Shravan Veerapaneni

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Education

Jun 2008 **University of Pennsylvania**, Philadelphia.
Ph.D in *Mechanical Engineering and Applied Mechanics*.
Advisor: George Biros

Jul 2003 **Indian Institute of Technology (Madras)**, Chennai, India.
Bachelor of Technology in *Mechanical Engineering*.

Appointments

2021 – Present **Professor**
Department of Mathematics, University of Michigan, Ann Arbor.

2017 – 2021 **Associate Professor**
Department of Mathematics, University of Michigan, Ann Arbor.

2011 – 2017 **Assistant Professor**
Department of Mathematics, University of Michigan, Ann Arbor.

2008 – 2011 **Research Scientist**
Courant Institute of Mathematical Sciences, New York University.

Visiting Positions

- Visiting Scholar, Center for Computational Mathematics, Flatiron Institute, New York, NY, 2018–Present.
- Visiting Scholar, Biophysical Modeling Group, Flatiron Institute, New York, NY, 2017-2018.
- Visiting Professor, École Nationale Supérieure de Techniques Avancées (ENSTA), Paris, 2014. (visit sponsored by *Fondation Mathématique Jacques Hadamard*)

Awards and Honors

- Plenary Speaker, Casa Matemática Oaxaca (BIRS), 2017.
- Plenary Speaker, MICDE Annual Symposium, 2016.
- NSF CAREER Award, 2015.
- Ralph E. Powe Junior Faculty Award, 2013.
- ACM Gordon Bell Prize, 2010.
- Best Paper Award Finalist, ACM/IEEE Conference on Supercomputing, 2010.
- Graduate Research Fellowship, University of Pennsylvania, 2003-2008.

External Grants

(* indicates sole PI grant; ***Total share:*** *2.7M+*)

- *National Science Foundation DMS*
  - 2020-2023* Computational retinal hemodynamics
  - 2020-2022 VMC-inspired quantum algos for many-body systems & comb. optimization
  - 2017-2020 Modeling and comp. of 3D multicomponent vesicles in complex flow domains
  - 2015-2020* CAREER: Fast algorithms for particulate flows
  - 2014-2017* Fast high-order methods for electrohydrodynamics of vesicle suspensions
  - 2012-2015 Math. & exp. study of lipid bilayer...mediated by surfactants and proteins
- *U.S. Army GVSC/Automotive Research Center*
  - 2020-2023* Quantum computing innovation for offroad mobility
  - 2020-2022 Mathematical approaches for learning from gaming data
  - 2020-2022* Tensor data compression...for autonomous mobility
  - 2017-2019* Data-driven construction of high-fidelity mobility maps
  - 2016-2019* Fast numerical algorithms for high-fidelity simulation of terramechanics
- *National Science Foundation IIP*
  - 2015-2017* I-Corps: High-fidelity simulation software for microfluidics
- *Simons Foundation*
  - 2014-2019* Scalable Numerical Methods for Solving PDEs on Moving Geometries

Publications

In Draft (* indicates advisee)

1. T. Anderson*, M. Bonnet and S. Veerapaneni. Quantifying mixing in arbitrary fluid domains: A Padé approximation approach. To be submitted, 2021.
2. H. Zhu* and S. Veerapaneni. A recursive product integration scheme for volume potentials on irregular domains. To be submitted to *SIAM Journal on Scientific Computing*, 2021.
3. M. Bonnet, R. Liu*, S. Veerapaneni and H. Zhu*. Shape optimization of a peristaltic pump transporting particulate flows. To be submitted to *SIAM Journal on Scientific Computing*, 2021.

Preprints

4. Y. Zhang*, A. Gillman and S. Veerapaneni. Fast direct solvers for time-varying boundary discretizations. Submitted to *Advances in Computational Mathematics*, 2021.
5. Y. Zhang*, D. Gorsich, J. Paramsothy and S. Veerapaneni. Continuous-variable optimization with neural network quantum states. Submitted, 2021.
6. J. Stokes, S. De*, S. Veerapaneni and G. Carleo. Continuous-variable neural-network quantum states and the quantum rotor model. Submitted to *Quantum*, 2021.
7. H. Zhu* and S. Veerapaneni. High-order close evaluation of Laplace layer potentials: A differential geometric approach. Submitted to *SIAM Journal on Scientific Computing*, 2021.
8. T. Zhao*, J. Stokes and S. Veerapaneni. Meta variational quantum Monte Carlo. Submitted, 2021.
9. R. Kohl*, E. Corona, V. Cheruvu, and S. Veerapaneni. Fast and accurate solvers for simulating Janus particle suspensions in Stokes flow. *arXiv preprint arXiv:2104.14068*, 2021.

10. J. Wang, L. Greengard, S. Jiang and S. Veerapaneni. Fast integral equation methods for linear and semilinear heat equations in moving domains. *arXiv:2005.04447*, 2019.

Peer-reviewed Publications

11. H. Guo*, H. Zhu*, R. Liu*, M. Bonnet, and S. Veerapaneni. Optimal ciliary locomotion of axisymmetric microswimmers. *Journal of Fluid Mechanics*, 2021.

12. G. Marple*, D. Gorsich, P. Jayakumar and S. Veerapaneni. An active learning framework for constructing high-fidelity mobility maps. *IEEE Transactions on Vehicular Technology*, 2021.

13. T. Zhao*, S. De*, B. Chen*, J. Stokes, and S. Veerapaneni. Overcoming barriers to scalability in variational quantum Monte Carlo. *Proceedings of the 2021 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis*.

14. H. Guo*, H. Zhu*, R. Liu*, M. Bonnet, and S. Veerapaneni. Optimal slip velocities of microswimmers with arbitrary axisymmetric shapes. *Journal of Fluid Mechanics*, 910, 2021.

15. B. Chen*, S. Tandon, D. Gorsich, A. Gorodetsky, and S. Veerapaneni. Behavioral cloning in atari games using a combined variational autoencoder and predictor model. *IEEE Congress on Evolutionary Computation*, 2021.

16. T. Zhao*, G. Carleo, J. Stokes, and S. Veerapaneni. Natural evolution strategies and variational Monte Carlo. *Machine Learning: Science and Technology*, 2(2), 2020.

17. T. Zhao*, J. Stokes, O. Knitter*, B. Chen* and S. Veerapaneni. Meta Variational Monte Carlo. *Neural Information Processing Systems (NeurIPS), Workshop of Machine Learning and the Physical Sciences*, 2020.

18. W. Yan, E. Corona, D. Malhotra, S. Veerapaneni and M. Shelley. A scalable computational platform for particulate Stokes suspensions. *Journal of Computational Physics*, Vol. 416, May 2020.

19. H. Guo*, H. Zhu* and S. Veerapaneni. Simulating cilia-driven mixing and transport in complex geometries. *Physical Review Fluids*, Vol. 5, Issue 5, 2020.

20. B. Wu*, H. Zhu*, A. Barnett and S. Veerapaneni. Solution of Stokes flow in complex nonsmooth 2D geometries via a linear-scaling high-order adaptive integral equation scheme. *Journal of Computational Physics*, Vol. 410, 2020.

21. M. Bonnet, R. Liu* and S. Veerapaneni. Shape optimization of Stokesian peristaltic pumps using boundary integral methods. *Advances in Computational Mathematics*, Vol. 46, Issue 18, 2020.

22. S. De*, E. Corona, P. Jayakumar and S. Veerapaneni. Scalable Solvers for Cone Complementarity Problems in Frictional Multibody Dynamics. *Proceedings of the IEEE High Performance Extreme Computing Conference*, 2019.

23. B. Quaife, S. Veerapaneni and Y.-N.Young. Hydrodynamics and rheology of a vesicle doublet suspension. *Physical Review Fluids*, Volume 4, Issue 10, 2019. (PRF Editors' suggestion)

24. E. Corona*, D. Gorsich, P. Jayakumar and S. Veerapaneni. Tensor train accelerated solvers for nonsmooth rigid body dynamics. *Applied Mechanics Reviews*, Volume 71, Issue 5, 2019.

25. B. Wu* and S. Veerapaneni. Electrohydrodynamics of deflated vesicles: budding, rheology and pairwise interactions. *Journal of Fluid Mechanics*, Vol. 867, pp. 334-347, 2019.

26. E. Corona* and S. Veerapaneni. Boundary integral equation analysis for suspension of spheres in Stokes flow. *Journal of Computational Physics*, Vol. 362, pp. 327-345, 2018.

27. A. Barnett, G. Marple*, S. Veerapaneni and L. Zhao. A unified integral equation scheme for doubly-periodic Laplace and Stokes boundary value problems in two dimensions. *Communications on Pure and Applied Mathematics*, Vol. 71, pp. 2334-2380, 2018.

28. K. Liu, G. Marple*, J. Allard, S. Li, S. Veerapaneni and J. Lowengrub. Dynamics of a multicomponent vesicle in shear flow. *Soft Matter*, Volume 13, pp. 3521-3531, 2017.

29. E. Corona*, L. Greengard, M. Rachh and S. Veerapaneni. Integral equation methods for rigid bodies in Stokes flow in three dimensions. *Journal of Computational Physics*, Volume 332, pp. 504-519, 2017.

30. S. Veerapaneni. Integral equation methods for vesicle electrohydrodynamics in three dimensions. *Journal of Computational Physics*, Volume 326, pp. B740-B772, 2016.

31. G. Marple*, A. Barnett, A. Gillman and S. Veerapaneni. A fast algorithm for simulating multiphase flows through periodic geometries of arbitrary shape. *SIAM Journal on Scientific Computing*, Volume 38, Issue 5, 2016.

32. O. -S. Pak, Y. -N. Young, G. Marple*, S. Veerapaneni and H. Stone. Gating of a mechanosensitive channel due to cellular flows. *Proceedings of the National Academy of Sciences*, Volume 112, No. 32, 2015.

33. A. Barnett, B. Wu*, and S. Veerapaneni. Spectrally-accurate quadratures for evaluation of layer potentials close to the boundary for the 2D Stokes and Laplace equations. *SIAM Journal on Scientific Computing*, Volume 37, Issue 4, 2015.

34. G. Marple*, P. Purohit and S. Veerapaneni. Equilibrium shapes of planar elastic membranes. *Physical Review E.*, Volume 92, No. 1, July 2015.

35. A. Rahimian, S. Veerapaneni, D. Zorin and G. Biros. Boundary integral method for the flow of vesicles with viscosity contrast in three dimensions. *Journal of Computational Physics*, Volume 298, pp. 766-786, 2015.

36. Z. Gimbutas, L. Greengard and S. Veerapaneni. Efficient representations for the fundamental solutions of Stokes flow in a half space. *Journal of Fluid Mechanics*, Volume 776, Aug. 2015.

37. Y. -N. Young, S. Veerapaneni and M. Miksis. Long-wave dynamics of an inextensible planar membrane in an electric field. *Journal of Fluid Mechanics,* Volume 751, pp. 406–431, 2014.

38. Z. Gimbutas and S. Veerapaneni. A fast algorithm for spherical grid rotations and its application to singular quadrature. *SIAM Journal on Scientific Computing*, Volume 35, Issue 6, 2013.

39. S. Jiang, S. Veerapaneni and L. Greengard. Integral equation methods for unsteady Stokes flow in two dimensions. *SIAM Journal on Scientific Computing*, Volume 34, Issue 4, 2012.

40. S. Veerapaneni, Y. -N. Young, P. M. Vlahovska and J. Blawzdziewicz. Dynamics of a compound vesicle in shear flow. *Physical Review Letters*, Volume 106, Issue 15, 2011.

41. S. Veerapaneni, A. Rahimian, G. Biros and D. Zorin. A fast algorithm for simulating vesicle flows in three dimensions. *Journal of Computational Physics*, Volume 230, Issue 14, 2011.

42. A. Rahimian, I. Lashuk, S. Veerapaneni, A. Chandramowlishwaran, D. Malhotra, L. Moon, R. Sampath, A. Shringarpure, J. Vetterz, R. Vuduc, D. Zorin and G. Biros. Petascale direct numerical simulation of blood flow on 200K cores and heterogeneous architectures. *Proceedings of the 2010 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis.* (Gordon Bell Prize)

43. R. Sampath, H. Sundar and S. Veerapaneni. Parallel fast Gauss transform. *Proceedings of the 2010 ACM/IEEE International Conference for High Performance Computing, Networking,*

Storage and Analysis. (Finalist, Best Paper Award)

44. M. Spivak, S. Veerapaneni and L. Greengard. The fast generalized Gauss transform. *SIAM Journal on Scientific Computing*, Volume 32, Issue 5, pages 3092-3107, October 2010.

45. A. Rahimian, S. Veerapaneni and G. Biros. Dynamic simulation of locally inextensible vesicles suspended in an arbitrary two-dimensional domain, a boundary integral method. *Journal of Computational Physics*, Volume 229, Issue 18, Pages 6466-6484, September 2010.

46. S. Veerapaneni, D. Gueyffier, G. Biros and D. Zorin. A numerical method for simulating the dynamics of 3D axisymmetric vesicles suspended in viscous flows. *Journal of Computational Physics*, Volume 228, Issue 19, Pages 7233-7249, October 2009.

47. S. Veerapaneni, D. Gueyffier, D. Zorin and G. Biros. A boundary integral method for simulating the dynamics of inextensible vesicles suspended in a viscous fluid in 2D. *Journal of Computational Physics*, Volume 228, Issue 7, Pages 2334-2353, April 2009.

48. S. Veerapaneni, R. Raj, G. Biros and P. K. Purohit, Analytical and numerical solutions for shapes of Quiescent 2D Vesicles. *International Journal of Non-linear Mechanics*, Volume 44, Issue 3, Pages 257-262, April 2009.

49. S. Veerapaneni and G. Biros. The Chebyshev fast Gauss and nonuniform fast Fourier transforms and their application to the evaluation of distributed heat potentials. *Journal of Computational Physics*, Volume 227, Issue 16, Pages 7768-7790, August 2008.

50. S. Veerapaneni and G. Biros. A high-order solver for the heat equation in 1D domains with moving boundaries. *SIAM Journal on Scientific Computing*, Volume 29, Issue 6, Pages 2581-2606, October 2007.

Book Chapters

51. A. Rahimian, S. Veerapaneni, D. Zorin and G. Biros. Dynamics of inextensible vesicles suspended in a confined two-dimensional Stokes flow. *Frontiers in Applied and Computational Mathematics Proceedings,* D. Blackmore, A. Bose, and P. Petropoulos, eds, World Scientific, 2008.

Invited Research Talks

Apr 2021	Mathematics and Statistical Science Colloquium (Virtual), University of Idaho.
Mar 2021	Fluid Dynamics Seminar (Virtual), Imperial College, London.
Mar 2021	ARC Research Seminar Series (Virtual), University of Michigan, Ann Arbor.
Nov 2020	Scientific Computing Colloquium (Virtual), Florida State University, Tallahassee.
Oct 2019	ARC Research Seminar Series, University of Michigan, Ann Arbor.
Oct 2019	Junior Colloquium Series, University of Michigan, Ann Arbor.
Aug 2019	Chemical Engineering Seminar, Indian Institute of Technology, Hyderabad.
May 2019	Biointerfaces Institute, University of Michigan, Ann Arbor.
Apr 2019	CAAM Colloquium, Rice University, Houston.
Feb 2019	Biomechanics & Mechanobiology Seminar, University of California, San Diego.
Dec 2018	Numerical Algorithms & Scientific Computing, Courant Institute, New York.
Jul 2018	Soft Matter Seminar, Nordic Institute for Theoretical Physics, Stockholm.
Mar 2018	IMA Workshop, University of Minnesota, Minneapolis.
Oct 2017	CMO Workshop, Oaxaca, Mexico.
Sep 2017	ARC Research Seminar, University of Michigan, Ann Arbor.
Aug 2017	Chemical Engineering Seminar, Indian Institute of Technology, Bombay.

Mar 2017	Active Matter Workshop, Flatiron Institute, New York.
Feb 2017	SIAM Conference on Computational Science and Engineering, Atlanta.
Nov 2016	Applied & Computational Mathematics Seminar, University of California, Irvine.
Sep 2016	AMCS Seminar, University of Pennsylvania, Philadelphia.
Aug 2016	Army Research Office Workshop on Geo-Surface Materials, Chicago.
Jul 2016	SIAM Annual Meeting, Boston.
Jul 2016	Computational & Data Sciences Seminar, Indian Institute of Science, Bangalore.
May 2016	SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia.
Apr 2016	MICDE Annual Symposium, University of Michigan, Ann Arbor.
Jan 2016	Applied Mathematics Colloquium, Northwestern University, Evanston.
Nov 2015	Annual Meeting of the APS Division of Fluid Dynamics, Boston.
Apr 2015	Applied Math Colloquium, Central Michigan University, Mt. Pleasant.
Mar 2015	SIAM Conference on Computational Science and Engineering, Salt Lake City.
Jul 2014	SIAM Annual Meeting, Chicago.
Jun 2014	Center for Interdisciplinary Studies, Tata Institute of Fundamental Research, India.
May 2014	Center for Applied Mathematics, École Polytechnique, Paris.
Nov 2013	Applied Mathematics Colloquium, New Jersey Institute of Technology, Newark.
Oct 2013	Applied Mathematics Colloquium, Northwestern University, Evanston.
Oct 2013	Schlumberger–Doll Research Center, Cambridge.
Sep 2013	Applied Mathematics Colloquium, Illinois Institute of Technology, Chicago.
Jul 2013	Society of Engineering Science – 50th Annual Meeting, Providence.
May 2013	Max Planck Institute of Colloids and Interfaces, Potsdam, Germany.
Jun 2013	SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia.
Feb 2013	SIAM Conference on Computational Science and Engineering, Boston.
Jan 2013	Applied & Interdisciplinary Mathematics Seminar, University of Michigan.
Jul 2012	SIAM Annual Meeting, Minneapolis.
May 2011	Computer Science Colloquium, Swiss Federal Institute of Technology (ETH), Zürich.
Apr 2011	Computer Science Colloquium, New York University.
Mar 2011	Mechanical & Aerospace Engineering Seminar, Cornell University.
Mar 2011	Scientific Computing Seminar, Southern Methodist University.
Feb 2011	SIAM Conference on Computational Science and Engineering, Reno.
Feb 2011	Applied & Interdisciplinary Mathematics Seminar, University of Michigan.
Feb 2011	Widely Applied Mathematics Seminar, Harvard University.
Feb 2011	Center for Fluid Mechanics, Turbulence and Computation, Brown University.
Oct 2010	Fluid Mechanics Seminar, New Jersey Institute of Tehnology.
May 2010	SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia.
May 2010	Frontiers in Applied and Computational Mathematics, Newark, NJ.
May 2010	Graphics and Geometry Seminar, New York University.
Nov 2009	Seminars in Engineering Science, Lehigh University.
Mar 2009	SIAM Conference on Computational Science and Engineering, Miami.
Oct 2008	Computational Topology, Algebra & Geometry Seminar, New York University.

Teaching

MATH 671 *Fast Algorithms & PDE-Constrained Optimization*
MATH 671 *Fast Algorithms*
MATH 572 *Scientific Computing II*
MATH 571 *Numerical Linear Algebra*
ENGR 471 *Numerical Methods*
MATH 454 *PDEs & Boundary Value Problems*
MATH 450 *Advanced Math for Engineers I*
ENGR 371 *Numerical Methods for Engineers*
MATH 156 *Applied Honors Calculus II*

Mentoring

Postdocs

1. Hai Zhu 2021 - Present
2. Thomas Anderson 2020 - Present
3. Yabin Zhang 2020 - Present
4. Hanliang Guo 2018 - Present
5. Ruowen Liu 2017 - 2021
   Later: Lecturer, Rider University (Department of Mathematics)
6. Libin Lu 2018
   Later: Software Engineer, Simons Foundation (Flatiron Institute)
7. Gary Marple 2016 - 2019
   Later: Scientist, SRI International (Ocean Modeling Lab)
8. Clark Bowman (co-mentor: Prof. Forger) 2018 - 2019
   Later: Tenure-track Assistant Professor, Hamilton College (Department of Mathematics)
9. Eduardo Corona 2015 - 2018
   Now: Tenure-track Assistant Professor, UC-Boulder (Department of Mathematics)
10. Mariana-Carrasco Teja (co-mentor: Prof. Adefeso, ChE) 2012 - 2015
    Now: Associate Director, MICDE, University of Michigan
11. Bogdan Vioreanu 2012 - 2015
    Later: Associate, Goldman Sachs, NYC

Graduate Students

12. Oliver Knitter (Ph.D.) In progress
13. Brian Chen (Ph.D.) (MICDE Fellow '21) In progress
14. Ryan Kohl (Ph.D.) In progress
15. Tianchen Zhao (Ph.D.) In progress
16. Saibal De (Ph.D. 2021) *Thesis title:* Fast solvers and simulation data compression algorithms for granular media and complex fluid flows. *Later:* Postdoc, Sandia National Laboratory (MICDE Fellow '19).
17. Hai Zhu (Ph.D. 2021) *Thesis title:* Fast, high-order accurate integral equation methods and application to PDE-constrained optimization. *Later:* Postdoctoral Assistant Professor, UM Math.

18. Bowei Wu (Ph.D. 2019). *Thesis title:* Spectrally-accurate close evaluation schemes for Stokes boundary integral operators. *Later:* Peter O'Donnell Jr. Postdoctoral Fellow, UT Austin (MICDE Fellow '16, Rackham Predoctoral Fellowship '17).

19. Gary Marple (Ph.D. 2016). *Thesis title:* Fast, high-order algorithms for simulating vesicle flows through periodic geometries. *Later:* Postdoctoral Assistant Professor, UM Math & US Army TARDEC (Co-winner, 2016 Peter Smereka Award for Best Applied Math Thesis).

20. Hao Zheng (M.S. 2015). *Later: Doctoral student at GSSI, Italy.*

Undergraduate Students

21. Shuyang Wang (*Later:* PhD in ESAM, Northwestern)	2019 - 2020
22. Tenzan Araki (*Later:* MS in Quantum Eng., ETH Zürich)	2019 - 2020
23. Izak Oltman (Co-advised with Dr. Corona)	Summer 2017
24. Jaewon Hur (Co-advised with Dr. Corona)	Summer 2017
25. Sam Christensen (*Later:* PhD in Bio-Math, UCLA)	Summer 2016

Ph.D. Thesis Committee Member

26. Morgan Whitcomb (UM Applied Physics, Advisor: Prof. Bassis)	In progress
27. Ian Lin (UM Mech Engg., Advisor: Prof. Gavini)	In progress
28. Ryan Sandberg (UM Math, Advisor: Prof. Krasny)	In progress
29. Zackary Dodson (UM Nuclear Engg., Advisor: Prof. Kochunas)	Jun 2021
30. Leighton Wilson (UM Math, Advisor: Prof. Krasny)	Mar 2021
31. Qicang Shen (UM Nuclear Engg., Advisor: Prof. Kochunas)	Jan 2021
32. Siddhartha Srivastava (UM Aero, Advisor: Prof: Sundararaghavan)	Dec 2020
33. Nathan Vaughn (UM Math, Advisor: Prof. Krasny)	Jul 2020
34. Andrew Gerlach (UM Nuclear Engg., Advisor: Prof. Lee)	Jan 2020
35. Sara Pålsson (KTH Numerical Analysis, Advisor: Prof. Tornberg)	Dec 2019
36. Bikash Kanungo (UM Mech Engg., Advisor: Prof. Gavini)	Sep 2019
37. Alex Hegedus (UM Space Science, Advisor: Prof. Kasper)	Aug 2019
38. Zhenlin Wang (UM Mech Engg., Advisor: Prof. Garikipati)	May 2019
39. Ben Yee (UM Nuclear Engg., Advisor: Prof. Larsen)	Apr 2018
40. Aaron Graham (UM Nuclear Engg., Advisor: Prof. Downar)	Jul 2017
41. Shaobo Wang (NJIT Applied Math, Advisor: Prof. Jiang)	Jul 2016
42. Ang Zhu (UM Nuclear Engg., Advisor: Prof. Downar)	Jun 2016
43. Lin Zhao (Dartmouth Applied Math, Advisor: Prof. Barnett)	May 2015
44. Yuxuan Liu (UM Nuclear Engg., Advisor: Prof. Martin)	Nov 2014
45. Herve Nganguia (NJIT Applied Math, Advisor: Prof. Young)	Apr 2014

Department/University Service

- MICDE Education Committee 2016 - Present
- AIM Graduate Admissions and Fellowships Committee 2012 - Present
- Quantum Computing Task Force 2018
- Undergraduate Research Committee 2013 - 2017
- Co-organized the REU Seminar Series 2013 - 2017

External Service

- Co-organized the three-day workshop, *"Mathematical Fluids, Materials and Biology"* in Ann Arbor, June 2019, funded by NSF grant DMS-1903035 and Michigan Center for Applied and Interdisciplinary Mathematics ($47.5k total).
- Panelist for National Science Foundation – 2013, 2015, 2016 (2), 2018, 2019, 2020.
- Panelist, XSEDE Research Allocation Committee (XRAC), 2015–2017.
- Journal referee: Journal of Fluid Mechanics, SIAM Journal on Scientific Computing, Journal of Computational Physics, Applied Mathematical Modelling, Journal of Computational and Applied Mathematics, Communications in Mathematical Sciences, Communications in Computational Physics, SIAM Journal on Applied Mathematics, French Academy of Science, Journal of the Royal Society Interface.
- Co-organized the minisymposium, "Integral Equation Methods for Particulate Flows", SIAM conference on Computational Science and Engineering, Atlanta, February 2017.
- Co-organized the minisymposium, "Computational Algorithms for Simulating Particulate Flows", SIAM Annual Meeting, Boston, July 2016.
- Co-organized the symposium, "Computational Mechanics of Biomembranes", Society of Engineering Science – 50th Annual Meeting, Brown University, July 2013.
- Co-organized the minisymposium, "Computational Algorithms for Simulating Particulate Flows", SIAM conference on Computational Science and Engineering, Reno, February 2011.
- Co-organized the minisymposium, "Numerical Methods for Complex Fluids", SIAM conference on Computational Science and Engineering, Miami, March 2009.