Yi Zhang

Department of Mathematics and Statistics
Petty 110, The University of North Carolina at Greensboro, NC 27402
y_zhang7@uncg.edu
http://www.uncg.edu/~y_zhang7/

Education

- **Ph.D. in Mathematics** *2008 - 2013*
  Louisiana State University, Baton Rouge, LA, USA
  Advisors: Prof. Susanne C. Brenner and Prof. Hongchao Zhang
  Dissertation: Finite Element Methods for Fourth Order Variational Inequalities
- **M.S. in Applied Mathematics** *2006 - 2008*
  Wuhan University, Wuhan, China
- **B.S. in Mathematics** *2002 - 2006*
  Wuhan University, Wuhan, China

Research Interests

- Discontinuous Galerkin Finite Element Methods
- Variational Inequalities
- Numerical Solutions of Stochastic Partial Differential Equations
- Adaptive Numerical Methods for Partial Differential Equations
- PDE-Constrained Optimization
- Numerical Optimization

Employment

- **Assistant Professor** *August 2017 - Present*
  Department of Mathematics and Statistics
  The University of North Carolina at Greensboro — Greensboro, NC
- **Postdoctoral Research Associate** *August 2016 - 2017*
  Department of Applied and Computational Mathematics and Statistics
  University of Notre Dame — Notre Dame, IN
- **Post-Doc Teaching Associate** *2013 - 2016*
  Department of Mathematics, University of Tennessee — Knoxville, TN
- **Research Assistant** *2011 - 2013*
  Center for Computation & Technology, Louisiana State University — Baton Rouge, LA
- **Teaching Assistant** *2008 - 2011*
  Department of Mathematics, Louisiana State University — Baton Rouge, LA

Publications

Refereed Publications

- T. Lewis, Q. Morris, and **Y. Zhang**. Convergence, stability analysis, and solvers for approximating sublinear positone and semipositone boundary value problems using finite difference methods. *J. Comput. Appl. Math.*, 404:113880, 2022.
- J.D. Hauenstein, A.C. Liddell, S. McPherson, and **Y. Zhang**. Numerical algebraic geometry and semidefinite programming. *Results Appl. Math.*, 11:100166, 2021.
- Y. Li and **Y. Zhang**. Analysis of adaptive two-grid finite element algorithms for linear and nonlinear problems. *SIAM J. Sci. Comput.*, 43(2):A908A928, 2021.
- X. Feng, Y. Li, and **Y. Zhang**. Strong convergence of a fully discrete finite element method for a class of semilinear stochastic partial differential equations with multiplicative noise. *J. Comput. Math.*, 39:591–616, 2021.
- X. Feng, Y. Li, and **Y. Zhang**. A fully discrete mixed finite element method for the stochastic Cahn-Hilliard equation with gradient-type multiplicative noise. *J. Sci. Comput.*, 83:23, 2020.
- F. Gao, Z. Sun, C. Wang, and **Y. Zhang**. A quadratic C^0 interior penalty method for the quad-curl problem. *Math. Model. Anal.*, 25(2): 208–225, 2020.
- T. Lewis, A. Rapp, and **Y. Zhang**. Convergence analysis of symmetric dual-wind discontinuous Galerkin approximation methods for the obstacle problem. *J. Math. Anal. Appl.*, 485, Article 23840, 2020.
- J. Cui and **Y. Zhang**. A new analysis of discontinuous Galerkin methods for a fourth order variational inequality. *Comput. Methods Appl. Mech. Engrg.*, 351:531–547, 2019.
- S.C. Brenner, L.-Y. Sung, and **Y. Zhang**. C^0 interior penalty methods for an elliptic state-constrained optimal control problem with Neumann boundary condition. *J. Comput. Appl. Math.*, 350:212–232, 2019.
- X. Feng, Y. Li, and **Y. Zhang**. Finite element methods for the stochastic Allen-Cahn equation with gradient-type multiplicative noise. *SIAM J. Numer. Anal.*, 55:194–216, 2017.
- S.C. Brenner, J. Gedicke, L.-Y. Sung, and **Y. Zhang**. An *a posteriori* analysis of C^0 interior penalty methods for the obstacle problem of clamped Kirchhoff plates. *SIAM J. Numer. Anal.*, 55:87–108, 2017.
- S.C. Brenner, L.-Y. Sung, and **Y. Zhang**. Post-processing procedures for an elliptic distributed optimal control problem with pointwise state constraints. *Appl. Numer. Math.*, 95:99–117, 2015.
- S.C. Brenner, L.-Y. Sung, and **Y. Zhang**. A quadratic C^0 interior penalty method for an elliptic optimal control problem with state constraints. In *Recent Developments in Discontinuous Galerkin Finite Element Methods for Partial Differential Equations, IMA Volumes in Mathematics and Its Applications, 157*, 2012 John H Barrett Memorial Lectures, X. Feng, O. Karakashian, and Y. Xing, eds., Springer, 2014, pp. 97-132.
- S.C. Brenner, L.-Y. Sung, H. Zhang, and **Y. Zhang**. A Morley finite element method for the displacement obstacle problem of clamped Kirchhoff plates. *J. Comput. Appl. Math.*, 254:31–42, 2013.
- S.C. Brenner, L.-Y. Sung, H. Zhang, and **Y. Zhang**. A quadratic C^0 interior penalty method for the displacement obstacle problem of clamped Kirchhoff plates. *SIAM J. Numer. Anal.*, 50:3329–3350, 2012.
- S.C. Brenner, L.-Y. Sung, and **Y. Zhang**. Finite element methods for the displacement obstacle problem of clamped plates. *Math. Comp.*, 81:1247–1262, 2012.

Submitted

- C.B. Davis and **Y. Zhang**. A partition of unity method for a fourth order variational inequality of the second kind.
- S.B. Boyana, T. Lewis, A. Rapp, and **Y. Zhang**. Convergence analysis of a symmetric dual-wind discontinuous Galerkin method for a parabolic variational inequality.
- T. Lewis, A. Rapp, and **Y. Zhang**. Further investigation of the penalty parameter for dual-wiind discontinuous Galerkin methods on elliptic second order PDEs.

Teaching Experience

@ University of North Carolina at Greensboro *August 2017 - Present*

- Instructor for Calculus I: Fall 2017, Spring 2019, Summer 2019, Fall 2019, Spring 2020, Spring 2021.
- Instructor for Calculus II: Fall 2018.
- Instructor for Calculus III: Fall 2018, Fall 2021, Spring 2022.
- Instructor for Calculus IV: Spring 2019, Fall 2021.
- Instructor for Ordinary Differential Equations: Spring 2018.
- Instructor for Financial Mathematics for Actuaries: Spring 2020.
- Instructor for Finite Element Methods: Spring 2018, Spring 2021.
- Instructor for Linear Algebra and Matrix Theory: Fall 2019.
- Instructor for Calculus w/ Business Applications: Summer 2021.
- Instructor for Numerical Methods for Nonlinear Partial Differential Equations (MAT 687): Spring 2021.
- Instructor for Discontinuous Galerkin Methods (MAT 709): Fall 2021.
- Instructor for PDE-Constrained Optimization (MAT 709): Spring 2022.

@ University of Tennessee *August 2013 - 2016*

- Instructor for Calculus I: Fall 2014.
- Instructor for Matrix Algebra I: Fall 2013, Fall 2015.
- Instructor for Numerical Analysis: Fall 2013, Fall 2014, Fall 2015.
- Instructor for Numerical Algorithms: Spring 2014, Spring 2015.
- Instructor for Numerical Algebra: Spring 2014, Spring 2015.

@ Louisiana State University *August 2008 - 2013*

- Instructor for Calculus I: Fall 2009, Spring 2010, Spring 2011.
- Instructor for College Algebra: Fall 2010.
- Math Lab Coordinator: Fall 2008, Spring 2009.

Skills

- **Programming:** C++, C, Python, Matlab, MPI
- **Operating Systems:** Windows, Linux, Mac OS

Awards and Honors

- ICERM Support of Local and Travel Expenses for the ICERM Topical Workshop : Celebrating 75 Years of Mathematics of Computation, ICERM, Providence, RI, November, 2018
- IMA Support of Local and Travel Expenses for the IMA Special Workshop: Recent Advances and Challenges in Discontinuous Galerkin Methods and Related Approaches, IMA, Minneapolis, MN, June 2017
- IMA Support of Local and Travel Expenses for the IMA Special Workshop: Structure-Preserving Discretizations of Partial Differential Equations, IMA, Minneapolis, MN, October 2014
- Pasquale Porcelli Certificate of Research Excellence, Department of Mathematics, Louisiana State University, Baton Rouge, LA, December 2012
- Student Travel Award, NSF/CBMS Conference: Finite Element Exterior Calculus (FEEC), Brown University, Providence, RI, June 2012
- Student Travel Award, 2012 John H. Barrett Lectures, University of Tennessee, Knoxville, TN, May 2012
- 2012 SIAM Student Chapter Certificate of Recognition, SIAM Student Chapter, May 2012
- Oberwolfach Leibniz Graduate Student Award, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach-Walke, Germany, February 2012

Grants

- National Science Foundation DMS: *Novel Discontinuous Galerkin Methods for Deterministic and Stochastic Optimization Problems with Inequality Constraints*, PI, 2021 – 2024, $114944
- CURM (The Center for Undergraduate Research in Mathematics) Minigrants: *Studying material transport in the vortical flow using Direct Numerical Simulations: Lagrangian and Eulerian approaches*, PI, September 2021 – May 2022, $12450
- Simons Collaboration Grant: *Robust Numerical Methods for PDE-Constrained Optimization with Uncertainty*, PI, $42000, September 2021 – August 2026, withdraw in favor of the NSF grant
- New Faculty Grant, Office of Research and Engagement, UNC Greensboro, PI, January 2018 – June 2019, $5000

Talks and Presentations

- *Dual-Winded Discontinuous Galerkin Methods for a Parabolic Obstacle Problem*, Finite Element Circus, Spring 2022, Gainesville, University of Florida, (Virtual talk) April 2022
- *Adaptive Two-Grid Finite Element Algorithms for Linear and Nonlinear Problems*, Mini-symposium: Recent Advances in Numerical Methods for PDEs, SIAM Southeastern Atlantic Section Conference, Auburn University, Auburn, AL, (Virtual talk) September 2021
- *An Intuitive Introduction to Finite Element Methods*, UNCG Statistics REU: Complex Data Analysis Using Statistical and Machine Learning Tools, The University of North Carolina at Greensboro, Greensboro, NC, (Virtual talk) June 2021
- *Finite Element Methods for a Stochastic Cahn-Hilliard Equation*, 50th Anniversary Finite Element Circus, Fall 2020, Virtual Conference, November 2020
- *Numerical Methods for Deterministic and Stochastic Differential Equations*, Applied Mathematics Seminar, The University of North Carolina at Greensboro, Greensboro, NC, (Virtual talk) September 2020

- *An Introduction to Numerical Schemes for Stochastic Differential Equations*, UNCG Statistics REU: Complex Data Analysis Using Statistical and Machine Learning Tools, The University of North Carolina at Greensboro, Greensboro, NC, (Virtual talk) July 2020
- *Discontinuous Galerkin Methods for Variational Inequalities and PDE-Constrained Optimizations*, SIAM Gators Colloquium, University of Florida, Gainesville, FL, December 2019
- *Mixed Finite Element Methods for a Stochastic Cahn-Hilliard Equation*, The 43rd annual meeting of the SIAM Southeastern Atlantic Section, The University of Tennessee, Knoxville, TN, September 2019
- C^0 *Interior Penalty Methods for an Elliptic State-Constrained Optimal Control Problem*, Applied Mathematics Seminar, The University of North Carolina at Greensboro, Greensboro, NC, September 2019
- C^0 *Interior Penalty Methods for a PDE-Constrained Optimization Problem*, Finite Element Circus, Spring 2019, Purdue University, West Lafayette, Indiana, March 2019
- *Finite Element Methods for the Stochastic Cahn-Hilliard Equation with Gradient-type Noise*, Dynamics with Inherent Noise: Stochastic Modelling and Simulation, 2019 SIAM Conference on Computational Science and Engineering, Spokane, WA, February 2019
- *Novel Numerical Methods for An Elliptic State-constrained Optimal Control Problem*, Computational and Applied Mathematics Seminar, Mississippi State University, Starkville, MS, February 2019
- *Numerical Approximations for PDE-Constrained Optimization Problems*, Applied Mathematics Seminar, The University of North Carolina at Greensboro, Greensboro, NC, September 2018
- *Numerical Methods for Variational Inequalities*, UNC Greensboro Colloquium, Get to Know your Department Colloquium, The University of North Carolina at Greensboro, Greensboro, NC, August 2018
- *An a Posteriori Analysis of* C^0 *Interior Penalty Methods for a Fourth Order Variational Inequality*, AMS Spring Central Sectional Meeting, Ohio State University, Columbus, March 2018
- *Numerical Approximations for a Singular Elliptic Variational Inequality*, Computational Mathematics Seminar Series, Louisiana State University, Baton Rouge, LA, March 2018
- *Adaptive* C^0 *Interior Penalty Methods for a Fourth Order Variational Inequality*, Efficient Methods for PDEs and Applications, The 3rd Annual Meeting of SIAM Central States Section, Colorado State University, Fort Collins, CO, September 2017
- *Finite Element Methods for the Stochastic Allen-Cahn Equation with Gradient-type Multiplicative Noise (poster)*, IMA Special Workshop: Recent Advances and Challenges in Discontinuous Galerkin Methods and Related Approaches, IMA, Minneapolis, MN, June 2017
- *Finite Element Methods for the Stochastic Allen-Cahn Equation*, The University of North Carolina at Greensboro, Greensboro, NC, May 2017
- *Error Estimates of* C^0 *Interior Penalty Methods for an Elliptic Distributed Optimal Control Problem with State Constraints*, Computational Mathematics Seminar, Louisiana State University, Baton Rouge, LA, November 2016
- *Finite Element Methods for the Stochastic Allen-Cahn Equation*, Forum: Recent Developments in Numerical Analysis and its Applications, The Hong Kong Polytechnic University, Hong Kong, June 2016
- *Finite Element Methods for the Stochastic Allen-Cahn Equation with Gradient-type Multiplicative Noises*, AMS Special Session on the Mathematics of Computation, 2016 Joint Mathematics Meetings, Seattle, WA, January 2016

- *Finite Element Methods for the Stochastic Allen-Cahn Equation with Gradient-type Multiplicative Noises*, Finite Element Circus, Fall 2015, University of Massachusetts Dartmouth, North Dartmouth, MA, October 2015
- *Finite Element Methods for the Stochastic Allen-Cahn Equation with Gradient-type Multiplicative Noises*, Computational Mathematics Seminar Series, Louisiana State University, Baton Rouge, LA, March 2015
- *C^0 Interior Penalty Methods for an Elliptic Distributed Optimal Control Problem*, AMS Fall Southeastern Sectional Meeting, University of North Carolina at Greensboro, Greensboro, NC, November, 2014
- *Post-Processing Procedures for an Elliptic Distributed Optimal Control Problem with Pointwise State Constraints*, Finite Element Circus, Spring 2014, Wayne State University, Detroit, MI, March 2014
- *Post-Processing Procedures for an Elliptic Distributed Optimal Control Problem with Pointwise State Constraints*, Special Session on Discontinuous Galerkin Finite Element Methods for Partial Differential Equations, Southeastern Spring Sectional Meeting, University of Tennessee, Knoxville, TN, March 2014
- *Finite Element Methods for Fourth Order Variational Inequalities*, Computational Mathematics Seminar, University of Tennessee, Knoxville, TN, August 2013
- *A Quadratic C^0 Interior Penalty Method for an Elliptic Optimal Control Problem with State Constraints*, SCALA 2013 : Scientific Computing Around Louisiana, Tulane University, New Orleans, LA, February 2013
- *A Quadratic C^0 Interior Penalty Method for an Elliptic Optimal Control Problem with State Constraints*, AMS-SIAM Special Session on the Mathematics of Computation: Differential Equations, Linear Algebra, and Applications, I, 2013 Joint Mathematics Meetings, San Diego, CA, January 2013
- *A Quadratic C^0 Interior Penalty Method for an Elliptic Optimal Control Problem with State Constraints*, Finite Element Circus, Fall 2012, University of Pittsburgh, Pittsburgh, PA, October 2012
- *A Quadratic C^0 Interior Penalty Method for the Displacement Obstacle Problem of Clamped Plates*, INFORMS Annual Meeting 2012, Phoenix, AZ, October 2012
- *A Morley Finite Element Method for the Displacement Obstacle Problem of Clamped Kirchhoff Plates*, SIAM SEAS 2012, University of Alabama in Huntsville, Huntsville, AL, March 2012
- *Finite Element Methods for the Displacement Obstacle Problem of Clamped Plates*, Finite Element Rodeo 2012, Rice University, Houston, TX, March 2012
- *Finite Element Methods for the Displacement Obstacle Problem of Clamped Plates*, Theory and Applications of Discontinuous Galerkin Methods, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach-Walke, Germany, February 2012
- *Finite Element Methods for the Displacement Obstacle Problem of Clamped Plates*, AMS-SIAM Special Session on the Mathematics of Computation: Differential Equations, Linear Algebra, and Applications, II, 2012 Joint Mathematics Meetings, Boston, MA, January 2012
- *Finite Element Methods for the Displacement Obstacle Problem of Clamped Plates*, Finite Element Circus, Fall 2011, University of Connecticut, Groton, CT, October 2011
- *A Quadratic C^0 Interior Penalty Method for the Displacement Obstacle Problem of Clamped Plates*, Computational Mathematics Seminar, Louisiana State University, Baton Rouge, LA, September 2011

Conferences and Workshops

- ADAPT 2022: Teaching in Transformative Times, University of North Carolina at Greensboro, Greensboro, NC, May 2022
- ICCMAE 2022: The Second International Conference on Computational Methods and Applications in Engineering, Mississippi State University, Starkville, MS, May 2022
- The Richmond Area Mathematical Sciences (RAMS) Conference (Virtual), Virginia Commonwealth University, April 2022
- 16th Annual Thomas Undergraduate Research and Creativity Expo, University of North Carolina at Greensboro, Greensboro, NC, April 2022
- Finite Element Circus, Spring 2022, Gainesville, University of Florida, April 2022
- 17th UNCG Regional Mathematics and Statistics Conference (Virtual), University of North Carolina at Greensboro, Greensboro, NC, November 2021
- Finite Element Circus, Fall 2021, Penn State University, State College, PA, November 2021
- The 44th SIAM Southeastern Atlantic Section Conference, Auburn University, Auburn, AL, September 2021
- UNC Greensboro PDE Conference of 2021 (Virtual), University of North Carolina at Greensboro, Greensboro, NC, July 2021
- SIAM Annual Meeting (AN21), Virtual Conference, July 2021
- CURM Faculty Summer Workshop (Virtual), The Center for Undergraduate Research in Mathematics (CURM), May 2021
- Finite Element Circus, Spring 2021, Virtual, April 2021
- Metaheuristic Optimization, Machine Learning and AI – Virtual Workshop, Statistical and Applied Mathematical Sciences Institute, Durham, NC, March 2021
- Workshop on Mathematical Machine Learning and Application, Penn State Institute for Computational and Data Science, Virtual Workshop, December 2020
- 16th UNCG Regional Mathematics and Statistics Conference (Virtual), University of North Carolina at Greensboro, Greensboro, NC, November 2020
- 50th Anniversary Finite Element Circus, Fall 2020, Virtual Conference, November 2020
- Optimal Control, Optimal Transport, and Data Science, IMA Workshop (Virtual), Institute for Mathematics and its Applications, Minneapolis, MN, November 2020
- Theory and Algorithms of Graph-based Learning, IMA Workshop (Virtual), Institute for Mathematics and its Applications, Minneapolis, MN, September 2020
- Numerical Analysis for Data Science Opening Workshop (Virtual), Statistical and Applied Mathematical Sciences Institute, Durham, NC, August, 2020
- International Conference on Computational Mathematics and Scientific Computing (Virtual), Institute of Computational Mathematics and Scientific/Engineering Computing, Beijing, China, August, 2020
- The Second Joint SIAM/CAIMS Annual Meeting (AN20), Virtual Conference, Originally scheduled in Toronto, Ontario, Canada, July 2020
- Finite Element Circus, Fall 2019, Virginia Tech, Blacksburg, VA, November 2019
- The 43rd Annual Meeting of the SIAM Southeastern Atlantic Section, The University of Tennessee, Knoxville, TN, September 2019

- Finite Element Circus, Spring 2019, Purdue University, West Lafayette, Indiana, March 2019
- SIAM Conference on Computational Science and Engineering, Spokane, WA, February 2019
- Celebrating 75 Years of Mathematics of Computation, The Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, RI, November 2018
- International Conference on Advances in Interdisciplinary Statistics and Combinatorics, University of North Carolina at Greensboro, Greensboro, NC, October 2018
- AMS Spring Central Sectional Meeting, Ohio State University, Columbus, March 2018
- Finite Element Circus, Spring 2018, University of Tennessee, Knoxville, TN, March 2018
- Finite Element Circus, Fall 2017, University of Maryland, Baltimore County, Baltimore, MD, October 2017
- The 3rd Annual Meeting of SIAM Central States Section, Colorado State University, Fort Collins, CO, September 2017
- International Conference on Current Trends and Challenges in Numerical Solution of Partial Differential Equations, Purdue University, West Lafayette, IN, July 2017
- Polynomials, Kinematics, and Robotics, University of Notre Dame, Notre Dame, IN, June 2017
- IMA Special Workshop: Recent Advances and Challenges in Discontinuous Galerkin Methods and Related Approaches, IMA, Minneapolis, MN, June 2017
- Forum: Recent Developments in Numerical Analysis and its Applications, The Hong Kong Polytechnic University, Hong Kong, June 2016
- 2016 Joint Mathematics Meetings, Seattle, WA, January 2016
- Finite Element Circus, Fall 2015, University of Massachusetts Dartmouth, North Dartmouth, MA, October 2015
- Stochastic Filtering, Computations and Their Applications, 45th Annual John H. Barrett Memorial Lectures, University of Tennessee, Knoxville, TN, May 2015
- AMS Fall Southeastern Sectional Meeting, University of North Carolina at Greensboro, Greensboro, NC, November, 2014
- Finite Element Circus, Fall 2014, IMA, University of Minnesota, Minneapolis, MN, October 2014
- Structure-Preserving Discretizations of Partial Differential Equations, IMA, University of Minnesota, Minneapolis, MN, October 2014
- Finite Element Circus, Spring 2014, Wayne State University, Detroit, MI, March 2014
- AMS Spring Southeastern Sectional Meeting, University of Tennessee, Knoxville, TN, March 2014
- 33rd Southeastern-Atlantic Regional Conference on Differential Equations (SEARCDE), University of Tennessee, Knoxville, TN, September 2013
- 2013 Clifford Lectures, Tulane University, New Orleans, LA, March 2013
- SCALA 2013 : Scientific Computing Around Louisiana, Tulane University, New Orleans, LA, February 2013
- 2013 Joint Mathematics Meetings, San Diego, CA, January 2013
- Finite Element Circus, Fall 2012, University of Pittsburgh, Pittsburgh, PA, October 2012
- INFORMS Annual Meeting 2012, Phoenix, AZ, October 2012
- NSF/CBMS Conference: Finite Element Exterior Calculus (FEEC), Brown University, Providence, RI, June 2012
- 2012 John H. Barrett Lectures, University of Tennessee, Knoxville, TN, May 2012

- SIAM SEAS 2012, University of Alabama in Huntsville, Huntsville, AL, March 2012
- Finite Element Rodeo 2012, Rice University, Houston, TX, March 2012
- Theory and Applications of Discontinuous Galerkin Methods, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach-Walke, Germany, February 2012
- SCALA 2012: Scientific Computing Around Louisiana, Louisiana State University, Baton Rouge, LA, January 2012
- 2012 Joint Mathematics Meetings, Boston, MA, January 2012
- Finite Element Circus, Fall 2011, University of Connecticut, Groton, CT, October 2011
- OPTPDE: Challenges in Applied Control and Optimal Design, Basque Center for Applied Mathematics, Bilbao, Basque Country, Spain, July 2011
- Finite Element Rodeo 2011, Texas A&M University, College Station, TX, February 2011
- SCALA 2011: Scientific Computing Around Louisiana, Tulane University, New Orleans, LA, January 2011
- Numerical Solutions of Partial Differential Equations: Fast Solution Techniques, IMA, University of Minnesota, Minneapolis, MN, November 2010
- Tutorial: Fast Solution Techniques, IMA, University of Minnesota, Minneapolis, MN, November 2010
- Tutorial: Linear Matrix Inequalities and Polynomial Optimization (LMIPO), University of California, San Diego, CA, March 2010
- SCALA 2010: Scientific Computing Around Louisiana, Louisiana State University, Baton Rouge, LA, February 2010

Service

University

- New and Regular Faculty Internal Award Program Physical and Natural Sciences Subcommittee (member), Fall 2020 – Spring 2021

Department

- Library Committee (member), Fall 2017 – Spring 2020, Spring 2021, Fall 2021, Spring 2022
- Energy Conservation and Sustainability Representative (member), Fall 2017 – Spring 2020, Spring 2021
- Graduate Recruitment Committee (from academic institutions) (member), Fall 2017 – Spring 2019
- Helen Barton Lecture Series in Computational Mathematics Committee (member), Fall 2017 – Spring 2018
- Colloquia/Department Seminar Committee (member), Fall 2017 – Present
- Applied Mathematics/Math Biology Seminar (organizer), Fall 2017 - Spring 2020, Fall 2021 - Present
- GTA Teaching Evaluator, Fall 2017, Spring 2019, Fall 2019, Spring 2020, Fall 2021, Spring 2022
- Graduate Studies Committee (member), Fall 2019 – Spring 2020
- Undergraduate Studies Committee (member), Fall 2021
- Online Instruction (member), Fall 2021
- Linear Algebra Qualifying Exam Committee (member), Fall 2019 – Present

Professional

- Program Chair, UNC Greensboro PDE Conference of 2021, Virtual Conference, July 24-25, 2021
- Main Editor, The proceedings of the UNC Greensboro PDE Conference, 2021-2022
- Session Moderator, 17th UNCG Regional Mathematics and Statistics Conference (Virtual), Greensboro, NC, November 20, 2021
- Session Moderator, 16th UNCG Regional Mathematics and Statistics Conference (Virtual), Greensboro, NC, November 14, 2020
- Journal referee for *Numerische Mathematik*, *SIAM Journal on Numerical Analysis*, *Mathematics of Computation*, *IMA Journal of Numerical Analysis*, *Advances in Computational Mathematics*, *Journal of Computational and Applied Mathematics*, *Journal of Computational Mathematics*, *Proceedings of The Royal Society A: Mathematical, Physical and Engineering Sciences*, *Numerical Methods for Partial Differential Equations*, *Advances in Applied Mathematics and Mechanics*, *Journal of Mathematical Analysis and Applications*, *International Journal of Numerical Analysis and Modelling*, *Discrete and Continuous Dynamical Systems Series S.*, *Numerical Algorithms*, *Journal of Inequalities and Applications*, *Applied Mathematics Letters*, *Science China Mathematics*, *Computational and Applied Mathematics*, *Mathematics*, *Symmetry*, *Energies*, *Applicable Analysis*, *Mathematics and Computers in Simulation*
- Leadership
  - President of SIAM Student Chapter, Louisiana State University, 2012
  - Vice President of SIAM Student Chapter, Louisiana State University, 2011
- Membership
  - American Mathematical Society
  - Society for Industrial and Applied Mathematics (SIAM)

Mentoring

Ph.D. Dissertation Chair/Co-Chair

- Satyajith Bommana Boyana, University of North Carolina at Greensboro, Chair. Summer 2024 (expected)
- Aaron Rapp, University of North Carolina at Greensboro, Co-Chair. "Symmetric dual-wind discontinuous Galerkin methods for the obstacle problem". Summer 2020

Ph.D. Dissertation Committees

- Ananta Acharya (Ph.D. Advisor: Ratnasingham Shivaji), University of North Carolina at Greensboro, Summer 2023 (expected)
- Shalmali Bandyopadhyay (Ph.D. Advisor: Maya Chhetri), University of North Carolina at Greensboro, Summer 2023 (expected)
- Amila Muthunayake (Ph.D. Advisor: Ratnasingham Shivaji), University of North Carolina at Greensboro, Summer 2021
- Elliott Hollifield (Ph.D. Advisor: Maya Chhetri), University of North Carolina at Greensboro, Summer 2020
- Nalin Fonseka (Ph.D. Advisor: Ratnasingham Shivaji), University of North Carolina at Greensboro, Summer 2020

M.A. Capstone Project Mentoring

- Will Stiles, University of North Carolina at Greensboro. “Exploring 1D and 2D tests of the FEM for positone and semi-positone problems”. Summer 2021

Undergraduate Project Mentoring

- Nathan Tolodziecki, September 2021 - May 2022
- Hugh Le, September 2021 - May 2022