

Department of Mathematical Sciences

RESUME - Michael A. Burr

PERSONAL DATA

Associate Professor
Department of Mathematical Sciences
Clemson University
Clemson, SC 29632
(864)-656-5220

EDUCATION

Ph.D. New York University, 2010, Mathematics, Fedor Bogomolov.
M.S. New York University, 2009, Mathematics, Fedor Bogomolov.
M.S. Tufts University, 2006, Computer Science, Diane Souvaine.
B.S. Tufts University, 2004, Mathematics, Computer Science, and Astrophysics.

PROFESSIONAL EXPERIENCE

Clemson University, 2019-, Associate Professor of Mathematics
Clemson University, 2012-2019, Assistant Professor of Mathematics
Fordham University, 2010-2012, Peter M. Curran Visiting Research Instructor
New York University, 2009-2010, Adjunct Professor of Mathematics

CONSULTING EXPERIENCE

Princeton University Press, Princeton, NJ. Reviewer for manuscript.
National Science Foundation, Arlington, VA. National Science Foundation panelist.

PUBLICATIONS

Refereed Journal Publications

1. J. Xu, M. Burr, and C. Yap. Univariate Homotopy Continuation Path Tracking via Interval Arithmetic. (In Preparation)
2. M. Burr, E. Rafalin, and D. Souvaine. Dynamic maintenance of half-space depth for points and contours. (In Preparation)
3. M. Burr, F. Sottile, and E. Walkere. Numerical homotopies from Khovanskii bases. (In Preparation)
4. M. Burr, S. Das, C. Wolf, and Y. Yang. Computability of thermodynamic invariants for shift maps beyond SFTs. (In Preparation)
5. M. Burr and C. Wolf. Computability at Zero Temperature. (Submitted)
6. M. Burr, S. Gao, and E. Tsigaridas. The Complexity of Subdivision for Diameter-Distance Tests. *Journal of Symbolic Computation*, 2019.
7. D. Lipman and M. Burr. Quadratic-Monomial Generated Domains from Mixed Signed, Directed Graphs. *International Journal of Algebra and Computation*, 29(02), 279-308 2019.
8. M. Burr, F. Knoll, and S. Gao. Optimal Bounds of Johnson-Lindenstrauss Transformations. *Journal of Machine Learning Research*, 19(73), 1-22, 2018.

9. M. Burr, M. Schmoll, and C. Wolf. On the Computability of Rotation Sets and their Entropies. *Ergodic Theory and Dynamical Systems*, 2018.
10. M. Burr and R. Fabrizio. Error Probabilities for Halfspace Depth. *Statistics & Probability Letters*. 124, 33-40, 2017.
11. M. Burr. Continuous Amortization and Extensions: With Applications to Bisection-based Root Isolation. *Journal of Symbolic Computation*. 77, 78-126, 2016.
12. M. Burr. Asymptotic purity for very general hypersurfaces of $\mathbb{P}^n \times \mathbb{P}^n$ of bidegree (k, k) . *Central European Journal of Mathematics*. 10(2), 530-542, 2012.
13. M. Burr and F. Krahmer. SqFreeEVAL: an almost optimal real-root isolation algorithm. *Journal of Symbolic Computation*. 47(2), 131-152, 2012.
14. M. Burr, S. Choi, B. Galehouse, and C. Yap. Complete subdivision algorithms II: isotopic meshing of general algebraic curves. *Journal of Symbolic Computation*. 47(2), 153-166, 2012.
15. T. Abbott, M. Burr, M. Chan, E. Demaine, M. Demaine, J. Hugg, D. Kane, S. Langerman, J. Nelson, E. Rafalin, K. Seyboth, V. Yeung. Dynamic ham-sandwich cuts in the plane. *Computational Geometry: Theory and Applications*. 42(5), 419-428, 2009.
16. M. Burr, E. Rafalin, and D. Souvaine. Simplicial depth: an improved definition, analysis, and efficiency for the finite sample case. In R. Liu, R. Serfling, D. Souvaine, editors, *Data Depth: Robust Multivariate Analysis, Computational Geometry, and Applications*, volume 72 of *DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, 195-209. American Mathematical Society, 2006.
17. M. Burr, A. Cheng, R. Coleman, and D. Souvaine. An intuitive approach to measuring protein surface curvature. *PROTEINS: Structure, Function, and Bioinformatics*. 61, 1068-1074, 2005.

Conference Proceedings (Reviewed)

1. M. Burr, K. Lee, and A. Leykin. Certifying solutions to square systems with D-finite functions. In *Proceedings of the 44th International Symposium on Symbolic and Algebraic Computation* 267-274, Association for Computing Machinery, 2019.
2. J. Xu, M. Burr, and C. Yap. An approach for certifying homotopy continuation paths: univariate case. In *Proceedings of the 43rd International Symposium on Symbolic and Algebraic Computation* 399-406, Association for Computing Machinery, 2018.
3. M. Burr, S. Gao, and E. Tsigaridas. The complexity of the Plantinga-Vegter curve and surface approximation algorithms. In *Proceedings of the 42nd International Symposium on Symbolic and Algebraic Computation* 61-68, Association for Computing Machinery, 2017.
4. M. Burr, S. Choi, B. Galehouse, and C. Yap. Complete subdivision algorithms. II: Isotopic meshing of singular algebraic curves. In *Proceedings of the 33rd International Symposium on Symbolic and Algebraic Computation* 87-94, Association for Computing Machinery, 2008.
5. M. Burr, A. Lauric, and K. Mann. Searching for the center of an ellipse. In *Proceedings of the 17th Canadian Conference on Computational Geometry*. 260-263, 2005.

6. M. Burr, E. Rafalin, and D. Souvaine. Simplicial depth: an improved definition, analysis, and efficiency for the finite sample case. In *Proceedings of the 16th Canadian Conference on Computational Geometry* 136-139, 2004.
7. M. Burr, A. Cheng, R. Coleman, and D. Souvaine. Transformations and algorithms for least sum of squares hypersphere fitting. In *Proceedings of the 16th Canadian Conference on Computational Geometry* 104-107, 2004.

Conference Proceedings (Unreviewed)

1. M. Burr and D. Letscher. Guaranteed Quality Approximations for Medial Axis of Implicit Planar Curves. In *Proceedings of the 24th Fall Workshop on Computational Geometry*, 2014.
2. M. Burr, S. Choi, B. Galehouse, F. Krahmer, and C. Yap. Continuous amortization for subdivision-based algorithms. In *Proceedings of 21st Fall Workshop on Computational Geometry*, 2011.
3. M. Burr, E. Rafalin, and D. Souvaine. Dynamic update of half-space depth contours. In *Proceedings of 14th Annual Fall Workshop on Computational Geometry*, 2004.

Other Scholarly Publications

1. J. Xu, M. Burr, and C. Yap. CertifiedHomotopy. SVN repository: <https://cs.nyu.edu/exact/> under `progs/homotopyPath`. 2018.
2. D. Lipman and M. Burr. Serre's Properties for Quadratic Generated Domains from Graphs. *arXiv*. Technical report. arXiv:1708.05809, 2017
3. M. Burr. Review of Modern Computer Algebra by Joachim von zur Gathen and Jrgen Gerhard. *INFORMS Journal on Computing*. 27(1), 189-191, 2015.
4. M. Burr, F. Krahmer, and C. Yap. Continuous amortization: a non-probabilistic adaptive analysis technique. *Electronic Colloquium on Computational Complexity*. Technical report. TR09-136, 2011.
5. M. Burr, E. Rafalin, and D. Souvaine. Dynamic maintenance of half-space depth for points and contours. *arXiv*. Technical report. arXiv:1109.1517, 2011.

PRESENTATIONS

Plenary Presentations

- M. Burr. Certified Subdivision Algorithms in Computer Algebra, East Coast Computer Algebra Day (ECCAD), Duke University. April 26, 2014.

Invited Presentations

- M. Burr. Computability of Rotation Sets for Dynamical Systems. 2019 Fall Central Sectional AMS Meeting, Madison, Wisconsin. September 15, 2019
- M. Burr. Efficient and complete certification of roots in solving polynomial systems. 2019 SIAM Conference on applied algebraic geometry, Bern, Switzerland, July 12, 2019.
- M. Burr. Subdivision Methods in Nonlinear Algebra. ICERM Seminar, Providence, Rhode Island, October 4, 2018.
- M. Burr. Practical Considerations for Subdivision-based Algorithms for Curves and Surfaces. International Congress on Mathematical Software, South Bend, Indiana, July 25, 2018.

- M. Burr. Software for Certifying Homotopy Continuation Paths: Univariate Case. International Congress on Mathematical Software, Notre Dame, South Bend, Indiana, July 24, 2018.
- M. Burr. Continuous Amortization and Subdivision Schemes. Joint International Meeting of the American Mathematical Society and the Chinese Mathematical Society, Shanghai, China, June 12, 2018.
- M. Burr. Understanding Algorithmic Complexity Using Algebraic Geometry. University of South Carolina Algebraic Geometry Seminar. Columbia, South Carolina, April 2, 2018.
- M. Burr. What is Homotopy Continuation. University of South Carolina Algebraic Geometry Seminar. Columbia, South Carolina, April 2, 2018.
- M. Burr. Univariate Homotopy Continuation via Interval Arithmetic. 2017 SIAM Conference on applied algebraic geometry, Atlanta, Georgia, July 31, 2017.
- M. Burr. The Complexity of Adaptive Subdivision in High Dimensions. NC State Symbolic Computing Seminar, Raleigh, North Carolina. April 25, 2017.
- M. Burr. An Introduction and Recent Advances on Continuous Amortization. AMS Fall Western Sectional Meeting. October 8, 2016.
- M. Burr. An Introduction and Recent Advances on Continuous Amortization. CUNY Graduate Center Symbolic-Numeric Computing Seminar. May 5, 2016.
- M. Burr. Continuous Amortization: Intrinsic Geometric Complexity for Subdivision-based Algorithms. Fields Institute Workshop on Algebra, Geometry and Proofs in Symbolic Computation, Fields Institute, University of Toronto. December 12, 2015.
- M. Burr. Asymptotic Purity for Very General Hypersurfaces of Products of Projective Spaces, University of Georgia Algebraic Geometry Seminar. October 14, 2015.
- M. Burr. Continuous Amortization: Intrinsic Complexity for Subdivision-based Algorithms, 2015 SIAM Conference on applied algebraic geometry, Daejeon, South Korea. August 5, 2015
- M. Burr. Continuous Amortization: Intrinsic Complexity for Subdivision-based Algorithms, Meeting on Algebraic Geometry for Applications, Georgia Institute of Technology. April 11, 2015.
- M. Burr. Asymptotic Purity for Very General Hypersurfaces of Products of Projective Spaces, University of South Carolina. April 11, 2014
- M. Burr. Subdivision and Algebraic Geometry for Certified Correct Computations. Georgia Institute of Technology algebra seminar. February 11, 2013.
- M. Burr. An introduction to asymptotic cohomology. Tufts University mathematics departmental colloquium. March 16, 2012.
- M. Burr. Subdivision algorithms for guaranteed correct computations. Clemson University ADM seminar, February 27, 2012.
- M. Burr. Continuous amortization for the complexity of adaptive subdivision methods. Subdivision methods in numerical algebraic geometry at SIAM conference on applied algebraic geometry. October 9, 2011.
- M. Burr. Asymptotic purity for very general hypersurfaces of products of projective spaces. CUNY commutative algebra & algebraic geometry seminar, September 23, 2011.

- M. Burr. Isotopic approximations of singular algebraic curves. AMS Special Session on Computational Algebraic and Analytic Geometry for Low-Dimensional Varieties, II at 2011 Joint Mathematics Meetings, January 6, 2011.
- M. Burr. Dynamic maintenance of half-space depth and contours. Geometric and Combinatorial Aspects of Convex Optimization at 2010 Canadian Mathematical Society summer meeting. June 5, 2010.

Contributed Presentations

- M. Burr. First Year Seminar. Clemson University First Year Seminar, April 9th, 2019.
- M. Burr. An Approach for Certifying Homotopy Continuation Paths: Univariate Case. 2018 International Symposium on Symbolic and Algebraic Computation (ISSAC), New York, New York, July 18, 2018.
- M. Burr. Applied Geometry. Clemson University First Year Seminar, February 27, 2018.
- M. Burr. The Complexity of an Adaptive Subdivision Method for Approximating Curves. 2017 International Symposium on Symbolic and Algebraic Computation (ISSAC), Kaiserslautern, Germany, July 27, 2017.
- M. Burr. Applied Geometry. Clemson University First Year Seminar, March 14, 2017.
- M. Burr. Applied Geometry. Clemson University First Year Seminar, March 29, 2016.
- M. Burr. Applied Algebraic Geometry. Clemson University First Year Seminar, January 20, 2015.
- M. Burr. Data Depth: An Introduction. Clemson University Algorithms Seminar, October 3, 2014.
- M. Burr. Applied Algebraic Geometry. Clemson University First Year Seminar, March 11, 2014.
- M. Burr. Origami, Mathematics, and Spacecraft? Clemson University Math Club, October 4, 2013.
- M. Burr. Amortization: Classical, Algebraic, and Continuous. Clemson University Algorithms Seminar, September 27, 2013.
- M. Burr. Approximating Roots of Polynomials. Clemson University First Year Seminar, February 5, 2013.
- M. Burr. An introduction to data depth (with some recent work). Clemson University ADM seminar, October 4, 2012.
- M. Burr. Rigid origami. Clemson University Mathematics REU, May 23, 2012.
- M. Burr. Asymptotic purity for very general hypersurfaces of products of projective spaces. AMS Session on Algebraic Geometry II at 2012 Joint Mathematics Meetings, January 6, 2012.
- M. Burr. Asymptotic purity for very general hypersurfaces of $\mathbb{P}^n \times \mathbb{P}^n$. Poster session at AGNES, October 29, 2011.
- M. Burr, E. Rafalin, and D. Souvaine. Dynamic algorithms for half-space depth. Courant Institute geometry seminar. October 18, 2011.

- M. Burr. Asymptotic purity for very general hypersurfaces of products of projective spaces. Bogomolov laboratory of algebraic geometry seminar at the Higher School of Economics (Moscow), August 19, 2011.
- M. Burr. Rigid origami. Fordham University undergraduate colloquium. February 23, 2011.
- M. Burr. Subdivision algorithms and real algebraic geometry in computer science. Fordham University departmental colloquium, May 3, 2010.
- M. Burr. Asymptotic purity for vanishing theorems for complete toric varieties. Chicago State University departmental seminar. April 13, 2010.
- M. Burr and F. Krahmer. Analysis of evaluation-based root isolation via integration bounds. Courant Institute graduate student and postdoc seminar, October 3, 2008.
- M. Burr and B. Galehouse. Continuous amortization for the complexity of algorithms. MIT, Tufts, & Brandeis research group on computational geometry. December 7, 2007.
- M. Burr. Simplicial depth: an improved definition, analysis, and efficiency for the finite sample case. Student papers session at RUMBUS, April 24, 2004
- M. Burr. Simplicial depth: an improved definition, analysis, and efficiency for the finite sample case. Northeastern Section of the MAA fall 2003 meeting, November 22, 2003.
- M. Burr. Describing the limiting surfaces of hyperbolic surfaces tiled by quadrilaterals. AMS-MAA-SIAM Special Session on Research in Mathematics by Undergraduates III at the 2003 Joint Mathematics Meetings, January 18, 2003.
- M. Burr. Describing the limiting surfaces of hyperbolic surfaces tiled by quadrilaterals. Indiana University REU conference, July 19, 2002.

HONORS AND AWARDS

- Faculty Teaching Award, Clemson Department of Mathematical Sciences (2015)
- Clemson Faculty/Staff of the Month, National Residence Hall Honorary (2014)
- Pi Mu Epsilon (2011).
- Peter M. Curran Visiting Research Instructorship, Fordham University (2010-2012).
- President's Service Award (awarded to cSplash program), New York University (2008).
- MacCracken Fellowship, New York University (2005-2010).
- Summa Cum Laude with Highest Thesis Honors, Tufts University (2004).
- Phi Beta Kappa (2004).
- Benjamin G. Brown Scholarship for excellence in research, Tufts University (2004).
- Ralph S. Kaye Memorial Prize for excellence in mathematics, Tufts University (2004).
- Ranked 101th and 158th in the Putnam mathematics competitions (2002, 2003).

SPONSORED RESEARCH

External Sponsored Research

- Certification Algorithms for Polynomial System Solving, National Science Foundation, Principal Investigator \$72,387 (\$72,387), (2019-2020).
- 2018 and 2019 Clemson Mini-Conference on Discrete Mathematics and Algorithms, National Security Agency, Principal Investigator \$18,060 (\$6,020), (2018-2020).

- AF: Small: Subdivision Methods: Correctness and Complexity, National Science Foundation, Principal Investigator \$246,411 (\$246,411), (2015-2019).
- 2016–2017 Clemson Mini-Conference on Discrete Mathematics and Algorithms, National Security Agency, co-Principal Investigator \$17,000 (\$4,250), (2016-2017).
- Collaborations between algebraic geometry and computer science, Simons Foundation, Principal Investigator, \$35,000 (\$35,000), (2013-2018).

OTHER SPONSORED ACTIVITY

External Sponsored Research

- Housing support to be in residence at ICERM’s semester program on Nonlinear Algebra, Providence, Rhode Island, August-December, 2018. (\$8,000).
- Travel and housing support to attend Additive NSF-CBMS conference Applications of Polynomial Systems, Fort Worth, Texas, June 4-8, 2018.
- Travel and housing support to attend Additive NSF-CBMS conference Combinatorics from a Geometric Viewpoint, Columbia, South Carolina, May 21-25, 2018.
- Travel and housing support to attend Collaborate@ICERM working group, Providence, Rhode Island, January 22-28, 2017.

GRADUATE STUDENT ADVISING

Primary Graduate Advising

- Andrew Pitman (MS), TBD, TBD, (Primary Advisor)
- Margaret Brooks (MS), “Threadable polygonal chains”, 5/2019, (Primary Advisor)
- Zach Johnston (MS), “The Stiefel-Whitney characteristic classes”, 5/2019, (Primary Advisor)
- Drew Lipman (PhD), “Normal domains arising from graph theory”, 5/2017, (Primary advisor)
- Vito Capuano (MS), “Polygon distances with applications to high performance liquid chromatography”, 8/2015, (Primary advisor)

Doctoral Graduates

- Huixi Li (PhD), “On some Conjectures in Analytic Number Theory”, 8/2018, (Committee member)
- Kara Stasikelis (PhD), “Properties of some Markov chains on linear extensions of posets”, 5/2018, (Committee member)
- Drew Lipman (PhD), “Normal Domains arising from Graph Theory”, 5/2017, (Primary advisor)
- Honghai Xu (PhD), “Generalized Colorings of Graphs”, 5/2016, (Committee member)
- Rodney Keaton (PhD), “Level stripping of genus 2 Siegel modular forms”, 5/2014, (Committee member)
- Juliane Capaverde (PhD), “Gröbner Bases: Degree Bounds and Generic Ideals”, 5/2014, (Committee member)

Masters Graduates

- Shau Wei (MS), “Cohen-Macaulay type of weighted edge ideals and path ideals”, 8/2019, (Committee member)

- Margaret Brooks (MS), “Threadable polygonal chains”, 5/2019, (Primary advisor)
- Zach Johnston (MS), “The Stiefel-Whitney characteristic classes”, 5/2019, (Primary advisor)
- Stephen Peele (MS), “Signal Decompositions via Kernel Computations”, 5/2017, (Committee member)
- Vito Capuano (MS), “Polygon Distances with Applications to High Performance Liquid Chromatography”, 8/2015, (Primary advisor)
- Merle Glick (MS), “Computational Development of Chromatography Column Cross Sections”, 5/2015 (Committee member)
- Fiona May Knoll (MS), “Secret Sharing and Network Coding,” 5/2013, (Committee member)

B.S. Graduates

- Joey Bonitati (BS), “Half-Space Similarity: Properties and Computation” (5/2018) (Research Advisor)
- Andrew Pitman (BS), “Dynamic Half-Space Depth using AVL Trees” (5/2017) (Research Advisor)
- Bobby Fabrizio (BS), “Error Probabilities for Halfspace Depth” (5/2016) (Research Advisor)
- Jacob Maggio (BS), “Newton’s Method on a GPU” (5/2013) (Research Advisor)

Other Graduate Advising

- Michael Byrd (Initial advisor)
- Isaac Justus (Initial advisor)
- Rebecca Knoll (Initial advisor)
- Andrew Pangia (Initial advisor)
- Alan Hahn (Initial advisor)
- Trevor Vilardi (Teaching mentor)
- Md. Sakhawat Hossain (Teaching mentor)
- Chase Joyner (Teaching mentor)

Student-published Papers

- B. Case, S. Hedetniemi, R. Laskar, D. Lipman. Partial Domination in Graphs. *Congresses Numeratum. A Conference Journal on Numerical Themes*. 2017
- A. Grady, F. Knoll, R. Laskar, and D. Lipman. Cycle domination, independence, and irredundance in graphs. *Congressus Numerantium. A Conference Journal on Numerical Themes*. 224, 159-174, 2015.
- A. Grady, F. Knoll, and D. Lipman. Clique independence, domination and irredundance in graphs. *Congressus Numerantium. A Conference Journal on Numerical Themes*. 223, 193-198, 2015.
- D. Lipman. Intersections of cycling 2-factors. *Congressus Numerantium. A Conference Journal on Numerical Themes*. 221, 73-80, 2014.
- D. Lipman and R. Richter. On primal graphs with maximum degree 2. *Journal of Combinatorial Mathematics and Combinatorial Computing*. 89, 265-283, 2014.
- D. Lipman. Primal Lobsters. *Congressus Numerantium. A Conference Journal on Numerical Themes*. 212, 107-118, 2012.

TEACHING

Courses Taught

- MATH 2080: Differential Equations, S18.
- MATH 2060: Calculus of Several Variables, S13, F16.
- MATH 9860: Introduction to Manifolds, S16.
- MATH 4560: Topology, F15.
- MATH 3110: Linear Algebra, S13, F15, S17, F17, F19.
- MATH 4910: Independent Study, F15
- MATH 9860: Toric Varieties, S15.
- MATH 3190: Introduction to Proof, S14, F14, S15, F19.
- MthSc 482: Undergraduate Research, S13, F14, S15.
- MATH 8520: Abstract Algebra II, S14.
- MthS 8510: Abstract Algebra I, F13.
- MthSc 419: Discrete Mathematical Structures, F12.

Prior to Clemson

- MATH 2001, Discrete Mathematics, S12 (Fordham University).
- MATH 1100, Finite Mathematics, F11 (Fordham University).
- MATH 1108, Math for Business: Finite, F10, F11 (Fordham University).
- MATH 3005, Abstract Algebra, S11 (Fordham University).
- MATH 1109, Math for Business: Calculus, S11 (Fordham University).
- V64.0248, Theory of Numbers, F09 (New York University).
- Written Workshop for Graduate Comprehensive Exam, S09 (New York University).
- Mathematics for Life: High School Probability, Su08 (New York University).

New Course Development

- MthS 3190 (CT2), Introduction to proof. Critical thinking seminar.
- MthSc 411, Combinatorics.

Prior to Clemson

- MATH 4000, Mathematical Ethics Practicum (Fordham University)

UNIVERSITY AND PUBLIC SERVICE

Continuing Education

- Co-organizer, Clemson's mini-conference on discrete mathematics and algorithms (2014-)
- Organizer, Clemson's Algebra and Discrete Mathematics Seminar (2019-)
- Co-organizer, AMS Southeastern Special Session on Applications of Algebraic Geometry (2019)
- Organizer, Clemson's Reading group on Numerical Algebraic Geometry (2017)
- Organizer, Clemson's Working group on Computational Geometry (2015-2017)
- Organizer, Clemson's Algebraic Geometry and Number Theory Seminar (2015-2017)
- Co-organizer, Meeting on Algebraic Geometry for Applications (2015-2016)
- Organizer, Workshop on approximations of algebraic varieties (2014).
- Attended summer faculty institute on critical thinking as part of the CT2 program (2013, 2014).

- Chaired AMS contributed paper session Algebraic Geometry II at the *2012 Joint Mathematics Meetings*.
- Co-chaired minisymposium on Subdivision Methods in Numerical Algebraic Geometry at *SIAM Conference on Applied Algebraic Geometry*.

Committees

- Algebra and discrete math coordinator (2019-).
- Committee member for departmental research committee (2013-2015, 2019-).
- Committee member for departmental teaching award (2016-2019).
- Committee member for departmental undergraduate committee (2014).

Other Service

- Faculty advisor, Clemson university Fencing Club (2015-)
- Volunteer, Clemson's graduate student training class (panelist and observing lectures) (2015-2017)
- Volunteer, Clemson Calculus Challenge (2013 - 2015).
- Volunteer, Clemson AWM panel on applying to small colleges (2013).
- Volunteer, Clemson Math-In (2013-2016).
- Volunteer, Clemson REU on Computational Algebraic Geometry, Combinatorics and Number Theory (2013).
- Volunteer, Math Midway (a traveling exhibit for the Manhattan Museum of Mathematics) (2009, 2012).
- Volunteer instructor, cSplash (a one-day festival of mathematics for high-school students) at New York University (2005-2012).
- Co-creator and organizer, cSplash at New York University (2005-2010).
- Faculty advisor, Pi Mu Epsilon and math club at Fordham University (2011-2012).
- Organizer, Courant Institute graduate student & postdoc seminar at New York University (2009-2010).

MEMBERSHIPS

Member, American Mathematical Society, AMS, 2010-

Member, Society for Industrial and Applied Mathematics, SIAM, 2010-

Member, Association for Computing Machinery, ACM, 2018-2019

PROFESSIONAL ACTIVITIES

- Proceedings editor for the *International Symposium on Symbolic and Algebraic Computation, 2017*.

MISCELLANEOUS

- Served on two NSF panels.
- Reviewed sixteen papers for the *AMS (MathSciNet) Reviews*.
- Reviewed a paper for *Statistics and Probability Letters*.
- Reviewed a paper for *International Journal of Computational Geometry and Applications*.
- Reviewed a paper for *Computer-Aided Design*.
- Reviewed six papers for the *International Symposium on Symbolic and Algebraic Computation*.

- Reviewed a paper for the *Symposium on Computational Geometry*.
- Reviewed a paper for the *Sixth International Conference on Mathematical Aspects of Computer and Information Sciences*.
- Reviewed a paper for the *Journal of Symbolic Computation*.
- Reviewed a paper for the *Journal of Computational and Applied Mathematics*.
- Reviewed a book for *INFORMS*.
- Reviewed two papers for *Computer Aided Geometric Design*.
- Reviewed a paper for *Theoretical Computer Science*.
- Reviewed a paper for *Symbolic-Numeric Computation*.
- Reviewed a paper for *Experimental Mathematics*.

August 15, 2019