	4, 4
	CSCI 5090: Computer Science Colloquium	not evaluated
Spring 2020	CSCI 3200/5200: Programming Languages	not collected
	CSCI 5930: Advances Data Structures	not collected
Fall 2019	CSC 3100: Algorithms	3.67, 3.96
Spring 2019	CSCI 2100: Data Structures	3.84, 3.95
	CSCI 3200: Programming Languages	3.58, 3.95
Fall 2018	CSCI 2050/Phil 3410: Computer Ethics (co-instructor)	4, 4
	BCB 5300: Algorithms in Computational Biology	3, 3.5
Spring 2018	CSCI 2100: Data Structures	3.82, 3.82
	CSCI 3200: Programming Languages	3.77, 3.95
Fall 2017	CSCI 2050/Phil 3410: Computer Ethics (co-instructor)	3.77, 3.85
	CSCI 3100: Algorithms	3.82, 3.94
	Math Topology Seminar: Mini-Course on Computational Topology	not evaluated
Spring 2017	CSCI 3200: Programming Languages	3.84, 4
	CSCI4961/4962: Capstone	not evaluated
Fall 2016	CSCI 2050/PHIL 3410: Computer Ethics	3.42, 3.64
	CSCI 4650 Computer Security	3.53, 4

Numbers in the right margin are student evaluations of the instructor overall, with ratings from 1–5 (where 1 is the best possible score).

Spring 2016	CSCI 2100: Data Structures	1.21
	CSCI 3200: Programming Languages	1.55
Spring 2015	CSCI 281/Phil 341: Computer Ethics (co-instructor)	1.23
	CSCI 443: Computer Security	1.04
Spring 2014	CSCI 281/Phil 341: Computer Ethics (co-instructor)	1.65
	CSCI 344: Programming Languages	1.10
Fall 2013	CSCI 180: Data Structures	1.45
	CSCI 314: Algorithms	1.11
Spring 2013	CSCI 443: Computer Security	1.1
	CSCI 281/Phil 341: Computer Ethics (co-instructor)	1.5
Fall 2012	Math 135: Discrete Mathematics	1.36
	CSCI 180: Data Structures	1.09
Spring 2012	CSCI 150: Intro to Object Oriented Programming	1.5
	CSCI 344: Programming Languages	1.47
Fall 2011	CSCI 140: Introduction to Computer Science	1.6
	CSCI 180: Data Structures	1.11
Spring 2011	CSCI 180: Data Structures	1.26
	CSCI 493: Computer Security	1.33
Fall 2010	Math 135: Discrete Mathematics	1.36
	CSCI 180: Data Structures	1.7
Spring 2010	Math 135: Discrete Mathematics	1.85
	CSCI 314: Algorithms	1.25
Fall 2009	CSCI 145: Scientific Programming	1.57
	CSCI 180: Data Structures	1.22
Spring 2009	CSCI 150: Intro to Object Oriented Programming	1.28
	CSCI 314: Algorithms	1.18
Fall 2008	CSCI 140: Introduction to Computer Science	(not available)
	CSCI 150: Intro to Object Oriented Programming	(not available)

At University of Illinois

Numbers in the right margin are student evaluations of the instructor's overall teaching effectiveness, with ratings from 1–5 (where 5 is the best possible score).

Spring 2008	CS 173: Discrete Mathematics	3.7
Summer 2004	CS 273: Introduction to Combinatorial Algorithms	(not available)
Summer 2003	CS 273: Introduction to Combinatorial Algorithms	4.6

Funding

- NSF Collaborative Research: AF: Small: Reeb graph flows: Metrics, Drawings, and Analysis (1907612). Principle Investigator, linked with award 1907591 (PI Elizabeth Munch). 2019-2022 [$400,000 combined total].
- Saint Louis University Research Institute Award. 2019-2021 [$104,040].

- NSF Collaborative Research: ABI Innovation: Algorithms for recovering root architecture from 3D imaging (DBI-1759807). Co-principle Investigator, with David Letscher (PI), and linked with DBI-1356388 (PI Tao Ju) and DBI-1759796 (PI Chris Topp). 2018-2021 [$702,000 combined total].
- NSF: Second Workshop for Women in Computational Topology (1841455). Co-Principal Investigator, with Ellen Gasparovic (PI). 2019 [$15,000.00].
- NSF AF: Small: Extending algorithms for topological notions of similarity (CCF-1614562). Sole Principle Investigator. 2016-2019 [$297,021].
- NSF DMS: Workshop for Women in Computational Topology (DMS-1619908). Co-principle Investigator, with Lori Ziegelmeier (PI) and Brittany Fasy (co-PI), 2016 [$30,000].
- NSF DMS: Workshop for Women in Shape Analysis (DMS-1619759). Principle Investigator with co-PI Kathryn Leonard, 2016 [$9,000].
- UIUC: 10 Years Later: Exploring the climate of the UIUC Computer Science Department in 2016, joint with Heather Metcalf, Tanya Crenshaw, and Cinda Hereen, awarded by the UIUC CS department. [$60,000 total]
- Simons Visiting Professorship, funded by Simons Foundation through Oberwolfach [about $2000 total]
- NSF HCC: CGV: Small: Collaborative Research: Theories, algorithms, and applications of medial forms for shape analysis. Principle investigator along with Tao Ju (PI) and David Letscher (co-PI). [$127,123]
- NSF REU Supplemental Award (to grant CCR-1054779), Summer 2012 and Summer 2014 [$12,000 each]
- NSF CAREER: Generalizing Planar Algorithm (CCR-1054779). Sole Principle Investigator. 2011-2016 [$402,000]
- VOICES Faculty Fellowship to participate in Ethics Across the Curriculum Program, 2010 [$2,500]
- SLU Summer Research Award, 2009 [$5,000]
- NSF Graduate Research Fellowship 2002-2007
- SURGE (Support for Under-Represented Groups in Engineering) Fellowship, 2002-2007

Mentorship and Advising

Current PhD and MS students

- Kathleen Kramer
- Rehab Alharbi

Former PhD and MS students

- Hiroki Yuda, MS 2019. *Topological Smoothing of Reeb Graphs*
- Kyle Sykes, PhD 2016. *Burn Time: Computation and Properties*
  - Data scientist at the National Geospatial Intelligence Agency
- RA supervisor for Katherine Paullin, PhD in Mathematics (advised by David Letscher)
  - Lecturer at the University of Kentucky

External Dissertation Committees

- Habilitation (HDF) referee for Luca Castelli Aleardi, École Polytechnique, 2021.
- Dissertation committee and coreferee for Patrick Schnider, PhD in Computer Science from ETH Zurich, Switzerland, 2020.
- Dissertation committee for Chunyuan Li, MS in Computer Science from Washington University, 2019.
- Dissertation reader for William Pettersson, PhD in Mathematics from the University of Queensland, Australia, 2014.
- Dissertation committee for Liu Lu, Ph.D. in Computer Science from Washington University, 2011.

Service

International or National Level Committees

- Trustee of the Society of Computational Geometry, 2019-present
- Member of the SafeTOC organizing committee and SafeTOC advocate for SoCG, FOCS, and CCCG conferences, 2019-present
- Member of the Ad hoc committee to combat harassment and discrimination in the Theory of Computing community, 2018-2019
- Member of the Computational Geometry Steering Committee, 2016 to 2020, Secretary from 2018-2020
- Member of the Steering Committee for the Women in Computational Topology (WinCompTop) network, 2016 to present
- Member of the Steering Committee for the Women in Shape Analysis (WiSH) network, 2015 to present
- Member of the AWM ADVANCE Research Collaboration Conferences for Women Committee, 2015 to present

Program Committees and Workshops

- Co-organizer for the Women in Computational Topology workshop at the IMA in August 2016.
- Co-organizer for the Second Women in Shape workshop at the Nesin Mathematics Village in Turkey, Summer 2015; Team leader and co-organizer for the Women in Shape (WiSH) Workshop at the Institute for Pure and Applied Mathematics (co-sponsored by the Association for Women in Mathematics), Summer 2013.
- Co-organizer for special sessions at the AWM Research Symposium in April 2015 and April 2019, and co-editor for the resulting special issue Springer journal.
- Co-organizer for AWM Poster Session and Speaker session at the 2014 Joint Math Meetings.
- PC Member for: Symposium on Discrete Algorithms, 2018; Symposium on Computational Geometry, 2010 and 2014; ATMCS, 2020; Canadian Conference on Computational Geometry, 2016, 2020; Young Researchers Forum at Symposium on Computational Geometry, 2013, 2014, 2016 (chair), 2020; European Workshop on Computational Geometry, 2013, 2018, 2021; Graph Drawing, 2009, 2014, and 2018; ISAAC 2017.

University Committees

- Member of the Search Committee for College of Arts and Science's Dean, 2019-2020
- Member of the Science and Engineering Task Force, 2017-2018
- Member of the SLU Arts and Science Faculty Council Executive Committee, 2014-2016
- Member of Faculty Senate Committee on Shared Governance, 2013-2015
- Chair of Faculty Search Committee, 2014-2015, 2015-2016 and 2017-2018
- Member of the Search Committee for SLU Chief Information Officer, Spring 2013
- SLU College of Arts and Sciences Technology Committee, Chair for 2014-2016, Member for 2011-2013
- SLU College of Arts and Sciences Undergraduate Curriculum Committee, 2011-2012
- SLU Computer Science Committee, 2009-present
- UIUC CS Department Graduate Admissions Committee member, 2004-2005
- UIUC JETT (Java Engagement for Teacher Training) conference planning committee member, 2004
- UIUC Undergraduate Education Study Committee, 2003-2004
- UIUC Computer Science Student Advisory Committee, 2002-2003
- UIUC Women in CS; President, 2001-2002; Grad VP, 2004-2008

- UIUC Campus Library Advisory Committee, 2001-2002
- Northern Virginia Co-op Education Association; Vice President, Summer 2001

Editing, Reviewing and Refereeing

- Editor for Journal of Applied and Computational Topology, 2019-present
- Editor for Journal of Computational Geometry, 2017-present
- Editor for: Advances in the Mathematics Sciences: Research from the 2015 AWM Symposium, published by Springer, 2016; Research in Shape Analysis, published by Springer (forthcoming); Advances in Computational Topology, published by Springer (forthcoming)
- Member of NSF review panel for CISE Algorithmic Foundations, 2012, 2015, 2020.
- Referee for ACM Transactions on Algorithms; Algorithmica; Computational Geometry: Theory and Applications; Computers and Graphics; Discrete and Computational Geometry; International Journal of Computational Geometry and Applications; Mathematical Reviews; Journal of Graphs Algorithms and Applications; SIAM Journal of Discrete Mathematics; SIAM Journal on Computing; Transactions on Sensor Networks
- External reviewer for conferences: ACM-SIAM Symposium on Discrete Algorithms (SODA); European Symposium on Algorithms (ESA); International Symposium on Algorithms and Computation; Latin American Theoretical Informatics Symposium (LATIN); Foundations of Computer Science (FOCS); Symposium on Computational Geometry (SOCG); Symposium on the Theory of Computing (STOC); Symposium on Theoretical Aspects of Computer Science (STACS); WADS

Selected Talks and Courses

2020 New York University Geometry Seminar;
Plenary speaker for 36th European Workshop on Computational Geometry

2019 Michigan State University Computational Mathematics, Science, and Engineering Colloquium;
Speaker for Journées de geométrie algorithmique (French computational geometry week);
Applied Algebraic Topology Research Network (online talk);
Joint Mathematics Meetings

2018 Panel at Grace Hopper Celebration of Women in Computing;
Instructor for the Intensive Research Program in Discrete, Combinatorial and Computational Geometry, at the Centre de Recerca Matemática in Barcelona;
Speaker at the School on Low-Dimensional Geometry and Topology: Discrete and Algorithmic Aspects, at the Institut Henri Poincaré in Paris

2017 Dagstuhl Workshop on Applications of Topology to the Analysis of 1-Dimensional Objects;
Washington University Theory Seminar;
Computational and Algorithmic Topology in Sydney (CATS);
Plenary speaker at the Canadian Conference on Computational Geometry;
University of Manitoba CS Department Colloquium

2016 University of Totonto Math Seminar

2015 Oberwolfach workshop on Computational Geometric and Algebraic Topology, in Germany;
Seminar at Eindhoven Technical University

2014 Computational Geometry Special Session at the Joint Math Meetings in Baltimore;
ICERM Workshop on Network Science and Graph Algorithms

2013 Dagstuhl Workshop on Algorithms for Optimization Problems in Planar Graphs;
Math/CS Department Colloquium at University of Missouri at St. Louis;
University of Illinois at Urbana-Champaign Topology seminar;
Oregon State University Department Seminar;
Notre Dame CSE Seminar

2012 Computational Geometry Special Session at the Joint Math Meetings in Boston;
Washington University (Math department);
Ohio State University CS department seminar;
Workshop on Computational Topology at SoCG 2012;
Southern Illinois University at Edwardsville Math Department seminar

2011 Dagstuhl Workshop on Computational Geometry;
Saarland University Informatics seminar

2010 University of California at Irvine CS theory seminar;
Washington University Combinatorics seminar

2009 University of Illinois at Champaign-Urbana CS theory seminar;
University of Victoria CS seminar

2008 McGill University CS Department seminar;
Saint Louis University Math/CS Department seminar

2007 Knox College CS department seminar;
Midwest Theory Day