

# Suzanne M. Shontz, Ph.D.

## Curriculum Vitae

**Dept. of Elec. Engineering and Computer Science**  
The University of Kansas  
3016 Eaton Hall  
Lawrence, KS 66045

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### Education

#### Cornell University

2005 Ph.D. in Applied Mathematics (Completed December 2004)  
Dissertation: *Numerical Methods for Problems with Moving Meshes*  
Stephen A. Vavasis, advisor  
Minors: Computer Science and Mathematics

2002 M.S. in Computer Science  
M.S. in Applied Mathematics

#### University of Northern Iowa

1999 B.A. in Mathematics (Summa cum laude)  
B.S. in Chemistry (Summa cum laude)  
Minor: Physics

### Research Interests

Computational- and data-enabled science and engineering. More specifically, parallel scientific computing with a focus on unstructured mesh and numerical optimization methods and their applications to computational medicine, imaging sciences, electronic circuits, materials, and acoustics.

### Appointments

2020-20 **Universita della Svizzera italiana (University of Lugano)**  
Visiting Associate Professor, Center for Computational Medicine in Cardiology and  
Institute for Computational Science. Sabbatical visitor in Fall 2020.

2014- **The University of Kansas**  
Associate Professor, Department of Electrical Engineering and Computer Science (2014-)  
Affiliated with the Bioengineering Graduate Program (2014-)  
Affiliated with the Information and Telecommunication Technology Center (2014-)

2006-17 **The Pennsylvania State University**  
Adjunct Associate Professor, School of Electrical Engineering and Computer Science,  
Computer Science and Engineering (2014-17)  
Adjunct Assistant Professor, Department of Computer Science and Engineering (2012-14)  
Assistant Professor, Department of Computer Science and Engineering (2006-12)  
Affiliated with the Computational Science Graduate Program (2006-12)  
Affiliated with the Institute for Cyberscience (2006-12)

2012-15 **Mississippi State University**  
Adjunct Associate Professor, Department of Computer Science and Engineering (2014-15)  
Assistant Professor, Department of Mathematics and Statistics (2012-14)  
Adjunct Assistant Professor, Department of Computer Science and Engineering (2012-14)  
Affiliated with the Center for Computational Sciences (2012-14)  
Affiliated with the Graduate Program in Computational Engineering (2012-14)

- 2009-09 **ASEE Contractor to Naval Research Laboratory**  
Office of Naval Research Summer Faculty Fellow
- 2004-06 **University of Minnesota**  
Postdoctoral Associate working with Yousef Saad, Computer Science and Engineering
- 1999-04 **Cornell University**  
NPSC Fellow working with Stephen A. Vavasis, Computer Science Department
- 2004 **Cornell University**  
Summer Research Assistant for Stephen A. Vavasis, Computer Science Department
- 2003 **Cornell University**  
Summer Research Assistant for Stephen A. Vavasis, Computer Science Department
- 2003 **Sandia National Laboratories**  
Summer research intern in the Computer Science Research Institute
- 2002 **Cornell University**  
Instructor for COM S 322: Introduction to Scientific Computation
- 2002 **Cornell University**  
Teaching assistant for COM S 322: Introduction to Scientific Computation
- 2001-02 **Argonne National Laboratory**  
Summer research intern in the Mathematics and Computer Science Division
- 1999-00 **Sandia National Laboratories**  
Summer research intern in the Computational Sciences and Mathematics Research Division

## Teaching

- Spring 2020 EECS 560: Data Structures
- Spring 2020 EECS 868: Mathematical Optimization with Applications
- Fall 2019 EECS 560: Data Structures
- Fall 2019 EECS 639: Introduction to Scientific Computing
- Spring 2019 EECS 560: Data Structures
- Spring 2019 EECS 739: Parallel Scientific Computing
- Fall 2018 EECS 639: Introduction to Scientific Computing
- Fall 2017 EECS 560: Data Structures
- Fall 2017 EECS 639: Introduction to Scientific Computing
- Spring 2017 EECS 739: Parallel Scientific Computing
- Fall 2016 EECS 639: Introduction to Scientific Computing
- Fall 2016 EECS 868: Mathematical Optimization with Applications
- Spring 2016 EECS 739: Scientific Parallel Computing
- Spring 2016 EECS 801: Graduate Directed Readings: Numerical PDEs and Meshing Techniques
- Fall 2015 EECS 560: Data Structures
- Spring 2015 EECS 739: Scientific Parallel Computing
- Fall 2014 EECS 700: Computer Modeling, Simulation, and Visualization
- Fall 2013 MA 4313/6313: Numerical Analysis I
- Fall 2013 MA 3113: Introduction to Linear Algebra
- Spring 2013 MA 6990/8990: Special Topics in Math: Simulation Modeling
- Fall 2012 MA 8443: Numerical Solutions of Partial Differential Equations I
- Fall 2012 MA 3113: Introduction to Linear Algebra
- Spring 2012 CMPSC/MATH 451: Numerical Computations (two sections)
- Fall 2011 CSE 598C: Meshing Techniques
- Spring 2011 CSE/MATH 555: Numerical Optimization Techniques
- Spring 2011 CMPSC/MATH 456: Introduction to Numerical Analysis II
- Fall 2010 CSE/MATH 455: Introduction to Numerical Analysis I

Spring 2010 CSE 598C: Meshing Techniques  
 Fall 2009 CSE/MATH 451: Numerical Computations (two sections)  
 Spring 2009 CSE/MATH 451: Numerical Computations (two sections)  
 Fall 2008 CSE 555: Numerical Optimization Techniques  
 Spring 2008 CSE 598C: Meshing Techniques  
 Fall 2007 CSE/MATH 451: Numerical Computations  
 Fall 2006 CSE/MATH 451: Numerical Computations (two sections)

## Postdoctoral Researchers

### Former Postdoctoral Researchers

Dr. Maurin Lopez Varilla, Parallel dynamic mesh algorithms for biomedical simulations,  
 September 2015-December 2016.

### Current Postdoctoral Researchers

None.

## Students

### Former Ph.D. Students

Michael Stees, “Optimization-based Methods for High-Order Mesh Generation and Untangling”,  
 Doctor of Philosophy, Computer Science, University of Kansas, May 2020.  
 Thap Panitanarak, “Scalable Graph and Mesh Algorithms on Distributed-Memory Systems”,  
 Doctor of Philosophy, Computer Science and Engineering (Co-advised with Kamesh  
 Madduri), Penn State, August 2017.  
 Thomas Gebhardt, Ph.D. student in Mathematics, (Co-advised with Eric Van Vleck,  
 Department of Mathematics), University of Kansas, January 2017-August 2017.  
 Hakran Kim, Ph.D. student in Computational Engineering, (Co-advised with Mark Horstemeyer,  
 Department of Mechanical Engineering), Mississippi State, July 2013-January 2014.  
 Vidhya Krishnasamysaraswathy, Ph.D. student in Mathematical Sciences, Mississippi State,  
 October 2012-August 2013.  
 Jibum Kim, “Optimization-based Meshing Techniques for Mesh Quality Improvement and  
 Deformation”, Doctor of Philosophy, Computer Science and Engineering, Penn State,  
 December 2012.  
 Shankar Prasad Sastry, “Dynamic Meshing Techniques for Quality Improvement, Untangling, and  
 Warping”, Doctor of Philosophy, Computer Science and Engineering, Penn State,  
 August 2012.  
 Jeonghyung Park, Ph.D. student in Computer Science and Engineering, Penn State, August 2009-  
 June 2012.

### Current Ph.D. Students

Mohit Prashanth, Ph.D. student in Aerospace Engineering, (Co-advised with Ray Taghavi,  
 Department of Aerospace Engineering), University of Kansas, August 2019-  
 Mohammadmoein Moradi, Ph.D. student in Mechanical Engineering, (Co-advised with Lisa Friis,  
 Department of Mechanical Engineering), University of Kansas, January 2018-  
 Fariba Mohammadi, Ph.D. student in Mechanical Engineering, (Co-advised with Ken Fischer,  
 Department of Mechanical Engineering), University of Kansas, March 2017-

### Former Masters Students

Lohith Nanuvala, M.S. student in Computer Science, University of Kansas, March 2015 - May 2016.  
 Bijal Parikh, M.S. student in Computer Science, University of Kansas, March-August 2015.

William Cordell, M.S. student in Mathematical Sciences, Mississippi State, January-July 2014.

Ken Czuprynski, “Parallel Boundary Element Solutions of Block Circulant Linear Systems for Acoustic Radiation Problems with Rotationally Symmetric Boundary Surfaces”, Master of Science, Computer Science and Engineering (Co-advised with John Fahnlne, PSU Applied Research Laboratory), Penn State, May 2012.

Dragos (Mihai) Nistor, “CPU- and GPU-based Triangular Surface Mesh Simplification”, Master of Science, Computer Science and Engineering, Penn State, May 2012.

Nicholas Voshell, “Models for Applications and Cache Performance”, Master of Engineering, Computer Science and Engineering, Penn State, December 2010.

Jeonghyung Park, “Derivative-Free Algorithms for Mesh Quality Improvement”, Master of Science, Computer Science and Engineering, Penn State, August 2009.

### **Current Masters Students**

Jonathan Rogers, M.S. student in Computer Science, University of Kansas, August 2020 - (Co-advised with Adam Rouse, Department of Neurosurgery, University of Kansas Medical Center. Dr. Rouse is the primary advisor.)

Brian Wentz, M.S. student in Bioengineering, University of Kansas, March 2019 -

### **Former Undergraduate Students**

Megana Chinalachaiagari, Supervision of research project on medical image processing, B.S. in Computer Science, University of Kansas, May 2020

Xinyun (Melody) Yu, Supervision of research project on derivative-free optimization algorithms for geometry optimization of molecules, B.S. in Computer Science and Mathematics, University of Kansas, May 2020

Keon Amini, Supervision of research project on biomedical image processing for mesh generation, B.S. student in Interdisciplinary Computing and Computer Engineering, University of Kansas, August 2016 - October 2016.

Omar Alzubbi, Supervision of research project on segmentation and registration of brain images, B.S. in Neurobiology and Interdisciplinary Computing, University of Kansas, April 2015 - December 2015.

Ikaro Ruan Penha Costa, Supervision of research project on mesh generation for bridge design, B.S. in Civil Engineering (Federal University of Ceara), Brazil Scientific Mobility Program May-July 2015.

Jessica Sayuri Tahara, Supervision of research project on automated image processing, B.S. in Computer Engineering (Universidade de Sorocaba), Brazil Scientific Mobility Program, May-July 2015.

Rafael Brito De Sousa Veras, Supervision of research project on electronic circuit simulation, B.S. in Electrical Engineering (Universidade Cruzeiro do Sul), Brazil Scientific Mobility Program, May-July 2015.

Matthew Judson, Supervision of research project on optimal mesh warping algorithms; Bachelor of Science, Mathematical Sciences, Mississippi State, May 2014.

Rajarshi Banerjee, Supervision of research project on parallel mesh algorithms; B.S. student in Computer Science, Mississippi State, February-May 2014.

Dragos (Mihai) Nistor, “CPU- and GPU-based Triangular Surface Mesh Simplification”, Bachelor of Science (with honors), Computer Science and Statistics, Penn State, May 2012; Recipient of PSU Undergraduate Summer Discovery Grant, Summer 2010.

Rachel Fuehrer, Supervision of Computing Research Experiences for Undergraduates (CREU) project; Bachelor of Science, Computational Mathematics, Penn State, May 2012.

Kyle Wray, Supervision of research project on the use of thin plate splines for cloth modeling in computer graphics, 2008-10, Bachelor of Science, Computer Science, Penn State, December 2009.

Georga Slota, Supervision of honors project in CMPSC/Math 451, Numerical Computations, Penn State, 2009.

Patrick Kasting, “Model reduction and a performance evaluation of stiff ODE solvers for a photochemical model of the haze formation in the early atmosphere”, Bachelor of Science, Computer Science (with honors), Penn State, May 2007.

### Current Undergraduate Students

Myra Dotzel, Supervision of research project on high-order triangular mesh quality metrics, Computer Science and Mathematics Major, Visual Arts Minor, University of Kansas, August 2018-

### Visiting Faculty

Dr. Sayaka Akioka, Meiji University, Tokyo, Japan, August 2017-

Dr. Aruquia Barbosa Matos Peixoto, Centro Federal de Educacao Tecnologica Celso Suckow da Fonseca (CEFET/RJ), Rio de Janeiro, Brazil, March 2016-March 2017.

### Research Proposals (Submitted)

05/16/20-09/30/24 **“Parallel High-order Curvilinear Mesh Generation Algorithms and Software for Use with Computational Mechanics Simulations”**; Advanced Simulation and Computing Program, Los Alamos National Laboratory, \$457,393; PI. (In process of being awarded.)

### Research Support (Awarded)

10/01/18-09/30/21 **“CDS&E: Collaborative Research: A Computational Framework for Reconstructing and Visualizing Myocardial Active Stresses”** (with Linte (RIT) and Otani (RIT)); NSF CDS&E; KU budget: \$331,047; KU PI.

10/01/18-09/30/21 **“REU Supplement to NSF CDS&E Grant”**; NSF/OAC; \$8,000; PI.

08/01/17-07/31/21 **“AF: Small: Collaborative Research: A Robust Framework for Overcoming the Tangled Mesh Problem”** (with Suresh (University of Wisconsin)); NSF CCF/AF; KU budget: \$250,000; Lead PI and KU PI.

08/01/17-07/31/21 **“REU Supplement to NSF CCF Grant”**; NSF/CCF; \$8,000; PI.

08/01/17-07/31/21 **“REU Supplement to NSF CCF Grant”**; NSF/CCF; \$8,000; PI.

04/16/20-04/15/21 **“Graphics Processing Unit (GPU) Infrastructure for Massively Parallel Computing Research”** (with Michael Branicky, Weizhang Huang, Brian Laird, Alessandro Salandrino, and Z.J. Wang); ARO; \$251,147. PI.

09/01/17-08/31/19 **“NSF Student and Postdoc Travel Grant for the 2017 International Meshing Roundtable (2017 IMR)”**; NSF/CCF; \$19,990; PI.

09/01/16-08/31/17 **“Participant Support for the 2016 NSF CyberBridges Workshop”** (with Wang (RIT), Hacker (Purdue)); NSF/ACI; KU budget: \$11,233; Co-PI.

08/24/15-08/24/17 **“Numerical Optimization Algorithms for Optimal Device Design”** KU New Faculty General Research Fund; \$8,000. PI.

10/01/14-01/31/17 **“REU Supplement to NSF CAREER Award”**; NSF/ACI; \$4,229; PI.

10/01/14-01/31/17 **“REU Supplement to NSF CAREER Award”**; NSF/ACI, \$6,850, PI

02/15/11-01/31/17 **NSF CAREER Award: “CAREER: Parallel Dynamic Meshing Techniques for Simulation-Assisted Medical Interventions”**; NSF/ACI; \$422,986; PI. (Transferred to KU in October 2014.)

- 2015-2016 **“Parallel Adaptive Mesh Refinement Algorithms for Use with Space-Time Applications”**; Big 12 Faculty Fellowship; \$2,500. PI.
- 08/15/15-08/14/16 **“High Performance Computing and Visualization Infrastructure for Simultaneous Computing and Parallel Visualization Research”** (with Weizhang Huang, Brian Laird, James Miller, Alessandro Salandrino, Z.J. Wang, and Zhongquan Zheng); ARO; \$511,937. PI.
- 07/01/15-06/30/16 **“Participant Support for the 2015 NSF CyberBridges Workshop”** (with Hacker (Purdue) and Wang (RIT)); NSF/ACI; KU budget: \$32,757. Co-PI.
- 09/01/14-08/31/15 **“2014 NGA UARC Program”** (with Tutwiler, Baran, and Hough (PSU)); U.S. Navy; Total budget unknown; KU budget: \$33,569. Researcher.
- 04/15/14-03/31/15 **“10<sup>th</sup> Mississippi State Conference on Differential Equations and Computational Simulations”** (with Lim (MSU), Goddard (Auburn University)); NSF/DMS, \$35,000, Co-PI.
- 04/01/14-03/31/15 **“10<sup>th</sup> Mississippi State Conference on Differential Equations and Computational Simulations”** (with Lim); The Institute for Mathematics and Its Applications, \$5,000, Co-PI.
- 03/14/14-02/28/15 **“Participant Support for the 2014 NSF CyberBridges Workshop”** (with Hacker (Purdue)); NSF/ACI; \$99,282. PI.
- 09/30/13-07/31/14 **“CRES-GV Research Support”** (with King and numerous MSU faculty); US Army/ERDC; \$9,995,571; Senior Personnel. (No longer part of grant as of August 1, 2014, since I am no longer at MSU. Actual project dates are 09/30/13 to 09/28/18.)
- 09/19/13-07/31/14 **“Military Engineering and Engineered Resilient Systems Software”** (with King and numerous MSU faculty); US Army/ERDC; \$7,399,730; Senior Personnel. (No longer part of grant as of August 1, 2014, since I am no longer at MSU. Actual project dates are 09/19/13-09/18/14.)
- 05/06/13-04/30/14 **“Participant Support for the 2013 NSF CyberBridges Workshop: Developing the Next Generation of Cyberinfrastructure Faculty for Computational- and Data-enabled Science & Engineering”** (with Hacker (Purdue)); NSF/OCI; MSU budget: \$58,110; Co-PI.
- 06/15/12-05/14/13 **“Participant Support for CyberBridges Workshop: Developing the Next Generation of Cyberinfrastructure Faculty for Computational and Data-Enabled Science and Engineering”** (with Hacker (Purdue); NSF/OCI; \$94,843; PI. (Note: Raj Acharya became PI when Shontz moved to Mississippi State University; Shontz became co-PI and completed PI duties.)
- 08/15/07-07/31/12 **“CSR-SMA: Toward Model-Driven Multilevel Analysis and Optimization of Multicomponent Computer Systems”** (with Raghavan, Irwin, Kandemir, Li); NSF/CNS; \$700,000; Co-PI.
- 07/01/08-06/30/12 **“MRI: Acquisition of a Scalable Instrument for Discovery Through Computing”** (with Raghavan, Chen, Hudson, Kandemir, Smith); NSF/OCI; \$1,995,000; Senior Personnel
- 07/01/10-06/30/11 **“Participant Support for the 19<sup>th</sup> International Meshing Roundtable”** NSF/CCF; \$22,018; PI.
- 06/03/09-08/12/09 **ONR Summer Faculty Fellowship**; Office of Naval Research; \$14,000.
- 05/16/09-12/18/09 **“Computational Modeling, Simulation, and Validation of Blood Clot Entrapment by Inferior Vena Cava Filters”** (with Manning, Lynch, Medvitz); PSU/Institute for Cyberscience; \$12,640; PI.

## Educational Support

- 07/01/07-06/30/08    **“Trapping Blood Clots: Modeling and Simulation of Optimal Inferior Vena Cava Filters”** (with Lynch, Singer); PSU/Grace Woodward Foundation; \$25,000; PI.
- 09/01/08-08/31/10    **“CPATH: CDP: Integrating Biology and Computing: Empowering Future Computer Engineers”** (with Narayanan, Acharya, Albert, Lesk, Irwin); NSF/CNS; \$149,028; Senior Personnel.

## Undergraduate Student Research Support (Student Initiated)

- 08/01/11-05/31/12    **“Development of an Experimentally-Validated Technique for Tracking Deformation of the Inferior Vena Cava”**; Undergraduate Students: Rachel Fuehrer (Computational Mathematics) and Ali Schwartz (Bioengineering); Faculty Advisors: S.M. Shontz (CSE), K.B. Manning (Bioengineering); CREU grant; Computing Research Association - Committee on the Status of Women in Computing Research; \$9,000.
- 05/01/10-08/31/10    **“Effective Concurrent Mesh Transformation Algorithms”**  
Undergraduate Student: Dragos Mihai Nistor; Faculty Advisor: Suzanne M. Shontz; Undergraduate Summer Discovery Grant from Penn State; \$2,500.

## Honors

- 2017                    University of Northern Iowa Young Alumnus Award
- 2016                    Miller Scholar Award, University of Kansas (for research excellence, including a DURIP award for high-performance computing and visualization instrumentation)
- 2015                    Big 12 Faculty Fellowship
- 2015                    Nomination, Defense Science Study Group, DARPA
- 2012-2013            Mississippi State College of Arts and Sciences Researcher of the Month (December 2012-January 2013)
- 2011                    National Science Foundation Presidential Early Career Award (PECASE) (Awarded in 2012)
- 2011                    National Science Foundation CAREER Award
- 2009                    Office of Naval Research Summer Faculty Fellowship at Naval Research Laboratory
- 2007                    Chosen by undergraduate student to be the Computer Engineering Faculty Marshall for the College of Engineering, Spring Commencement
- 2005-06              Minnesota Supercomputing Institute Research Scholarship
- 1999-04              National Physical Science Consortium (NPSC) Fellowship

## Affiliations

Society for Industrial and Applied Mathematics (SIAM)  
 Association for Computing Machinery (ACM)  
 The Institute of Electrical and Electronics Engineers (IEEE)  
 United States Association for Computational Mechanics (USACM)  
 International Association for Computational Mechanics (IACM)

## Publications

**Note:** Underlining is used to denote one of my students or postdoctoral researchers.

## Books

Suzanne Shontz, Joaquim Peiro, and Ryan Viertel (editors), *Proceedings of the 28<sup>th</sup> International Meshing Roundtable*, Zenodo, p. 430, 2020.

Suzanne M. Shontz (editor), *Proceedings of the 19<sup>th</sup> International Meshing Roundtable*, Springer-Verlag, p. 510, 2010.

### Book Chapters

Shankar P. Sastry, Jibum Kim, Suzanne M. Shontz, Brent Craven, Frank C. Lynch, Keefe B. Manning, and Thap Panitanarak, *Patient-specific model generation and simulation for pre-operative surgical guidance for pulmonary embolism treatment*, Invited submission to Image-Based Geometric Modeling and Mesh Generation, Springer, Lecture Notes in Computational Vision and Biomechanics, Volume 3, 223-249, 2013.

Jeonghyung Park, Suzanne M. Shontz, and Corina S. Drapaca, *A combined level set/mesh warping algorithm for tracking brain and cerebrospinal fluid evolution in hydrocephalic patients*, Invited submission to Image-based Modeling and Mesh Generation, Springer, Lecture Notes in Computational Vision and Biomechanics, Volume 3, 107-141, 2013.

### Submitted Refereed Journal Publications

Melanie Weilert, Suzanne Shontz, Huazhen Fang, Nicholas Stergiou, and Carl Luchies, *Fractal analysis accuracy of fractional Brownian motion signals is greatly impacted by input parameter selection*, Annals of Biomedical Engineering, Submitted July 2019.

### Refereed Journal Publications

Ulrich Rde, Karen Willcox, Lois Curfman McInnes, Hans De Sterck, George Biro, Hans Bungartz, James Coronas, Evin Cramer, James Crowley, Omar Ghattas, Max Gunzburger, Michael Hanke, Robert Harrison, Michael Heroux, Jan Hesthaven, Peter Jimack, Chris Johnson, Kirk E. Jordan, David E. Keyes, Rolf Krause, Vipin Kumar, Stefan Mayer, Juan Meza, Knut Martin Mrken, J. Tinsley Oden, Linda Petzold, Padma Raghavan, Suzanne M. Shontz, Anne Trefethen, Peter Turner, Vladimir Voevodin, Barbara Wohlmuth, and Carol S. Woodward, *Research and education in computational science and engineering*, SIAM Review, 60(3):707-754, August 2018. (Note: Only the first four authors are listed as authors; the additional authors are listed as "additional contributors". This is due to the limited amount of space available for listing each article on the back cover of the journal. All are to be considered authors of the article.)

Thap Panitanarak and Suzanne M. Shontz, *A parallel log barrier-based mesh warping algorithm for distributed memory machines*, Engineering with Computers, 34(1):59-76, January 2018.

Kenneth I. Aycock, Robert L. Campbell, Keefe B. Manning, Shankar P. Sastry, Suzanne M. Shontz, Frank C. Lynch, and Brent A. Craven, *Erratum: "A computational method for predicting inferior vena cava filter performance on a patient-specific basis" [ASME J. Biomech. Eng., 2014, 136(8), p. 081003]*, Journal of Biomechanical Engineering, 137(11): 117001, October 2015.

Jibum Kim, Brian Miller, and Suzanne M. Shontz, *A hybrid mesh deformation algorithm using anisotropic PDEs and multiobjective mesh optimization*, Computers and Mathematics with Applications, 70(8):1830-1851, October 2015.

Shankar Prasad Sastry, Emre Kultursay, Suzanne M. Shontz, and Mahmut T. Kandemir, *Improved cache utilization and preconditioner efficiency through use of a space-filling curve mesh element- and vertex-reordering technique*, Invited submission to Engineering with Computers, 30(4): 535-547, October 2014.

Shankar Prasad Sastry and Suzanne M. Shontz, *A parallel log-barrier method for mesh quality improvement and untangling*, Invited submission to Engineering with Computers, 30(4): 503-515, October 2014.

Kenneth I. Aycock, Robert L. Campbell, Keefe B. Manning, Shankar P. Sastry, Suzanne M. Shontz, Frank C. Lynch, and Brent A. Craven, *A computational method for predicting inferior vena cava filter performance on a patient-specific basis*, Journal of Biomechanical Engineering, 136(8): 081003, August 2014.



- Shankar Prasad Sastry, Suzanne M. Shontz, and Stephen A. Vavasis, *A log-barrier method for mesh quality improvement and untangling*, Invited submission to Engineering with Computers; 30(3): 315-329, July 2014.
- Jibum Kim, Thap Panitanarak, and Suzanne M. Shontz, *A multiobjective mesh optimization framework for mesh quality improvement and mesh untangling*, International Journal for Numerical Methods in Engineering, 94(1):20-42, April 2013.
- Petko Kitanov, Odile Marcotte, Wil Schilders, and Suzanne M. Shontz, *A vertex cut algorithm for model order reduction of parasitic resistive networks*, COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, 31(6): 1850-1871, November 2012.
- Jibum Kim, Shankar Prasad Sastry, and Suzanne M. Shontz, *A numerical investigation on the interplay amongst geometry, meshes, and linear algebra in the finite element solution of elliptic PDEs*. Invited submission, Engineering with Computers, 28(4): 431-450, October 2012.
- Shankar P. Sastry and Suzanne M. Shontz, *Performance characterization of nonlinear optimization methods for mesh quality improvement*. Invited submission, Engineering with Computers, 28(3): 269-286, July 2012.
- Suzanne M. Shontz and Stephen A. Vavasis, *A robust solution procedure for hyperelastic solids with large boundary deformation*. Engineering with Computers, 28(2): 135-147, April 2012.
- Suzanne M. Shontz, Stephen A. Vavasis, *Analysis of and workarounds for element reversal for a finite element-based algorithm for warping triangular and tetrahedral meshes*. BIT, Numerical Mathematics, 50(4) : 863 – 884, December 2010.
- Yousef Saad, James R. Chelikowsky, and Suzanne M. Shontz, *Numerical methods for electronic structure calculations*, SIAM Review, 52(1) : 3 – 54, March 2010.
- Lori Diachin, Patrick Knupp, Todd Munson, and Suzanne M. Shontz, *A comparison of two optimization methods for mesh quality improvement*, Invited submission, Engineering with Computers 22(2) : 61 – 74, May 2006.

### Submitted Refereed Conference Publications

None currently.

### Refereed Conference Publications

- Roshan Reddy Upendra, Brian Wentz, Suzanne M. Shontz, and Cristian A. Linte, *A convolutional neural network-based deformable image registration method for cardiac motion estimation from cine cardiac MR images*, Computing in Cardiology, Accepted October 2020.
- Fariba Mohammadi, Shusil Dangi, Suzanne M. Shontz, and Cristian A. Linte, *A direct high-order curvilinear triangular mesh generation method using an advancing front technique* Proc. of the 2020 International Conference on Computational Science, 14 pages, June 2020.
- Mike Stees, Myra Dotzel, and Suzanne M. Shontz, *Untangling high-order meshes based on signed angles*, Proc. of the 28<sup>th</sup> International Meshing Roundtable, Zenodo, p. 267-282, February 2020.
- Suzanne M. Shontz, Maurin A. Lopez Varilla, and Weizhang Huang, *A parallel variational mesh quality improvement method for tetrahedral meshes*, Proc. of the 28<sup>th</sup> International Meshing Roundtable, Zenodo, p. 37-49, February 2020.
- Niels F. Otani, Dylan Dang, Christopher Beam, Fariba Mohammadi, Brian Wentz, S.M. Kamrul Hasan, Suzanne M. Shontz, Karl Q. Schwarz, Sabu Thomas, and Cristian A. Linte, *Toward quantification and visualization of active stress waves for myocardial biomechanical function assessment*, Computing in Cardiology, Vol. 46, p. 1-4, December 2019.
- Mike Stees and Suzanne M. Shontz, *High-order mesh generation based on optimal affine combinations of nodal positions*, Spectral and High Order Methods for Partial Differential Equations, Proc of ICOSAHOM 2018, Lecture Notes in Computational Science and Engineering, p. 229-238, August 2020.

- Mike Stees and Suzanne M. Shontz, *An angular approach to untangling high-order curvilinear triangular meshes*, Proc. of the 27<sup>th</sup> International Meshing Roundtable, Lecture Notes in Computational Science and Engineering, vol. 127, Springer, p. 327-342, July 2019.
- Mike Stees and Suzanne M. Shontz, *A high-order log barrier-based mesh generation and warping method*, Proc. of the 26<sup>th</sup> International Meshing Roundtable, Procedia Engineering, Volume 203, pp. 180-192, October 2017.
- Niels F. Otani, Dylan Dang, Shushil Dangi, Mike Stees, Suzanne M. Shontz, and Cristian A. Linte, *Assessing cardiac tissue function via action potential wave imaging using cardiac displacement data*, Proc. of the European Congress on Computational Methods in Applied Sciences and Engineering ECCOMAS 2017: VipIMAGE 2017, Lecture Notes in Computational Vision and Biomechanics, Vol. 27, pp. 903-912, October 2017.
- Jibum Kim, David McLaurin, and Suzanne M. Shontz, *A 2D topology-adaptive mesh deformation framework for mesh warping*, Proc. of the Fourth Tetrahedron Workshop on Grid Generation for Numerical Computations, New Challenges in Grid Generation and Adaptivity for Scientific Computing, SEMA SIMAI Springer Series, Volume 5, pp. 261-279, 2015.
- David McLaurin and Suzanne M. Shontz, *Automated edge grid generation based on arc-length optimization*, Proc. of the 2013 International Meshing Roundtable, Springer, pp. 385-403, 2014.
- Suzanne M. Shontz and Dragos M. Nistor, *CPU-GPU algorithms for triangular surface mesh simplification*, Proc. of the 2012 International Meshing Roundtable, Springer, pp. 475-492, 2013.
- Jeonghyung Park, Suzanne M. Shontz, and Corina S. Drapaca, *Automatic boundary evolution tracking via a combined level set method and mesh warping technique: Application to hydrocephalus*, MICCAI Workshop on Mesh Processing in Medical Image Analysis 2012, Springer, Vol. 7599, p. 122-133, October 2012.
- Kenneth D. Czuprynski, John Fahnline, and Suzanne M. Shontz, *Parallel boundary element solutions of block circulant linear systems for acoustic radiation problems with rotationally symmetric boundary surfaces*, Proc. of the Internoise 2012/ASME NCAD Meeting, August 2012.
- Shankar P. Sastry, Suzanne M. Shontz, Stephen A. Vavasis, *A log-barrier method for mesh quality improvement*, Proc. of the 2011 International Meshing Roundtable, p. 329-346, October 2011. Shankar's poster on this project won the Best Student Poster Award at IMR 2011.
- Matthew L. Staten, Steve J. Owen, Suzanne M. Shontz, Andrew G. Salinger, Todd S. Coffey, *A comparison of mesh morphing methods for 3D shape optimization*, Proc. of the 2011 International Meshing Roundtable, p. 293-312, October 2011.
- Thap Panitanarak and Suzanne M. Shontz, *MDEC: MeTiS-based domain decomposition for parallel 2D mesh generation*, Proceedings of the 2011 International Conference on Computational Science, Procedia Computer Science, Volume 4, Issue 1, p. 302-311, June 2011.
- Jeonghyung Park and Suzanne M. Shontz, *An alternating mesh quality metric scheme for efficient mesh quality improvement*, Proceedings of the 2011 International Conference on Computational Science, Procedia Computer Science, Volume 4, Issue 1, p. 292-301, June 2011.
- Jibum Kim, Suzanne M. Shontz, *An improved shape matching algorithm for deformable objects using a global image feature*, Proceedings of the 2010 International Symposium on Visual Computing, Las Vegas, NV, November 2010, Part III, LNCS 6455, pp. 119-128, 2010.
- Jibum Kim, Shankar P. Sastry, and Suzanne M. Shontz, *Efficient solution of elliptic partial differential equations via effective combination of mesh quality metrics, preconditioners, and sparse linear solvers*. Proceedings of the 19<sup>th</sup> International Meshing Roundtable Conference, October 2010, Chattanooga, TN, p. 103-120.
- Sanjukta Bhowmick, Suzanne M. Shontz, *Towards high-quality, untangled meshes via a force-directed graph embedding approach*. Proceedings of the 2010 International Conference on Computational Science, Procedia Computer Science, Volume 1, Issue 1, May 2010, p. 357-366.

Jeonghyung Park, Suzanne M. Shontz, *Two derivative-free optimization algorithms for mesh quality improvement*. Proceedings of the 2010 International Conference on Computational Science, Procedia Computer Science, Volume 1, Issue 1, May 2010, p. 387-396.

Nicholas Voshell, Suzanne Shontz, Lori Diachin, Patrick Knupp, Todd Munson, *A patch-based mesh optimization algorithm for partitioned meshes*, 9<sup>th</sup> International Workshop on State-of-the-Art in Scientific and Parallel Computing, 2008, Accepted October 2009.

Shankar Prasad Sastry and Suzanne M. Shontz, *A comparison of gradient- and Hessian-based optimization methods for tetrahedral mesh quality improvement*, in Proceedings of the 18<sup>th</sup> International Meshing Roundtable, October 2009, Salt Lake City, UT, p. 631-648.

Suzanne M. Shontz, Victoria E. Howle, and Patricia D. Hough, *Experience with approximations in the trust-region parallel direct search algorithm*, in Proceedings of the 2009 International Conference on Computational Science, May 2009, p. 501-510.

Suzanne M. Shontz and Patrick Knupp, *The effect of vertex reordering on 2D local mesh optimization efficiency*, in Proceedings of the 17<sup>th</sup> International Meshing Roundtable, October 2008, Pittsburgh, PA, p. 107-124.

Lori Diachin, Patrick Knupp, Todd Munson, and Suzanne M. Shontz, *A comparison of inexact Newton and coordinate descent mesh optimization techniques*, in Proceedings of the 13<sup>th</sup> International Meshing Roundtable, September 2004, Williamsburg, VA, p. 243-254.

Suzanne M. Shontz and Stephen A. Vavasis, *A mesh warping algorithm based on weighted Laplacian smoothing*, in Proceedings of the 12<sup>th</sup> International Meshing Roundtable, September 2003, Santa Fe, NM, p. 147-158.

Lori Freitag, Patrick Knupp, Todd Munson, and Suzanne M. Shontz, *A survey of numerical optimization software for nonlinear, constrained mesh quality objective functions*, in Proceedings of the 11<sup>th</sup> International Meshing Roundtable, September 2002, Ithaca, NY, p. 19-40.

### Nonrefereed Journal Publications

Suzanne M. Shontz, *Computing homoclinic bifurcations*, The Pentagon, Volume 60, Number 2, Spring 2001, p. 3-15.

Beth Koch, Suzanne M. Shontz, and Gary Spieler, *A is not for achievement*, The Pentagon, Volume 58, Number 2, Spring 1999, p. 14-22.

Suzanne M. Shontz, *Molecules and their symmetries: Determining the hybridization of a central atom using point groups*, The Pentagon, Volume 56, Number 2, Spring 1997, p. 38-46.

### Nonrefereed Conference Publications

Michael Stees and Suzanne M. Shontz, *A Quadratic High-order Method for Mesh Generation Inspired by LBWARP*, Research Note of the 25<sup>th</sup> International Meshing Roundtable, 2016.

E. Lorin, R. Arteaga, G. Blanchet, A. Cournoyer, F. Fillion-Gourdeau, L. Gagnon, C. Le Bris, M.A. Porter, S. Shontz. *Optimization of the temporal pulse shape of laser pulses for ablation*, edited by H. Huang, E. Lorin, and O. Marcotte, in Proceedings of the Fourth Montreal Industrial Problem Solving Workshop: A CRM-Mprime Event, Center for Research in Mathematics, Universite de Montreal, Montreal, Quebec, Canada, March 2013.

R. Anderssen, P.G. Hjorth, A.S. Kane, P. Kitanov, K. Ladipo, O. Marcotte, B. Orser, W. Schilders, S.M. Shontz, W. Sun, and B.A. Wane. *Model order reduction for electronic circuits: Mathematical and physical approaches*, edited by P.G. Hjorth and S.M. Shontz, in Proceedings of the 2008 Fields-MITACS Industrial Problem-Solving Workshop, Fields Institute, University of Toronto, March 2009.

D. Aruliah, C. Bowman, G. Fan, R. Melnick, S. Shontz, S. Wang, and J. Zhu. *Nonlinear dimension reduction for microarray data (Small n and large p)*, edited by S. Shontz, in Proceedings of the 2006 Fields-MITACS Industrial Problem-Solving Workshop, Fields Institute, University of Toronto, November 2006.

## Technical Reports

Jeonghyung Park, Patrick Knupp, and Suzanne M. Shontz, *Static vertex reordering schemes for local mesh quality improvement*, CSRI Summer Proceedings, Sandia National Laboratories, 2010.  
 Victoria E. Howle, Suzanne M. Shontz, and Patricia D. Hough, *Some parallel extensions to optimization methods in OPT++*, Sandia Technical Report SAND 2000-8877, October 2000.

## Ph.D. Thesis

Suzanne Michelle Shontz, *Numerical Methods for Problems with Moving Meshes*, Ph.D. Thesis, Cornell University, December 2004.

## Software

**Note:** Underlining is used to denote one of my students or postdoctoral researchers.

Serial dynamic meshing toolkit. Developed in collaboration with Jibum Kim, Jeonghyung Park, Shankar Prasad Sastry, and Michael Stees for my NSF CAREER grant, 2017.

Parallel dynamic meshing toolkit. Developed in collaboration with Thap Panitanarak, Shankar Prasad Sastry, and Michael Stees for my NSF CAREER grant, 2017.

FEMWARP: A finite element-based mesh warping algorithm. Developed in collaboration with Stephen Vavasis and published in our 2010 BIT, Numerical Mathematics paper.

The software is in use by various researchers. Featured users of the software include:  
 Dr. Gary Zientara, Associate Professor of Radiology at Brigham and Women's Hospital and Harvard Medical School (generation of dynamic abdomen and whole-body meshes);  
 Drs. Matthew Staten, Senior Member of the Technical Staff at Sandia National Laboratories and Steve Owen, Principal Member of the Technical Staff at Sandia National Laboratories (generation of dynamic meshes for shape optimization).

## Public Speaking

### Invited Presentations (Selected)

March 2021	<b>2021 SIAM Conference on Computational Science and Engineering (SIAM CSE21), Fort Worth, Texas</b> "Overview of Patient-Specific Model and Mesh Generation from Medical Images"
December 2020	<b>Virtual Winter School on Cardiac Simulations, Universita della Svizzera italiana, Lugano, Switzerland</b> "3D Geometric Modeling and Mesh Generation for Cardiac Models"
October 2020	<b>CAREER Writers' Workshop</b> <b>University of Kansas, Lawrence, Kansas</b> "CAREER Overview and Strategy Tips"
July 2020	<b>14<sup>th</sup> World Congress on Computational Mechanics (WCCM 2020) and 2020 European Community on Computational Methods in Applied Sciences (ECCOMAS) Congress, Paris, France</b> "Optimization-based Approaches for High-order Mesh Generation" <i>Conference cancelled due to covid-19.</i>
July 2020	<b>Mathematical Sciences Summer Camp (for high school students), Rochester Institute of Technology, Rochester, New York</b> "Intro to Mesh Generation"
February 2020	<b>Seminar, Center for Computational Biology, University of Kansas, Lawrence, Kansas</b> "Meshing Algorithms for Use in Cardiovascular Computational Simulations"
October 2019	<b>28<sup>th</sup> International Meshing Roundtable, Buffalo, New York</b> Short Course: "An Introduction to Moving Meshes"

- August 2019 **Interdisciplinary International Conference on Applied Mathematics, Modeling, and Computational Science (AMMCS 2019), Waterloo, Ontario, Canada**  
“Towards High-Order Meshes of the Cardiac Anatomy”
- July 2019 **15<sup>th</sup> U.S. National Congress on Computational Mechanics Austin, Texas**  
“Untangling High-Order Curvilinear Triangular Meshes via Signed Angles”
- May 2019 **International Conference on Adaptive Modeling and Simulation (ADMOS 2019), El Campello, Alicante, Spain**  
“Untangling High-Order Curvilinear Triangles via an Angular Approach”
- April 2019 **ACM Student Club University of Kansas, Lawrence, Kansas**  
“Medical Implants: Better Performance Through Computer Simulation”
- March 2019 **Distinguished Seminar, Civil Engineering Department Texas Tech University, Lubbock, Texas**  
“Methods for Generation of High-Quality Meshes in Medicine and Engineering”
- February 2019 **2019 SIAM Conference on Computational Science and Engineering (SIAM CSE19), Spokane, Washington**  
“A Vision for Research in Unstructured Mesh Generation”
- February 2019 **NSF CAREER Writers’ Workshop University of Kansas, Lawrence, Kansas**  
“*CAREER* Overview and Strategy Tips”
- November 2018 **Mechanical Engineering Colloquium University of California - Santa Barbara, Santa Barbara, California**  
“High-order Curvilinear Mesh Generation and Parallel Mesh Warping for CFD Applications”
- October 2018 **Guest Lecture, Mathematics Department Sri G.V.G. Visalakshi College for Women, Udumalpet, Tamilnadu, India**  
“Mesh Generation: Algorithms, Applications, and Opportunities”
- August 2018 **Red Hot Research Event University of Kansas, Lawrence, Kansas**  
“Improving Patient Treatments with Computer-Assisted Medical Interventions”
- August 2018 **Plenary Talk, International Symposium for Isogeometric Analysis and Mesh Generation (IGA & Meshing 2018), Dalian, China**  
“Mesh Warping Algorithms: From Dynamic Finite Element Simulations to High-Order Mesh Generation”
- July 2018 **25<sup>th</sup> Domain Decomposition Conference (DD25) St. John’s, Newfoundland, Canada**  
“A Parallel Variational Mesh Quality Improvement Method”
- July 2018 **2018 International Conference on Spectral and High-order Methods (ICOSAHOM 18), London, United Kingdom**  
“Generating High-order Meshes for CFD Geometries Using an Optimization-based Approach”
- June 2018 **2018 SIAM Imaging Science Conference Bologna, Italy**  
“High-order Curvilinear Tetrahedral Meshes of the Cardiac Anatomy”
- May 2018 **Workshop on Adaptive Numerical Methods for PDEs with Applications Banff International Research Station, Banff, Canada**  
“A Parallel Variational Mesh Quality Improvement Method for Distributed Memory Machines”

- April 2018      **2018 Midwest Numerical Analysis Days**  
**University of Kansas, Lawrence, Kansas**  
 “A Novel Algorithm for High-Order Triangular and Tetrahedral Mesh Generation”
- April 2018      **Mathematics Colloquium**  
**University of Southern Mississippi, Hattiesburg, Mississippi**  
 “Mesh Warping Algorithms for Use in Dynamic Finite Element Simulations”
- April 2018      **STEM Public Math Lecture**  
**University of Southern Mississippi, Hattiesburg, Mississippi**  
 “Contemporary 3D Meshes for Use as Geometric Models in Movies to Medicine”
- April 2018      **AWM Club Talk**  
**University of Southern Mississippi, Hattiesburg, Mississippi**  
 “My Experiences as a Female Mathematician in Academia”
- March 2018      **Engineering Professional Development Meeting**  
**School of Engineering, University of Kansas, Lawrence, Kansas**  
 “Winning Strategies for Writing an NSF CAREER Proposal”
- March 2018      **NSF CAREER Writers’ Workshop**  
**University of Kansas, Lawrence, Kansas**  
 “Winning Strategies for Writing an NSF CAREER Proposal”
- December 2017      **Boeing Seminar (via WebEx)**  
 “Shape Optimization for Optimal Unmanned Aircraft System Formation”
- July 2017      **14<sup>th</sup> U.S. National Congress on Computational Mechanics**  
**Montreal, Quebec, Canada**  
 “Use of the Fruchterman-Reingold Graph Embedding Algorithm to Untangle Hybrid Meshes”
- June 2017      **8<sup>th</sup> International Conference on Adaptive Modeling and Simulation (ADMOS 2017), Verbania, Italy**  
 “A Parallel Variational Mesh Quality Improvement Method”
- June 2017      **MathLab Seminar, Scuole Internazionali Superiori di Studi Avanzati (SISSA University), Trieste, Italy**  
 “Optimization-based Dynamic Mesh Algorithms for Use in Finite Element Simulations”
- June 2017      **7<sup>th</sup> International Conference on Coupled Problems in Science and Engineering**  
**Rhodes Island, Greece**  
 “High-Order Tetrahedral Mesh Generation and Warping for Cardiac Simulations”
- May 2017      **PDE and Applied Math Seminar, University of California - Davis**  
**Davis, California**  
 “Dynamic and Adaptive Mesh Algorithms for Finite Element Simulations”
- May 2017      **NSF CAREER Writers’ Workshop, University of Kansas**  
**Lawrence, Kansas**  
 “Winning Strategies for Writing and NSF CAREER Proposal”
- April 2017      **19<sup>th</sup> International Conference on Finite Elements in Flow Problems (FEF 2017), Rome, Italy**  
 “High-Order, Curvilinear Tetrahedral Mesh Generation via a Log-Barrier Deformation Approach”
- March 2017      **2017 SIAM Computational Science and Engineering Conference,**  
**Atlanta, Georgia**  
 “A Global Optimization and Adaptivity-based Algorithm for Automated Edge Grid Generation”

- March 2017 **Engineering Professional Development Meeting**  
**School of Engineering, University of Kansas, Lawrence, Kansas**  
“Winning Strategies for Writing and NSF CAREER Proposal”
- October 2016 **AWM Club Talk, Department of Mathematics, University of Kansas**  
“Medical Implants: Better Performance Through Mathematics”
- October 2016 **Female Faculty in the School of Engineering, University of Kansas**  
“Reflections on the Denise Denton Academic Leaders Workshop”, Joint presentation with Belinda Sturm
- July 2016 **12<sup>th</sup> World Congress on Computational Mechanics (WCCM 2016)**  
**Seoul, South Korea**  
“A Parallel Log-Barrier Mesh Warping Algorithm Based on Sparse Linear Solvers for Systems with Multiple Right-Hand Sides”
- July 2016 **Virtual Mesh Generation Seminar**  
**DOE National Security Campus, Managed by Honeywell, Kansas City Plant, Kansas City, Missouri**  
“Parallel Dynamic Mesh Generation Algorithms”
- June 2016 **Numerical Analysis Seminar**  
**Department of Mathematics, Politecnico di Milano, Milano, Italy**  
“A Log-Barrier Method for Mesh Quality Improvement and Untangling”
- June 2016 **5<sup>th</sup> European Seminar on Computing (ESCO 2016)**  
“An Iterative Method for Model Order Reduction of Parasitic Resistive Networks”  
Pilsen, Czech Republic
- January 2016 **Center for Flow Research and Education Seminar**  
**Iowa State University, Ames, Iowa**  
“Patient-Specific Computational Fluid Dynamic Simulations for Predicting Inferior Vena Cava Filter Performance”
- December 2015 **Computing and Information Science Ph.D. Program and**  
**Department of Biomedical Engineering Joint Seminar**  
**Rochester Institute of Technology, Rochester, New York**  
“Dynamic Meshing Algorithms for Use in Computational Simulations of Patient-Specific Medical Interventions”
- November 2015 **Engineering Professional Development Meeting**  
**School of Engineering, University of Kansas, Lawrence, Kansas**  
“Winning Strategies for Writing and NSF CAREER Proposal”
- August 2015 **2015 NSF CyberBridges Workshop**  
**Arlington, Virginia**  
“Improving Data Locality for Exascale Unstructured Numerical Codes”
- July 2015 **13<sup>th</sup> U.S. National Congress for Computational Mechanics**  
**San Diego, California**  
“A Parallel Framework for Multiobjective Mesh Optimization”
- July 2015 **Bioengineering Research Group Seminar**  
**Universidad of A Coruña, A Coruña, Spain**  
“Dynamic Meshing Algorithms for Use in Computational Simulations of Patient-Specific Medical Interventions”
- July 2015 **9<sup>th</sup> European Solid Mechanics Conference**  
**Madrid, Spain**  
“A Generalized 2<sup>nd</sup> Order Linear Elliptic PDE Framework for Mesh Warping”

- June 2015      **2015 AMMCS-CAIMS Congress**  
**Waterloo, Ontario, Canada**  
 “Computational Simulations of the Onset and Treatment of Hydrocephalus in Infants and Mice Based on a Novel Mesh Warping Algorithm”
- June 2015      **2015 PADAL Workshop**  
**Berkeley, California**  
 “A Case for Runtime Support for Better Data Locality and Automatic Mapping of Unstructured Mesh Codes” (co-authored with Michael Stees)
- June 2015      **International Conference on Adaptive Modeling and Simulation (ADMOS 2015), Nantes, France**  
 “Prediction of Ventricular Boundary Evolution in Hydrocephalic Brain via a Combined Level Set and Adaptive Finite Element Mesh Warping Method”
- April 2015      **Aerospace Engineering Colloquium**  
**University of Kansas, Lawrence, Kansas**  
 “Parallel Dynamic Meshing Algorithms for Warping, Untangling, and Quality Improvement”
- April 2015      **Engineering Professional Development Meeting**  
**School of Engineering, University of Kansas, Lawrence, Kansas**  
 “Winning Strategies for Writing an NSF CAREER Proposal”
- April 2015      **Department of Mathematics Colloquium**  
**University of Northern Iowa, Cedar Falls, Iowa**  
 “Serial and Parallel Mesh Quality Improvement and Untangling Algorithms”
- March 2015      **18<sup>th</sup> International Conf. on Finite Element Methods for Flow Problems**  
**Taipei, Taiwan**  
 “A Parallel Log Barrier-Based Mesh Warping Method for Distributed Memory Machines”
- March 2015      **Computational and Applied Mathematics Seminar, Mathematics Department, University of Kansas, Lawrence, Kansas**  
 “Parallel Log Barrier Methods for Mesh Quality Improvement and Untangling”
- February 2015      **Bioengineering Graduate Program Colloquium**  
**University of Kansas, Lawrence, Kansas**  
 “A Computational Framework for Predicting Inferior Vena Cava Filter Performance on a Patient-Specific Basis”
- November 2014      **Department of Computer Science Colloquium**  
**Old Dominion University, Norfolk, Virginia**  
 “A Parallel Log Barrier Method for Mesh Quality Improvement and Untangling”
- June 2014      **The 18<sup>th</sup> European Congress on Mathematics in Industry**  
**Taormina, Italy**  
 “Patient-Specific Computational Fluid Dynamics Simulations for Predicting Inferior Vena Cava Filter Performance”
- June 2014      **2014 NSF CyberBridges Workshop**  
**Arlington, Virginia**  
 “Parallel Dynamic Meshing Techniques for Simulation-Assisted Medical Interventions” (Poster)
- May 2014      **Numerical Analysis Seminar, Dept. of Computer Science and Engineering**  
**University of Minnesota, Minneapolis, Minnesota**  
 “A Parallel Linear Solver for Block Circulant Linear Systems with Applications to Acoustics”



- April 2014 **Biomechanics Working Group Seminar**  
**Mississippi State University, Mississippi State, Mississippi**  
 “Patient-Specific Computational Fluid Dynamics Simuations for Predicting Inferior Vena Cava Filter Performance”
- April 2014 **Special ECE Seminar, Institute for Bioengineering and Bioscience**  
**Georgia Institute of Technology, Atlanta, Georgia**  
 “Patient-Specific Computational Fluid Dynamics Simuations for Predicting Inferior Vena Cava Filter Performance”
- March 2014 **Office of Research and Economic Development**  
**Mississippi State University, Mississippi State, Mississippi**  
 “Strategies for Writing a Winning NSF CAREER Proposal”
- March 2014 **Math Club Talk**  
**Mississippi State University, Mississippi State, Mississippi**  
 “Medical Implants: Better Performance Through Mathematics”
- February 2014 **Electrical Engineering and Computer Science Department Colloquium**  
**University of Kansas, Lawrence, Kansas**  
 “High Performance Scientific Computing Algorithms with Applications to Medicine, Electronic Circuits, and Acoustics”
- February 2014 **SIAM Conference on Parallel Processing for Scientific Computing, (SIAM PP14), Portland, Oregon**  
 “A Parallel Log-Barrier Method for Mesh Quality Improvement and Untangling”
- February 2014 **SIAM Conference on Parallel Processing for Scientific Computing (SIAM PP14), Portland, Oregon**  
 “Overview of Parallel Mesh Generation and Optimization Methods” (Joint talk with Andrey Chernikov; also co-authored with Nikos Chrisochoides)
- August 2013 **Applied Mathematics, Modeling, and Computational Science Conference (AMMCS 2013), Waterloo, Ontario, Canada**  
 “A Machine Learning Tool for Automated Image Segmentation”
- July 2013 **12<sup>th</sup> U.S. National Congress on Computational Mechanics (USNCCM12), Raleigh, North Carolina**  
 “A Topology-Adaptive Level Set/Mesh Deformation Technique for Boundary Evolution Tracking: Applications to Brain Biomechanics”
- July 2013 **2013 NSF CyberBridges Workshop**  
**Arlington, Virginia**  
 “Parallel Dynamic Meshing Algorithms, Theory, and Software for Patient-Specific Medical Interventions” (Poster)
- July 2013 **4<sup>th</sup> Workshop on Grid Generation for Numerical Computations (Tetrahedron IV Workshop), Verbania, Italy**  
*(1 out of 4 Americans invited to present their research)*  
 “A Hybrid Mesh Deformation Algorithm Using Anisotropy and Multiobjective Mesh Optimization”
- May 2013 **NSF CISE CAREER Proposal Writing Workshop**  
**Arlington, Texas**  
 “Strategies for Writing a Winning NSF CISE CAREER Proposal”
- February 2013 **Advances in Computational Mechanics, A Conference Celebrating the 70<sup>th</sup> Birthday of Thomas J.R. Hughes, San Diego, California**  
 “A Log-Barrier Method for Mesh Quality Improvement and Untangling”

- February 2013 **SIAM Conference on Computational Science and Engineering  
Boston, Massachusetts**  
“A Mesh Warping Framework for Tracking Brain Biomechanical Boundary Evolution”
- December 2012 **NSF Advisory Committee for Cyberinfrastructure  
National Science Foundation Webinar**  
“NSF OCI CAREER Workshop”  
Joint talk with Thomas Hacker
- November 2012 **Department of Computer and Information Technology  
Graduate Student Seminar, Purdue University, West Lafayette, Indiana**  
“An Image-Based, Parallel Dynamic Meshing Framework for Simulation-Assisted Medical Interventions”
- November 2012 **Department of Computer Science and Engineering  
Graduate Student Seminar, Mississippi State University  
Mississippi State, Mississippi**  
“A Parallel Dynamic Meshing Framework for Simulation-Assisted Medical Interventions”
- September 2012 **Department of Industrial Engineering Seminar  
Mississippi State University, Mississippi State, Mississippi**  
“Optimization Techniques for Mesh Generation and Model Order Reduction”
- September 2012 **Center for Computational Sciences Seminar  
Mississippi State University, Mississippi State, Mississippi**  
“Research Overview”
- July 2012 **SIAM Annual Meeting, Minneapolis, Minnesota**  
“Patient-specific Mesh Generation for Improved Pulmonary Embolism Prevention”
- June 2012 **NSF CyberBridges Workshop, Arlington, Virginia**  
“Parallel Dynamic Meshing Algorithms for Patient-Specific Medical Interventions” (Poster)
- March 2012 **Mathematics, Statistics, and Physics Seminar  
Wichita State University, Wichita, Kansas**  
“A Dynamic Meshing Framework with Applications to Patient-Specific Medical Interventions”
- March 2012 **Fariborz Maseeh Mathematics and Statistics Seminar  
Portland State University, Portland, Oregon**  
“A Dynamic Meshing Framework with Applications to Patient-Specific Medical Interventions”
- March 2012 **Mathematics and Statistics Seminar  
Mississippi State University, Mississippi State, Mississippi**  
“A Dynamic Meshing Framework with Applications to Patient-Specific Medical Interventions”
- March 2012 **Mathematics and Computer Science Seminar  
Clarkson University, Potsdam, New York**  
“A Dynamic Meshing Framework with Applications to Patient-Specific Medical Interventions”
- February 2012 **Mathematics, Computer Science, and Radiology Seminar  
Emory University, Atlanta, Georgia**  
“An Image-Based, Parallel Dynamic Meshing Framework for Patient-Specific Medical Interventions”

- January 2012      **Mathematics and Applied Mathematics Seminar**  
**Virginia Commonwealth University, Richmond, Virginia**  
 “A Dynamic Meshing Framework with Applications to Patient-Specific Medical Interventions”
- December 2011    **Mathematical Sciences/Operations Research Seminar**  
**Florida Institute of Technology, Melbourne, Florida**  
 “A Dynamic Meshing Framework with Applications to Patient-Specific Medical Interventions”
- April 2011        **Scientific Computing Seminar**  
**Brown University, Providence, Rhode Island**  
 “Towards a Parallel Dynamic Meshing Framework”
- March 2011       **SIAM Computational Science and Engineering Conference**  
**Reno, Nevada**  
 “Vertex Reordering for Local Mesh Quality Improvement of Tetrahedral Meshes”
- November 2010   **Computer Science Department**  
**University of Nebraska, Omaha, Nebraska**  
 “Effective Anisotropic Mesh Generation for Finite Element Solution of Partial Differential Equations”
- October 2010     **Electrical Engineering and Computer Science Department**  
**University of Tennessee, Knoxville, Tennessee**  
 “Meshing Techniques for Numerical Solution of Partial Differential Equations and Shape Matching”
- September 2010   **3<sup>rd</sup> Workshop on Grid Generation for Numerical Computations**  
**(Tetrahedron III Workshop)**  
**Swansea University, Swansea, Wales, United Kingdom**  
*(1 out of 5 Americans invited to present their research)*  
 “Towards an Improved Understanding of the Connections Between Geometry Discretization, Anisotropic Mesh Quality Improvement, and the Numerical Solution of Elliptic PDEs”
- August 2010      **DARPA Grid II Workshop**  
**Washington, D.C.**  
 “Parallel Streaming Progressive Meshes”
- June 2010         **16<sup>th</sup> U.S. National Congress of Theoretical and Applied Mechanics**  
**State College, Pennsylvania**  
 “Insight on the Correlation Between Geometry, Mesh Quality Improvement, and Elliptic PDE Solution”
- April 2010        **SIAM Student Chapter**  
**The Pennsylvania State University, University Park, Pennsylvania**  
 “Derivative-Free Optimization Algorithms for Mesh Quality Improvement”
- January 2010      **Social, Life, and Engineering Sciences Imaging Center**  
**The Pennsylvania State University, University Park, Pennsylvania**  
 “Biomedical Mesh Generation Techniques for Cardiovascular Applications”
- March 2009       **SIAM Computational Science and Engineering Conference,**  
**(SIAM CSE09), Miami, Florida**  
 “Efficiency of Static Vertex Reordering Schemes for Local Mesh Optimization”
- July 2008         **REU Program, Mathematics and Statistics Department**  
**James Madison University, Harrisonburg, Virginia**  
 “Mesh Warping Algorithms with Applications to Cardiology”

- July 2008 **REU Program, Mathematics and Statistics Department**  
**James Madison University, Harrisonburg, Virginia**  
“A Patch-based Mesh Smoothing Algorithm”
- May 2008 **9<sup>th</sup> International Workshop on State-of-the-Art in Scientific and**  
**Parallel Computing, Trondheim, Norway**  
“A Patch-Based Mesh Optimization Algorithm for Partitioned Meshes”
- May 2008 **SIAM Optimization Conference**  
**Boston, Massachusetts**  
“Experience with Gradient-Based Optimization Methods in Electronic Structure Calculations”
- April 2008 **Computational Visualization Center**  
**Institute for Computational Engineering and Sciences**  
**University of Texas, Austin, Texas**  
“A Comparison of Vertex Relocation Strategies for Mesh Quality Improvement”
- March 2008 **SIAM Parallel Processing for Scientific Computing Conference,**  
**(SIAM PP08), Atlanta, Georgia**  
“Parallel Mesh Quality Improvement Techniques for Blood Clot Entrapment”
- March 2008 **Garfield Thomas Water Tunnel Seminar**  
**Applied Research Laboratory, The Pennsylvania State University,**  
**University Park, Pennsylvania**  
“The Development of an Efficient Geometric Mesh Quality Improvement Method via Vertex Reordering and Elemental Patches”
- September 2007 **Science Today Seminar**  
**State University of New York (SUNY) Oswego, Oswego, New York**  
“Generation and Adaptation of Computational Meshes for Biomedical Applications”
- April 2007 **Industrial Engineering Seminar**  
**The Pennsylvania State University, University Park, Pennsylvania**  
“Experience with Approximations in the TRPDS Algorithm”
- April 2007 **PDE and Applied PDE Seminar**  
**The Pennsylvania State University, Altoona, Pennsylvania**  
“M4: Mesh Smoothing, Mesh Node Reordering, and Mesh Warping for Medical Applications”
- March 2007 **Institute for Computational Science Seminar**  
**The Pennsylvania State University, University Park, Pennsylvania**  
“Mesh Warping Techniques with Applications to Cardiology and Nonlinear Elasticity”
- March 2007 **Industrial and Professional Advisory Committee Presentation**  
**The Pennsylvania State University, University Park, Pennsylvania**  
“Optimal Meshes with Applications to Graphics and Bioengineering”
- February 2007 **SIAM Computational Science and Engineering Conference**  
**Costa Mesa, California**  
“The Effect of Node Reordering on 2D Local Mesh Smoothing Efficiency with Application to Mesh Warping”
- September 2006 **Computational and Applied Mathematics Colloquium**  
**The Pennsylvania State University, University Park, Pennsylvania**  
“Optimization Techniques for Mesh Warping and Nonlinear Elasticity”
- March 2006 **Colloquium, Mathematical Sciences Department**  
**Rensselaer Polytechnic Institute, Troy, New York**  
“Optimization Techniques for Mesh Warping and the Geometry of Materials”

- February 2006 **Colloquium, Mathematical Sciences Department**  
**George Mason University, Fairfax, Virginia**  
“Optimization Techniques for Mesh Warping and the Geometry of Materials”
- February 2006 **Colloquium, Mathematics Department**  
**University of Northern Iowa, Cedar Falls, Iowa**  
“Optimization Techniques for Mesh Warping and the Geometry of Materials”
- February 2006 **Colloquium, Computer Science and Engineering Department**  
**The Pennsylvania State University, University Park, Pennsylvania**  
“Optimization Techniques for Mesh Warping and the Geometry of Materials”
- February 2006 **Jr. Colloquium, Mathematics Department**  
**University of Minnesota, Minneapolis, Minnesota**  
“Optimization Techniques for Mesh Warping and the Geometry of Materials”
- February 2006 **Colloquium, Mathematics and Statistics Department**  
**University of Maryland - Baltimore County, Baltimore, Maryland**  
“Numerical Methods for Problems in Electronic Structure Calculations”
- December 2005 **Colloquium, Mathematics Department**  
**University of Iowa, Iowa City, Iowa**  
“Numerical Methods for Problems in Electronic Structure Calculations”
- December 2005 **Numerical Analysis Seminar, Mathematics Department**  
**University of Iowa, Iowa City, Iowa**  
“A Tetrahedral Meshing Warping Algorithm with Applications to Cardiology”
- April 2005 **Colloquium, Mathematics Department**  
**University of Northern Iowa, Cedar Falls, Iowa**  
“Algorithms for Mesh Warping with Applications to Cardiology”
- April 2004 **Numerical Analysis Seminar, Computer Science and Engineering Department, University of Minnesota, Minneapolis, Minnesota**  
“Algorithms for Mesh Warping with Applications to Cardiology”
- April 2004 **Numerical Analysis Seminar, Applied Physics and Applied Mathematics Department, Columbia University, New York, New York**  
“Algorithms for Mesh Warping with Applications to Cardiology”
- March 2004 **SCOREC Seminar, Scientific Computation Research Center**  
**Rensselaer Polytechnic Institute, Troy, New York**  
“Algorithms for Mesh Warping with Applications to Cardiology”
- March 2004 **Mathematical Sciences Seminar, Center for Applied Mathematics**  
**Cornell University, Ithaca, New York**  
“Algorithms for Mesh Warping with Applications to Cardiology”
- March 2004 **Colloquium, College of Engineering**  
**Virginia Polytechnic Institute and State University, Blacksburg, Virginia**  
“Algorithms for Mesh Warping with Applications to Cardiology”
- February 2004 **Colloquium, Mathematics and Statistics Department**  
**Miami University, Oxford, Ohio**  
“Algorithms for Mesh Warping with Applications to Cardiology”
- February 2004 **Colloquium, Mathematics Department**  
**Western Illinois University, Macomb, Illinois**  
“Algorithms for Mesh Warping with Applications to Cardiology”
- February 2004 **Colloquium, Mathematics and Statistics Department**  
**Texas Tech University, Lubbock, Texas**  
“Algorithms for Mesh Warping with Applications to Cardiology”

- February 2004     **Research Seminar**  
**Sandia National Laboratories, Albuquerque, New Mexico**  
 “Algorithms for Mesh Warping with Applications to Cardiology”
- February 2004     **Numerical Analysis Seminar, Courant Institute**  
**New York University, New York, New York**  
 “Algorithms for Mesh Warping with Applications to Cardiology”
- January 2004     **Applied and Computational Mathematics Seminar**  
**The Pennsylvania State University, University Park, Pennsylvania**  
 “Algorithms for Mesh Warping with Applications to Cardiology”
- January 2004     **Seminar, Center for Cardiovascular Bioinformatics and Modeling**  
**Johns Hopkins University, Baltimore, Maryland**  
 “Algorithms for Mesh Warping with Applications to Cardiology”
- February 2003     **SIAM Computational Science and Engineering Conference**  
**San Diego, California**  
 “A Mesh Warping Algorithm Based on Weighted Laplacian Smoothing”

### Other Presentations (Selected)

- June 2020     **2020 International Conference on Computational Science**  
**(ICCS 2020), Amsterdam, Netherlands**  
 “A Direct High-order Curvilinear Triangular Mesh Generation Method Using  
 an Advancing Front Technique”  
*Conference cancelled due to covid-19.*
- October 2019     **28<sup>th</sup> International Meshing Roundtable**  
**Buffalo, New York**  
 “A Parallel Variational Method for Mesh Quality Improvement Method for  
 Tetrahedral Meshes”
- September 2017     **26<sup>th</sup> International Meshing Roundtable**  
**Barcelona, Spain**  
 “A High-Order Log Barrier-Based Mesh Generation and Warping Method”
- October 2015     **5<sup>th</sup> ECCOMAS Thematic Conference on Computational Vision and**  
**Medical Image Processing (VipIMAGE 2015)**  
**Tenerife, Canary Islands, Spain**  
 “Automated Image Segmentation Based on Multiobjective Optimization”
- October 2014     **10<sup>th</sup> Mississippi State Conference on Differential Equations and**  
**Computational Simulations, Mississippi State, Mississippi**  
 “Determination of the Optimal Anisotropic PDE in a Hybrid Mesh  
 Deformation Algorithm”
- July 2014     **11<sup>th</sup> World Congress on Computational Mechanics**  
**Barcelona, Spain**  
 “A 2D Topology-Adaptive Mesh Deformation Framework for Mesh Warping”
- October 2013     **22<sup>nd</sup> International Meshing Roundtable**  
**Lake Buena Vista, Florida**  
 “Automated edge grid generation based on arc-length optimization”
- October 2012     **21<sup>st</sup> International Meshing Roundtable**  
**San Jose, California**  
 “CPU-GPU Algorithms for Triangular Surface Mesh Simplification”

- October 2012 **9<sup>th</sup> UAB-MSU Conference on Differential Equations and Computational Simulations, Mississippi State, Mississippi**  
 “A Space-Filling Curve Mesh Element- and Vertex-Reordering Technique for Efficient Multicore Finite Element Simulations”
- October 2012 **2012 MICCAI MeshMed Workshop**  
**Nice, France**  
 “Automatic Boundary Evolution Tracking via a Combined Level Set and Mesh Warping Technique: Application to Hydrocephalus”  
 (Poster)
- February 2012 **SIAM Conference on Parallel Processing for Scientific Computing, (SIAM PP12), Savannah, Georgia**  
 “Streaming GPU-Based Triangular Surface Mesh Compression”
- June 2011 **2011 International Conference on Computational Science**  
**Singapore**  
 “MDEC: MeTiS-based Domain Decomposition for Parallel 2D Mesh Generation”
- June 2011 **2011 International Conference on Computational Science**  
**Singapore**  
 “An Alternating Mesh Quality Metric Scheme for Efficient Mesh Quality Improvement”
- November 2010 **2010 International Symposium on Visual Computing**  
**Las Vegas, Nevada**  
 “An Improved Shape Matching Algorithm for Deformable Objects Using a Global Image Feature” (Poster Presentation)
- July 2010 **SIAM Annual Meeting**  
**Pittsburgh, Pennsylvania**  
 “Static Vertex Reordering Schemes for Local Mesh Quality Improvement”
- June 2010 **2010 International Conference on Computational Science**  
**Amsterdam, The Netherlands**  
 “Towards High-quality, Untangled Meshes via a Force-directed Graph Embedding Approach”
- June 2010 **2010 International Conference on Computational Science**  
**Amsterdam, The Netherlands**  
 “Two Derivative-free Optimization Algorithms for Mesh Quality Improvement”
- October 2009 **SIAM Workshop on Combinatorial Scientific Computing**  
**Seaside, California**  
 “Obtaining High-Quality Untangled Meshes Through Force-Directed Graph Embedding”  
 Poster Presentation: Presented by Sanjukta Bhowmick
- October 2009 **18<sup>th</sup> International Meshing Roundtable**  
**Salt Lake City, Utah**  
 “A Comparison of Gradient- and Hessian-Based Optimization Methods for Tetrahedral Mesh Quality Improvement”
- July 2009 **10<sup>th</sup> U.S. National Congress on Computational Mechanics**  
**Columbus, Ohio**  
 “An Investigation into Efficient Local Tetrahedral Mesh Quality Improvement Methods for Various Shape Quality Metrics”
- May 2009 **2009 International Conference on Computational Science**  
**Baton Rouge, Louisiana**  
 “Experience with Approximations in the Trust-Region Parallel Direct Search Algorithm”

- October 2008 **17<sup>th</sup> International Meshing Roundtable**  
**Pittsburgh, Pennsylvania**  
“The Effect of Vertex Reordering on 2D Local Mesh Optimization Efficiency”
- August 2008 **Fields-MITACS Industrial Problem-Solving Workshop**  
**Fields Institute, University of Toronto, Toronto, Ontario, Canada**  
“NXP Semiconductor Problem: Model Order Reduction”  
Joint talk with Ortho Flint
- May 2007 **Bio and Medical Informatics Retreat**  
**The Pennsylvania State University, University Park, Pennsylvania**  
“Advanced Virtual Environments for Biomedical Applications”
- February 2007 **SIAM Computational Science and Engineering Conference**  
**Costa Mesa, California**  
“Optimization of the Geometry of Materials”
- November 2006 **Finite Element Circus**  
**State College, Pennsylvania**  
“A Robust Solution Procedure for Hyperelastic Solids with Large Boundary Deformation”
- August 2006 **Fields-MITACS Industrial Problem-Solving Workshop**  
**Fields Institute, University of Toronto, Toronto, Ontario, Canada**  
“Nonlinear Dimension Reduction for Microarray Data (Small n and Large p)”  
Joint talk with Steven Wang
- July 2006 **World Congress on Computational Mechanics**  
**Los Angeles, California**  
“A Robust Solution Procedure for Hyperelastic Solids with Large Boundary Deformation”
- October 2005 **Technology Forum, Department of Computer Science and Engineering**  
**University of Minnesota, Minneapolis, Minnesota**  
Poster Presentation: “New Developments in Numerical Methods for Electronic Structure Calculations” (with Yunkai Zhou)
- September 2005 **Numerical Analysis Seminar, Department of Computer Science and Engineering, University of Minnesota, Minneapolis, Minnesota**  
“Efficient Geometry Optimization of Molecular Clusters”
- July 2005 **Institute for the Theory of Advanced Materials in Information Technology Workshop**  
**University of Minnesota, Minneapolis, Minnesota**  
“Efficient Geometry Optimization of Molecular Clusters”
- May 2005 **Midwest Numerical Analysis Days**  
**University of Iowa, Iowa City, Iowa**  
“A Linear Weighted Laplacian Smoothing Framework for Warping Tetrahedral Meshes”
- February 2005 **SIAM Conference on Computational Science and Engineering, (SIAM CSE05), Orlando, Florida**  
“A Linear Weighted Laplacian Smoothing Framework for Warping Tetrahedral Meshes”
- November 2004 **Numerical Analysis Seminar**  
**Department of Computer Science and Engineering**  
**University of Minnesota, Minneapolis, Minnesota**  
“Numerical Methods for Problems with Moving Meshes”



- September 2004 **Ph.D. Thesis Defense, Center for Applied Mathematics  
Cornell University, Ithaca, New York**  
“Numerical Methods for Problems with Moving Meshes”
- February 2004 **SIAM Parallel Processing for Scientific Computing Conference  
(SIAM PP04), San Francisco, California**  
“Using Approximation Models in Simulation-based Optimization”
- November 2003 **Applied Math Days  
Rensselaer Polytechnic Institute, Troy, New York**  
“A Mesh Warping Algorithm Based on Weighted Laplacian Smoothing”
- September 2003 **Plenary Session, 12<sup>th</sup> International Meshing Roundtable  
Santa Fe, New Mexico**  
“A Mesh Warping Algorithm Based on Weighted Laplacian Smoothing”
- February 2002 **Cornell Day at United Technologies Research Center  
Hartford, Connecticut**  
“A Mesh Warping Algorithm Based on Weighted Laplacian Smoothing”
- February 2001 **Mathematical Sciences Graduate Student Seminar  
Cornell University, Ithaca, New York**  
“Women and Graduate School: Improving the Experience and Success of Female Students”
- October 2000 **First Annual Applied Mathematics Days  
Rensselaer Polytechnic Institute, Troy, New York**  
“Parallel Optimization Using Approximation Models”
- September 2000 **Mathematical Sciences Graduate Student Seminar  
Cornell University, Ithaca, New York**  
“Parallel Optimization Using Approximation Models”
- August 2000 **Computational Sciences and Mathematics Research Group Seminar  
Sandia National Laboratories, Livermore, California**  
“Parallel Optimization Using Approximation Models”
- August 2000 **Student Research Symposium  
Sandia National Laboratories, Livermore, California**  
“Parallel Optimization Using Approximation Models”
- August 1999 **Computational Sciences and Mathematics Research Group Seminar  
Sandia National Laboratories, Livermore, California**  
“Some Parallel Extensions to Optimization Methods in OPT++”

### Workshop Participation

- 2016 Invited Participant, Denise Denton Emerging Leaders Workshop 2016, Madison, Wisconsin
- 2016 Invited Participant, NSF CyberBridges Workshop, Rochester, New York
- 2015 Invited Participant, PADAL Workshop, Berkeley, California
- 2015 Invited Participant, NSF CyberBridges Workshop, Arlington, Virginia
- 2014 Invited Participant, NSF CyberBridges Workshop, Arlington, Virginia
- 2013 Invited Participant, NSF CyberBridges Workshop, Arlington, Virginia
- 2012 Invited Participant, NSF CyberBridges Workshop, Arlington, Virginia
- 2011 Invited Academic Expert, Fourth Montreal Industrial Problem Solving Workshop, Montreal, Quebec, Canada
- 2010 Invited Participant, DARPA 2<sup>nd</sup> GRID Workshop, Washington, D.C.
- 2008 Invited Academic Expert, Fields-Mitacs Industrial Problem Solving Workshop, Fields Institute, University of Toronto, Toronto, Ontario, Canada

- 2006 Invited Academic Expert, Fields-Mitacs Industrial Problem Solving Workshop, Fields Institute, University of Toronto, Toronto, Ontario, Canada

## Service to the Profession and Professional Activities

### Officer Positions

- 2019-20 Vice Chair, Computational Science and Engineering Activity Group, Society for Industrial and Applied Mathematics  
 2017-18 Program Director, Computational Science and Engineering Activity Group, Society for Industrial and Applied Mathematics  
 2015-16 Secretary, Computational Science and Engineering Activity Group, Society for Industrial and Applied Mathematics

### Editor Positions

- 2016- Academic Editor, Mathematical Problems in Engineering  
 2014- Associate Editor, De Gruyter Open, Book Series on Medicine  
 2015 Guest Co-Editor, Electronic Journal of Differential Equations  
 2013 Guest Co-Editor, Engineering with Computers  
 2013 Guest Co-Editor, Electronic Journal of Differential Equations  
 2011 Guest Co-Editor, Engineering with Computers

### Conference Committees/Organization

- 2019- International Meshing Roundtable Transitional Steering Committee  
 2021 Member, Test of Time Award Committee, 2021 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC 21), St. Louis, Missouri  
 2021 Member, Workshops Committee, 2021 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC 21), St. Louis, Missouri  
 2021 Publicity Chair, Parallel and Distributed Scientific Computing and Engineering Workshop (PDSEC '21), held in conjunction with the 35<sup>th</sup> (IEEE) International Parallel and Distributed Processing Symposium (IPDPS 2021), Portland, Oregon  
 2021 Member, Program Committee, 2021 IEEE Cluster Conference, Applications, Algorithms, and Libraries Track, Portland, Oregon  
 2021 Co-organizer, Minisymposium on Mesh Generation for Coupled Problems, 9<sup>th</sup> International International Conference on Coupled Problems in Science and Engineering (COUPLED 2021), Chia Laguna, Italy  
 2021 Co-organizer, Minisymposium on Mesh Adaptation, 2021 International Conference on Adaptive Modeling and Simulation (ADMOS 2021), Gotenburg, Sweden  
 2021 Co-organizer, Minisymposium on Imaging, Meshing, and Modeling of Biomedical Problems, SIAM Conference on Computational Science and Engineering (SIAM CSE21), Fort Worth, Texas  
 2020 Co-organizer, Virtual Winter School on Cardiac Simulations, Universita della Svizzera italiana, Lugano, Switzerland  
 2020 Member, Test of Time Award Committee, 2020 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC 20), Atlanta, Georgia  
 2020 Member, Research Posters Committee, 2020 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC 20), Atlanta, Georgia  
 2020 Publicity Chair, Parallel and Distributed Scientific Computing and Engineering Workshop (PDSEC '20), held in conjunction with the 34<sup>th</sup> (IEEE) International Parallel and Distributed Processing Symposium (IPDPS 2020), New Orleans, Louisiana

- 2020 Member, Technical Program Committee, 6<sup>th</sup> International Conference on Big Data, Small Data, Linked Data and Open Data (ALLDATA 2020), Lisbon, Portugal
- 2020 Member, Technical Program Committee, Applications Track, 2020 International Conference on Parallel Programming (ICPP 2020), Paris, France
- 2020 Member, Program Committee, 14<sup>th</sup> International Conference on Geometric Modeling and Processing (GMP 2020), Okinawa, Japan
- 2019 Co-Chair, SIAM Conference on Computational Science and Engineering (SIAM CSE19), Spokane, Washington
- 2019 Chair, 28<sup>th</sup> International Meshing Roundtable, Buffalo, New York
- 2019 Co-Chair, Technical Program Committee, Applications Track, 2019 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC 19), Denver, Colorado
- 2019 Member, Program Committee, 2019 IEEE Cluster Conference, Applications, Algorithms, and Libraries Track, Albuquerque, New Mexico
- 2019 Member, Program Committee, 2019 International Conference on Parallel Programming (ICPP 2019), Applications Track, Kyoto, Japan
- 2019 Member, Program Committee, 13<sup>th</sup> International Conference on Geometric Modeling and Processing (GMP 2019), Vancouver, Canada
- 2019 Member, Program Committee, 7<sup>th</sup> ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing (VipIMAGE 2019), Porto, Portugal
- 2019 Member, Program Committee, 5<sup>th</sup> International Conference on Big Data, Small Data, Linked Data, and Open Data (ALLDATA 2019), Valencia, Spain
- 2019 Publicity Chair, Parallel and Distributed Scientific and Engineering Computing Workshop (PDSEC '19), held in conjunction with the 33<sup>rd</sup> IEEE International Parallel and Distributed Processing Symposium (IPDPS 2019), Rio de Janeiro, Brazil
- 2019 Member, Posters Committee, 2019 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC 19), Denver, Colorado
- 2019 Co-organizer, Minisymposium on Advanced Methods and Applications in Mesh Adaptation, 2019 International Conference on Adaptive Modeling and Simulation (ADMOS 2019), Alicante, Spain
- 2019 Co-organizer, Minisymposium on Advances in Unstructured Mesh Algorithms and Their Applications, SIAM Conference on Computational Science and Engineering (SIAM CSE19), Spokane, Washington
- 2019 Judge, Poster Session, SIAM Conference on Computational Science and Engineering, (SIAM CSE19), Spokane, Washington
- 2018 Member, Program Committee, 9<sup>th</sup> International Conference on Numerical Geometry, Grid Generation, and Scientific Computing (NUMGRID-2018/VORONOI-150), Moscow, Russia
- 2018 Member, Program Committee, International Symposium on Isogeometric Analysis and Meshing (IGA & Mesh 2018), Dalian, China
- 2018 Member, Program Committee, 27<sup>th</sup> International Meshing Roundtable, Albuquerque, New Mexico
- 2018 Member, Program Committee, 12<sup>th</sup> International Conference on Geometric Modeling and Processing (GMP 2018), Aachen, Germany
- 2018 Member, Program Committee, IEEE Cluster 2018 Conference, Belfast, United Kingdom
- 2018 Member, Program Committee, 4<sup>th</sup> International Conference on Big Data, Small Data, Linked Data, and Open Data (ALLDATA 2018), Athens, Greece
- 2018 Organizer, Minisymposium on Parallel Methods for PDE-based Mesh Generation and Adaptation, 25<sup>th</sup> International Domain Decomposition Conference (DD25), St. John's, Newfoundland, Canada

- 2018 Co-organizer, Minisymposium on Imaging, Modeling, Visualization and Biomedical Computing, 2018 SIAM Imaging Science Conference (SIAM IS18), Bologna, Italy
- 2018 Participant, Science Cafe, American Physical Society Conference for Undergraduate Women in Physics (CUWiP), Lawrence, Kansas
- 2017 Member, Program Committee, 2017 International Meshing Roundtable, Barcelona, Spain
- 2017 Member, Program Committee, Applications Track, 2017 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC 17), Denver, Colorado
- 2017 Subreviewer, 23<sup>rd</sup> International European Conference on Parallel and Distributed Computing, (EURO-PAR 17), Santiago de Compostela, Spain
- 2017 Member, Program Committee, 11<sup>th</sup> International Conference on Geometric Modeling and Processing (GMP 2017), Xiamen, China
- 2017 Member, Program Committee, 2017 IEEE International Parallel and Distributed Processing Symposium (IPDPS 2017), Software Track, Orlando, Florida
- 2017 Member, Global Organizing Committee, 2017 Interdisciplinary International Conference on Applied Mathematics, Modeling and Computational Science (AMMCS 2017), Waterloo, Ontario, Canada
- 2017 Member, Program Committee, IEEE Cluster 2017, Track on Applications, Algorithms, and Libraries, Honolulu, Hawaii
- 2017 Member, Program Committee, 6<sup>th</sup> ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing (VipIMAGE 2017), Porto, Portugal
- 2017 Member, Program Committee, The 8<sup>th</sup> International Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING 2017), Athens, Greece
- 2017 Member, Program Committee, 3<sup>rd</sup> International Conference on Big Data, Small Data, Linked Data, and Open Data (ALLDATA 2017), Venice, Italy
- 2017 Member, Program Committee, Workshop on Education for High-Performance Computing, (EduHPC-17), Denver, Colorado
- 2017 Co-organizer, Minisymposium on Mesh Generation and Mesh Adaptivity: Methods and Applications, 2017 International Conference on Adaptive Modeling and Simulation (ADMOS 2017), Verbania, Italy
- 2017 Co-organizer, Minisymposium on Geometry Modeling, Mesh Generation and Adaptation FEF 2017, Rome, Italy
- 2017 Co-organizer, Minisymposium on Recent Advances in Unstructured Mesh Algorithms and Their Applications, SIAM Computational Science and Engineering Conference (SIAM CSE17), Atlanta, Georgia
- 2017 Judge, Poster Session, SIAM Conference on Computational Science and Engineering (SIAM CSE17), Atlanta, Georgia
- 2017 Co-Organizer, Student Career Panel, SIAM Conference on Computational Science and Engineering (SIAM CSE17), Atlanta, Georgia
- 2016 Co-Chair, 2016 NSF CyberBridges Workshop (CISE/ACI), Rochester, NY
- 2016 Member, Program Committee, 8<sup>th</sup> IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2016), HPC on Cloud Track, Luxembourg
- 2016 Member, Program Committee, Workshop on Education for High-Performance Computing, (EduHPC-16), Salt Lake City, Utah
- 2016 Member, Program Committee, 28<sup>th</sup> International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD 2016), Los Angeles, California
- 2016 Member, Program Committee, Technology Track, XSEDE16 Conference, Miami, Florida
- 2016 Co-organizer, Minisymposium on Model Order Reduction Algorithms for High Performance Computers and Their Applications, 5<sup>th</sup> European Seminar on Computing (ESCO 2016), Pilsen, Czech Republic

- 2016 Member, Program Committee, 2<sup>nd</sup> International Conference on Big Data, Small Data, Linked Data, and Open Data (ALLDATA 2016), Lisbon, Portugal
- 2016 Member, Program Committee, Applications Track, 2016 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC 16), Salt Lake City, Utah
- 2016 Member, Program Committee, 10<sup>th</sup> International Conference on Geometric Modeling and Processing (GMP 2016), San Antonio, Texas
- 2015 Member, Program Committee, Workshop on Education for High-Performance Computing (EduHPC-15), Austin, Texas
- 2015 Member, Program Committee, Technology Track, XSEDE15 Conference, St. Louis, Missouri
- 2015 Member, Tutorials Committee, XSEDE 15 Conference, St. Louis, Missouri
- 2015 Member, Program Committee, 7<sup>th</sup> IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2015), HPC on Cloud Track, Vancouver, British Columbia, Canada
- 2015 Member, Program Committee, Applications Area, 2015 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC15), Austin, Texas
- 2015 Co-Chair, 2015 NSF CyberBridges Workshop (CISE/ACI), Arlington, Virginia
- 2015 Co-organizer, Minisymposium on Modeling and Simulation in Medicine and Biology, CAIMS-AMMCS 2015 Congress, Waterloo, Ontario, Canada
- 2015 Member, Program Committee, 9<sup>th</sup> International Conference on Geometric Modeling and Processing (GMP 2015), Lugano, Switzerland
- 2015 Member, Program Committee, 1<sup>st</sup> International Conference on Big Data, Small Data, Linked Data, and Open Data (ALLDATA 2015), Barcelona, Spain
- 2015 Member, Program Committee, 5<sup>th</sup> ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing (VipIMAGE 2015), Tenerife, Canary Islands, Spain
- 2015 Co-organizer, Minisymposium on Geometric Modeling and Mesh Generation for Finite Element Applications and Isogeometric Analysis, 18<sup>th</sup> International Conference on Finite Elements in Flow Problems (FEF 2015), Taipei, Taiwan
- 2014 Panelist, Professional Development Session, 23<sup>rd</sup> International Meshing Roundtable London, United Kingdom
- 2014 Co-Chair, 2014 NSF CyberBridges Workshop (CISE/ACI), Arlington, Virginia
- 2014 Program Vice Chair, 10<sup>th</sup> Mississippi State Conference on Differential Equations and Computational Simulations, Mississippi State, Mississippi
- 2014 Member, Program Committee, 2014 International Conference on Big Data (IEEE BigData 2014), Anchorage, Alaska
- 2014 Member, Program Committee, 2014 CompIMAGE Conference, Pittsburgh, Pennsylvania
- 2014 Member, Program Committee, 2014 XSEDE Conference, Technology Track, Atlanta, Georgia
- 2014 Member, Program Committee, 6<sup>th</sup> IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2014), HPC on Cloud Track, Singapore
- 2014 Member, Program Committee, 10<sup>th</sup> IEEE International Conference on e-Science, Workshop of Works in Progress, Guarujá-SP, Brazil
- 2014 Co-organizer, Minisymposium on Recent Advances in Parallel Meshing Algorithms, SIAM Parallel Processing for Scientific Computing Conference (SIAM PP14), Portland, Oregon
- 2014 Judge, EPSCoR Science Fair, Mississippi State University, Mississippi
- 2013 Co-Chair, 2013 NSF CyberBridges Workshop (CISE/ACI), Arlington, Virginia
- 2013 Co-organizer, Minisymposium on Modeling and Computational Methods for Mathematical Biology and Medicine, AMMCS 2013, Waterloo, Ontario, Canada
- 2013 Reviewer, Grace Hopper Celebration of Women in Computing Scholarships

- 2013 Member, Program Committee, 5<sup>th</sup> IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2013), Program Committee, HPC on Cloud Track, Bristol, United Kingdom
- 2013 Member, Program Committee, MICCAI Workshop on Mesh Processing in Medical Image Analysis 2013 (MeshMed 2013), Nagoya, Japan
- 2013 Member, Program Committee, 2013 International Conference on Big Data (IEEE BigData 2013), Silicon Valley, California
- 2013 Member, Program Committee, XSEDE13 Conference, Technology Track, San Diego, California
- 2013 Member, Program Committee, 13<sup>th</sup> IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid 2013), Delft, The Netherlands, Applications and Experiences Track
- 2012 Member, Local Organizing Committee, 9<sup>th</sup> UAB-MSU Conference on Differential Equations and Computational Simulations, Starkville, Mississippi
- 2012 Co-Chair and Co-Founder, NSF CyberBridges Workshop (OCI), Arlington, Virginia
- 2012 Member, Program Committee, MICCAI Workshop on Mesh Processing in Medical Image Analysis 2012 (MeshMed 2012), Nice, France
- 2012 Reviewer, Grace Hopper Celebration of Women in Computing Scholarships
- 2012 Member, Grace Hopper Conference Panels, Workshops, and Papers Committee
- 2012 Member, Program Committee, 8th IEEE International Conference on eScience (eScience 2012), Algorithms and Applications Track, Chicago, Illinois
- 2012 Member, IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2012), Program Committee, HPC on Cloud Track, Taipei, Taiwan
- 2012 Co-organizer, Professional Development Evening, SIAM Annual Meeting (SIAM AN12), Minneapolis, Minnesota
- 2012 Co-organizer, Minisymposium on Recent Advances in Biomedical Modeling, Simulation, and Visualization, SIAM Annual Meeting (SIAM AN12), Minneapolis, Minnesota
- 2011 Panelist, Professional Development Session, 20<sup>th</sup> International Meshing Roundtable, Paris, France
- 2011 Reviewer, Grace Hopper Celebration of Women in Computing Scholarships
- 2011 Member, Grace Hopper Conference Panels and Workshops Committee
- 2011 Co-organizer, Minisymposium on Recent Advances in Mesh Generation and Mesh Quality Improvement, SIAM Conference on Computational Science and Engineering (SIAM CSE11), Reno, Nevada
- 2011 Co-organizer, Minisymposium on Efficient Model Order Reduction Using Graph Theory and Numerical Linear Algebra, SIAM Conference on Computational Science and Engineering (SIAM CSE11), Reno, Nevada
- 2010 Reviewer, Grace Hopper Celebration of Women in Computing Scholarships
- 2010 Panelist, Professional Development Evening, SIAM Annual Meeting (SIAM AN10), Pittsburgh, Pennsylvania
- 2010 Co-Organizer, Professional Development Evening, SIAM Annual Meeting (SIAM AN10), Pittsburgh, Pennsylvania
- 2010 Conference Chair, 19<sup>th</sup> International Meshing Roundtable, Chattanooga, Tennessee
- 2009 Reviewer, Grace Hopper Celebration of Women in Computing Scholarships
- 2009 Co-Organizer, Professional Development Evening, SIAM Annual Meeting (SIAM AN09), Denver, Colorado
- 2009 Doctoral Showcase Committee, 2009 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC 09), Portland, Oregon
- 2009 Co-organizer, Minisymposium on Mesh Quality Measurement and Improvement: An Overview of Recent Techniques, SIAM Conference on Computational Science and Engineering (SIAM CSE09), Miami, Florida

- 2009 Program Committee, 18<sup>th</sup> International Meshing Roundtable, Salt Lake City, Utah
- 2008 Organizer, Minisymposium on Parallel Mesh Techniques for Medical Imaging  
SIAM Conference on Parallel Processing for Scientific Computing (SIAM PP08),  
Atlanta, Georgia
- 2008 Reviewer, Grace Hopper Celebration of Women in Computing Scholarships
- 2007 Member, Poster Committee, 2007 ACM/IEEE International Conference for High  
Performance Computing, Networking, Storage and Analysis (SC 07), Reno, Nevada
- 2006 Member, Grace Hopper Conference Committee on Presentations, Panels, and Workshops,  
San Diego, California

### Journal, Conference, and Book Chapter Refereeing

**Journals:** ACM Crossroads Magazine, ACM Transactions on Mathematical Software, Advances in Engineering Software, AIAA Journal, Algorithms, Applied Numerical Mathematics, ASME Journal of Computer and Information Science and Engineering, Cluster Computing, Communications in Nonlinear Science and Numerical Simulation, Computational Materials Science, Computer Aided Design, Computer Aided Geometric Design, Computer Methods in Applied Mechanics and Engineering, Computer Physics Communications, Computers and Mathematics with Applications, Electronic Journal on Differential Equations, Engineering Computations, Engineering with Computers, Environmental Engineering Science, IEEE Access, International Journal for Numerical Methods in Engineering, Journal of Chemical Physics, Journal of Computational and Applied Mathematics, Journal of Computational Physics, Journal of Computational Science, Journal of Computational Science Education, Journal of Mechanical Engineering Science, Journal of Parallel and Distributed Computing, Journal of Structural Engineering, Mathematics and Computers in Simulation, Numerical Algorithms Parallel Computing, PLOS ONE, SIAM Journal on Numerical Analysis, SIAM Journal on Scientific Computing, SIAM Review, Springer Nature Applied Sciences

**Conferences:** ACM/IEEE Supercomputing Conference (SC); CDER/TCPP Workshop on Education for High-Performance Computing (EduHPC); ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing (VipIMAGE); IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid); IEEE BigData Conference; IEEE Cluster Conference; IEEE Computer Graphics and Applications; IEEE Conference on Cloud Computing Technology and Science (CloudCom); IEEE International Conference on eScience (eScience); IEEE International Parallel and Distributed Processing Symposium (IPDPS); International Conference and Exhibition on Computer Graphics and Interactive Techniques (SIGGRAPH); International Conference on Big Data, Small Data, Linked Data, and Open Data (ALLDATA); International Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING); International Conference on Geometric Modeling and Processing (GMP); International Conference on Numerical Geometry, Grid Generation, and Scientific Computing (NUMGRID/VORONOI); International Conference on Parallel Processing (ICPP); International European Conference on Parallel and Distributed Computing (EURO-PAR); International Meshing Roundtable; International Symposium on Computational Modeling of Objects Represented in Images: Fundamentals, Methods, and Applications (CompIMAGE); International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD); MICCAI Workshop on Mesh Processing in Medical Image Analysis (MeshMed); Workshop on Grid Generation for Numerical Computations (Tetrahedron Workshop); XSEDE Conference

**Book Proposals:** Cambridge Books

**Book Chapters:** Physics of Liquid Matter: Modern Problems

### Proposal Reviewing

- 2020 Panelist, DOE ASCR and FES
- 2020 Ad-hoc Reviewer, DOE ASCR

2020 Panelist, NSF CISE  
2019 Member, Site Visit Team, NSF ENG  
2019 Panelist, NSF CISE  
2018 Ad-hoc Reviewer, DOE ASCR  
2018 Member, Site Visit Team, NSF ENG  
2018 Panelist, NSF CISE  
2017 Member, Site Visit Team, NSF ENG  
2017 Member, Reverse Site Visit Team, NSF ENG and NSF CISE  
2017 Ad-Hoc Reviewer, DOE ASCR  
2017 Ad-Hoc Reviewer, DOE ASCR and FES  
2017 Panelist, NSF CISE  
2017 Panelist, NSF EHR  
2017 Ad-Hoc Reviewer, NSF ENG  
2016 Panelist, Department of Defense  
2016 Panelist, NSF CISE  
2016 Panelist, NSF DGE  
2016 Ad-Hoc Reviewer, NSF ENG  
2015 Ad-Hoc Reviewer, NSF CISE  
2015 Panelist, Department of Defense  
2015 Reviewer, Czech Science Foundation, Czech Republic  
2014 Ad-Hoc Reviewer, Skolkovo Institute of Science and Technology  
2014 Panelist and Ad-Hoc Reviewer, National Science Foundation  
2013 Reviewer, Air Force Office of Scientific Research  
2013 Panelist, Skolkovo Institute of Science and Technology  
2013 Reviewer, Qatar National Research Fund  
2013 Panelist, Air Force Summer Faculty Fellowship Program  
2013 Panelist, NSF DGE, Washington, DC  
2013 Reviewer, Institute for Mathematics and its Applications  
2012 Reviewer, Czech Science Foundation, Czech Republic  
2012 Reviewer, King Fahd University of Petroleum and Minerals, Saudi Arabia  
2012 Panelist, Department of Defense, Arlington, VA  
2012 Panelist, NSF DGE, Washington, DC  
2011 Reviewer, King Fahd University of Petroleum and Minerals, Saudi Arabia  
2011 Panelist, NSF OCI Panels, Arlington, VA  
2011 Chair, Department of Defense Panel, National Harbor, MD  
2011 Panelist, NSF DGE Panel, National Harbor, MD  
2010 Reviewer, Superior Council of the National Fund for Scientific and Technological Development (FONDECYT), Chile  
2010 Panelist, CUBIT External Review Panel (CUBIT is a mesh generation software package developed by Sandia National Laboratories)  
2010 Panelist, NSF MPS Panel, Arlington, VA  
2010 Panelist, Department of Defense, Arlington, VA  
2010 Panelist, NSF DGE, Arlington, VA  
2009 Panelist, CUBIT External Review Panel  
2009 Panelist, Department of Defense, Arlington, VA  
2009 Panelist, NSF DGE, Arlington, VA  
2008 Panelist, Department of Defense, Arlington, VA  
2007 Panelist, NSF CISE, Arlington, VA  
2007 Panelist, Department of Defense, Arlington, VA



**Mentoring**

- 2005- Mentor, Association for Women in Mathematics Mentor Network
- 2015 Mentor, Mentor/Protege Program, 2015 Supercomputing Conference
- 2014 Mentor, Mentor/Protege Program, 2014 Supercomputing Conference
- 2012 Mentor, AWM Graduate Student Poster Session, SIAM Annual Meeting
- 2009 Mentor, Mentor/Protege Program, 2009 Supercomputing Conference

**Other**

- 2020- Chair, Best Paper Prize Committee, Computational Science and Engineering Activity Group, SIAM
- 2009- Visiting Lecturer, SIAM
- 2020 Member, Nominating Committee, Computational Science and Engineering Activity Group, SIAM
- 2012 Chair, Professional Development Evening Working Group, SIAM
- 2011 Member, Professional Development Evening Working Group, SIAM
- 2010 Chair, Professional Development Evening Working Group, SIAM
- 2009 Member, Professional Development Evening Working Group, SIAM

**The University of Kansas Service Activities****Service to the University**

- 2018- Research Computing Strategic Planning Team
- 2020-21 Academic Data Advisory Committee
- 2018-21 University Senate Judicial Board
- 2020 Member, Previous CAREER Winners Panel Discussion, CAREER Writer's Workshop
- 2019 Member, Associate Vice Chancellor for Research Search Committee
- 2019 Member, Center for Research Computing Director Search Committee
- 2019 Member, Library Faculty Awards Committee
- 2019 Member, Research Metrics Committee
- 2019 Member, Faculty Rights Board (Spring 2019 only)
- 2019 Member, NSF CAREER Panel, NSF CAREER Writers' Workshop
- 2018-19 Vice Chancellor of Research Search Committee
- 2018-19 Astronomy and Astrophysics Faculty Search Committee, Department of Physics and Astronomy
- 2016-19 University Senate (elected)
- 2016-19 Faculty Senate (elected)
- 2018 Chancellor's Marshal, Spring Commencement
- 2017-18 University Senate President (elected)
- 2017-18 Faculty Rights Board (FacEx representative)
- 2017-18 University Senate Judicial Board (FacEx representative)
- 2017-18 Chief Information Officer Search Committee
- 2017-18 Astronomy and Astrophysics Faculty Search Committee, Department of Physics and Astronomy
- 2017-18 University Governance Staff Search Committee
- 2016-18 Cluster Owner Subcommittee, Executive Advisory Committee for KU High Performance Computing
- 2016-18 Faculty Senate Executive Committee (FacEx) (elected)
- 2016-18 University Senate Executive Committee (SenEx) (elected)
- 2015-18 Executive Advisory Committee for KU High Performance Computing
- 2016-17 University Senate President Elect (elected)

2016-17 FacEx Appeals Committee (appointed)

### **Service to the School of Engineering**

2018-21 Executive Committee, Engineering Senate  
 2021 President, Executive Committee, Engineering Senate (Spring 2021) (elected)  
 2020 Member, Associate Dean for Academic Affairs Search Committee  
 2019-20 President, Executive Committee, Engineering Senate (elected)  
 2018-19 Secretary, Executive Committee, Engineering Senate (elected)  
 2019 Middle School Summer Camp: Imagination to Creation, Computer Modeling and 3D Printing  
 2019 Middle School Summer Camp: 3D Design and Manufacture of Medical Devices  
 2015-18 Engineering Senate Committee on Academic Standards  
 2017 Faculty Marshal, Spring Commencement  
 2017 Judge, SELF Program Interview Day for Prospective KU Freshmen  
 2016 Panelist, Society of Women in Design Panel  
 2016 Co-Author, Multidisciplinary Scientific Computing with Applications Cluster Hire Proposal  
 2014 Presentation, Society of Women Engineers Mini-Conference

### **Membership on Graduate Student Committees**

Scott Coston, Computer Science, Ph.D. Dissertation Committee  
 Eduardo Jourdan, Aerospace Engineering, Ph.D. Dissertation Committee  
 Salman Rahmani, Aerospace Engineering, Ph.D. Dissertation Committee  
 Brad Torrence, Computer Science, Ph.D. Dissertation Committee  
 Yao Wang, Kansas Geological Survey, Ph.D. Dissertation Committee  
 Anubhav Ghosh, Computer Science, M.S. Project Committee  
 Rachel Morris, Computer Science, M.S. Committee  
 Dung Viet Nguyen, Electrical Engineering, M.S. Committee  
 Chiranjeevi Pippalla, Computer Science, M.S. Project Committee  
 Taylor Walenczyk, Computer Science, M.S. Thesis Committee  
 Yuyu Wang, Physics, Ph.D. Dissertation Committee, Ph.D., May 2020  
 Keita Todoroki, Physics, Ph.D. Dissertation Committee, Ph.D., April 2020  
 Mohammad Alhawwary, Aerospace Engineering, Ph.D. Dissertation Committee, Ph.D., April 2020  
 Emily Caitlyn (Cate) Wisdom, Bioengineering, Ph.D. Dissertation Committee, Ph.D., December 2019  
 Dain Vermaak, Computer Science, Ph.D. Dissertation Committee, Ph.D., May 2019  
 Avary Kolasinski, Mathematics, Ph.D. Dissertation Committee, Ph.D., May 2019  
 Feilin Jia, Aerospace Engineering, Ph.D. Dissertation Committee, Ph.D., May 2019  
 Lance Frazier, Bioengineering, Ph.D. Dissertation Committee, Ph.D., March 2019  
 Kyle Boone, Bioengineering, Ph.D. Dissertation Committee, Ph.D., August 2018  
 Nesar Ramachandra, Physics, Ph.D. Dissertation Committee, Ph.D., July 2018  
 Mark Grebe, Computer Science, Ph.D. Dissertation Committee, Ph.D., April 2018  
 Chenyuan Zhao, Electrical Engineering, Ph.D. Comprehensive Exam Committee, moved to Virginia Tech, August 2017  
 Dhvani Pandya, Computer Science, M.S. Project Committee, M.S., December 2019  
 Casey Sader, Computer Science, M.S. Project Committee, M.S., June 2019  
 Sushil Pratap Bharati, Electrical Engineering, M.S. Thesis Committee, M.S., May 2018  
 Ravali Ginjupalli, Computer Science, M.S. Project Committee, M.S., June 2017  
 Melanie Weilert, Bioengineering, M.S. Thesis Committee, M.S., May 2017  
 Sergio Enrique Leon Cuen, Computer Science, M.S. Project Committee, M.S., August 2016  
 Lance Frazier, Bioengineering, M.S. Thesis Committee, M.S., May 2016

Kris Von Ahnen, Computer Science, M.S. Project Committee, M.S., December 2015

### **Membership on Undergraduate Student Committees**

Ethan Ward, Computer Science, B.S. Honors Research Committee, B.S., May 2018

### **Service to the Department of Electrical Engineering and Computer Science**

2020- Director of the Bachelor of Science in Interdisciplinary Computing Program  
 2020- Member, ABET Committee (Interdisciplinary Computing and Computer Science Representative)  
 2017- Faculty Mentor, Cuncong Zhong (not serving as mentor in Fall 2020 due to sabbatical)  
 2017- Member, Promotion and Tenure Committee  
 2016- Member, Qualifying Examination Committee  
 2015- Advising, Undergraduate Computer Science, Interdisciplinary Computing, and Computer Engineering Majors  
 2020 Member, Computer Science Hiring Plan Committee  
 2019-20 Chair, Machine Learning Faculty Search Committee  
 2018-20 Chair, Faculty Awards Committee  
 2018-19 Faculty Mentor, Matthew Moore  
 2017-18 Member, Theoretical Computer Science Faculty Search Committee  
 2016-17 Chair, Committee on Restructuring the Computer Science M.S. Degree  
 2016-17 Member, Static Analysis Faculty Search Committee  
 2015 Committee Chair, Creation of Computational Science and Engineering Focus Area  
 2014-15 Member, Bioinformatics Faculty Search Committee

### **Service to the Bioengineering Program**

2020 Qualifying Examination Committee  
 2019- Biomedical Engineering Degree Planning Team  
 2018- Director, Computational Bioengineering Track  
 2018 Director of Bioengineering Search Committee  
 2017-18 Bioengineering Certificate Oversight Committee  
 2015-18 Co-Director, Biomechanics and Neural Engineering Track  
 2014-18 Graduate Admissions Committee  
 2014-18 Qualifying Examination Committee

### **Mississippi State University Service Activities**

#### **Service to the High Performance Computing Collaboratory**

2013-14 HPC<sup>2</sup> Computer User Group (Center for Computational Sciences Representative)

#### **Service to the Department of Mathematics and Statistics**

2013-14 Colloquium Committee  
 2012-14 Computing and Technology Committee  
 2012-14 Graduate Student Recruitment Committee  
 2012-14 Numerical Analysis Course Committee

### **Membership on Graduate Student Committees**

Joseph Ferguson, Mathematical Sciences, Ph.D. student

### **Service to the College of Engineering**

2014 Outreach talks on computational biomedical science for the Mississippi State Bagley College of Engineering Summer Engineering Academies. Talks for the Engineering for Everyone Camp (rising 10-12 grade students) and the BATMEN Camp (middle school boys)

## The Pennsylvania State University Service Activities

### Service to the Colleges of Engineering/Science/Information Science & Technology

#### Membership on Graduate Student Committees

Yasharth Bhartiya, Mechanical Engineering, Ph.D., May 2011.  
 Anirban Chatterjee, Computer Science and Engineering, Ph.D. December 2011.  
 Alexandre Jolibois, Acoustics, Ph.D. Comprehensive Exam, July 2011.  
 Sue Kase, Information Sciences and Technology, Ph.D. December 2008.  
 Gunseop Lee, Computer Science and Engineering, Ph.D. Comprehensive Exam, December 2011  
 Jeffrey Magedanz, Nuclear Engineering, Ph.D., December 2013.  
 Junseok Oh, Civil Engineering, Ph.D. December 2009.  
 Inghmar Rauschert, Computer Science and Engineering, Ph.D. Comprehensive Exam, July 2009.  
 Varun Reddy, Bioengineering, Ph.D. Comprehensive Exam, September 2009.  
 Jiakou Wang, Mathematics, Ph.D. August 2007.  
 Ning Yang, Bioengineering, Ph.D. December 2009.  
 Xin Yang, Computer Science and Engineering, Ph.D. December 2007.  
 Kun Zhou, Mathematics, Ph.D., May 2012.  
 Matthew Baran, Mathematics, M.S. May 2012.  
 Kelly Fermoyle, Computer Science and Engineering, M.S. December 2010.  
 Daniel Kwon, Civil Engineering, M.S. August 2009.

#### Service to the College of Engineering

2012 Penn State Society of Women Engineers Stayover Dinner (Prospective Female Students)  
 2012 Engineering Undergraduate Council Engineering Week Event  
 2011 Pre First Year (PREF) Outreach Effort focusing on computational biomedical science, scientific visualization, and bioengineering for entering PSU freshmen minority students; Developed workshop in conjunction with Penn State Visualization Group and Department of Bioengineering  
 2008 College of Engineering WEPO Welcome Dinner (Female Freshmen)  
 2007 Engineering Center, General advisor to all Computer Science and Computer Engineering students at the Freshman/Sophomore Level, Fall 2007  
 2007 College of Engineering WEPO Welcome Dinner (Female Freshmen)  
 2007 Panelist, Clare Boothe Luce Fellowship Luncheon  
 2006 Presenter, College of Engineering, Graduate Cohort Workshop

#### Service to the Department of Computer Science and Engineering

2011-12 Member, Climate/Social and Faculty Development Committee  
 2007-12 Advisor to 7-14 undergraduate Computer Science/Computer Engineering majors  
 2006-12 Member, Scientific Computing/Numerical Analysis Qualifying Exam Committee  
 2010-11 Member, IT Committee  
 2010-11 Chair, Scientific Computing/Numerical Analysis Qualifying Exam Committee  
 2006-11 Member, Climate and Social Committee  
 2009-10 Member, Faculty Development and Teaching Issues Committee  
 2009-10 Member, IT and Lab Evaluation Committee  
 2009-10 Chair, Climate/Social Committee  
 2006-10 Member, Graduate Committee  
 2008-09 Colloquium Chair  
 2007-08 Chair, Scientific Computing/Numerical Analysis Qualifying Exam Committee (3 semesters)  
 2006-07 Member, English Proficiency Exam Committee