

**CONTACT
INFORMATION**

Assistant Professor
Department of Mathematics
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**RESEARCH
INTERESTS**

Machine learning: Multiscale manifold regularization, convolution neural network (CNN), graph convolution neural network (GNN), multitask learning, transfer learning, autoencoder, generative adversarial network (GAN), reinforcement learning
Data analysis: low-dimensional mathematical representations, knowledge based driven data analysis
Mathematical models for bioscience: Differential geometry representations, multiscale weighted colored algebraic graphs, topological learning
Quantitative systems pharmacology: Develop mechanistic system biology model, investigate potential therapeutic drug targets
Scientific computing: Computational electrodynamics, electrostatic solvation and binding analysis, computational fluid dynamics

**RESEARCH GRANT NSF DMS-215180 (awarded) (\$306,750.00), 09/01/2022 – 08/31/2025
AWARDS**

- Role: PI (Co-PI: Sally R. Ellingson)
- Topic: Robust and reliable mathematical models for biomolecular data via differential geometry and graph theory
- Aim: The goal of this study is to develop new spectral graph theory and differential geometry based approaches for biomolecular data analysis

NSF CDSE&E-MSS-2053284 (awarded) (\$150,000.00), 09/01/2021 – 08/31/2024

- Role: PI
- Topic: Collaborative Research: Integrating Algebraic Topology, Graph Theory, and Multiscale Analysis for Learning Complex and Diverse Datasets
- Aim: This project will develop novel topology and graph theory-based approaches to revolutionize the current practice in data analysis and to deal with the challenge of structurally complex data and diverse data

Michigan Economic Development Corp (awarded) (\$75,000.00), 02/01/2020 – 01/31/2021

- Role: Co-PI (PI: Guo-Wei Wei)
- Topic: MAID2: Mathematical Artificial Intelligence for Drug Discovery
- Aim: The goal of this study is to develop a commercializable MAID2 software package

Pfizer (awarded) (\$221,128.00), 10/01/2018 – 09/31/2020

- Role: Co-PI (PI: Guo-Wei Wei)
- Topic: Topology and manifold based machine learning for de novo hit identification
- Aim: The goal of this study is to develop a mathematical models for drug virtual screening

Bristol Myers Squibb (awarded) (\$119,000.00), 01/05/2019 – 12/31/2019

- Role: PI
- Topic: Quantitative systems pharmacological modeling of drug impact to heart failure - Patient study
- Aim: The goal of this study is to develop mathematical models for drug pharmacodynamics and efficacy

Bristol Myers Squibb (awarded) (112,000.00) 02/27/2018-12/26/2019

- Role: Co-PI (PI: Guo-Wei Wei)
- Topic: Quantitative systems pharmacological modeling of drug impact to heart failure— Modeling and simulation of sodium and potassium based water regulation.

- Aim: The goal of this study is to develop mathematical models for drug pharmacodynamics and efficacy

Bristol Myers Squibb (awarded) (150,000.00) 12/20/2017-12/19/2018

- Role: Co-PI (PI: Guo-Wei Wei)
- Topic: Quantitative systems pharmacological modeling of drug impact to heart failure.
- Aim: The goal of this study is to develop mathematical models for drug pharmacodynamics and efficacy

NIH-R21 (pending) (\$397,312.00), 09/01/2022 – 08/31/2024

- Role: Co-I (PI: David Murrugarra)
- Topic: Improving Reliability on RNA Secondary Structure Prediction via Integration of Topological Data Analysis and Deep Learning
- Aim: The goal of this study is to develop new TDA-based descriptors to enhance the accuracy and reliability of RAN secondary structure predictions

PATENTS

System and Methods for Machine Learning for Drug Design and Discovery

(Publication Number:US 2021/0027862 A1)

Authors: Guo-Wei Wei, Duc Nguyen, and Zixuan Cang

HIGHLIGHTS

D3R Grand Challenges, a world-wide competition in drug design

- In D3R Grand Challenge 4 (2018-2019), I was the top performer with the most top three submissions
- In D3R Grand Challenge 3 (2017-2018), my submissions were ranked 1st in 6 of a total of 26 contests
- In D3R Grand Challenge 2 (2016-2017), my submission were ranked 1st for the binding affinity ranking of Set 1 in Stage 2

Teaching

- Developed machine learning course for Actuarial Science Program and Capstone course at Michigan State University

Software packages development

- **FRI**: Online server for the flexibility analysis of biomolecules based on flexibility and rigidity index
- **RI-Score**: Online server for geometric graph theory or rigidity index (RI) based scoring function for protein ligand binding affinity prediction
- **DG-GL**: Online server for differential geometry based geometric data analysis (DG-GDA) of molecular datasets
- **AGL-Score**: Online server for algebraic graph theory based protein-ligand binding scoring, ranking, docking and screening.

EDUCATION

The University of Alabama, Tuscaloosa, AL

Ph.D., Mathematics

Jan. 2011 – Aug. 2015

- Thesis Topic: *High order FDTD methods for electromagnetic systems in dispersive inhomogeneous media*
- Adviser: Shan Zhao

Université d'Orléans, Orléans, France

M.S., Applied Mathematics Aug. 2009 – Aug. 2010

- Thesis Topic: *Preservation of the Discrete Geostrophic Equilibrium in Shallow Water Flows*
- Adviser: Emmanuel Audusse

University of Science, Ho Chi Minh City, Vietnam

B.S., Mathematics and Computer Science Aug. 2005 – May 2009

- Thesis Topic: *Multiple positive fixed points of nonlinear operators on ordered Banach spaces*
- Adviser: Duc M. Duong

APPOINTMENTS

Assistant Professor (Tenure Track) Aug. 2020 – Present
Department of Mathematics, University of Kentucky**Assistant Professor (Fixed Term)** Jan. 2019 – Jul. 2020
Department of Mathematics, Michigan State University**Research Associate** Aug. 2015 – Dec. 2018
Department of Mathematics, Michigan State University
Mentor: Guowei Wei**Graduate Research Assistantship** Aug. 2013 – Aug. 2015
Department of Mathematics, The University of Alabama**Graduate Teaching Assistantship** Jan. 2011 – May 2013
Department of Mathematics, The University of Alabama**Lecturer** Aug. 2009 – Aug. 2010
Department of Mathematics and Computer Science, University of Science, Vietnam

MENTOR

Postdocs

- Masud Rana (UK, July. 2021 – Present)

Graduate Students

- Farjana Tasnim Mukta (UK, Aug. 2021 – Present)
- David Storey (MSU, Sept. 2018 – Jul. 2020)
- Christopher Matthew Grow (MSU, Sept. 2018 – Jul. 2020)
- Rui Wang (MSU, Aug. 2018 – Jul. 2020)
- Timothy Andrew Szocinski (MSU, May 2018 – Jul. 2020)

Undergraduate Students

- Benjamin Philpot (UK, May 2022 – Present)
- Avery Meyer (UK, May 2022 – Present)
- Cecilia Mikat (Professorial Assistantship (PA) Program, MSU Aug. 2018 – May 2019)
- Jason Charles Kenny (Professorial Assistantship (PA) Program, MSU Aug. 2018 – May 2019)

- Kyle Thomas Cole (Professorial Assistantship (PA) Program, MSU Aug. 2018 – May 2020)
- Jianbin Chen (MSU, Aug. 2018 – May 2020)
- Jonathon Fleck (Professorial Assistantship (PA) Program, MSU Aug. 2016 – May 2020)
- Nick Smentowski (Professorial Assistantship (PA) Program, MSU Aug. 2016 – May 2018)
- Tian Xiao (With Prof. Guowei Wei, Summer Research Opportunities Program at MSU, 2016)

TEACHING
EXPERIENCE

University of Kentucky, Lexington, KY

Instructor

- (CS/EGR/MA 537) Numerical Analysis Spring 2022
- (MA/BIO 337) Mathematical Modeling in the Life Sciences Spring 2022
- (MA 138) Calculus II with Life Science Fall 2020, Fall 2021
- (MA 421G) Mathematics Introduction to Deep Learning Spring 2021
- (MA 777) Mathematical Seminar Spring 2021

Michigan State University, East Lansing, MI

Instructor

- (MTH 496 (Capstone Course)) Machine learning Spring 2018, Spring 2019, Fall 2019
- (MTH 132) Calculus I Fall 2018
- (MTH 490) Predictive Analysis Spring 2018
- (MTH 309) Linear Algebra Spring 2016, Fall 2016, Spring 2017

The University of Alabama, Tuscaloosa, AL

Grader

- (MATH 126) Calculus II Fall 2011, Spring 2012

Tutor

- Mathematics Technology Learning Center Spring & Fall 2011, 2012
- Math tutor in Paty Hall Fall 2011

Training

- Attained conditional pass for GTA training on teaching methods Fall 2013
- Attended GTA Workshop Fall 2011

Other experience

- Member of the test development committee for Alabama Statewide High School Mathematics Contest Fall 2011, Spring & Fall 2012
- Proctored Alabama Statewide High School Mathematics Contest Spring 2011, 2012

University of Sciences, Ho Chi Minh City, Vietnam

Teaching Assistant

- Real Analysis I Fall 2009

DEPARTMENTAL SERVICE Member, Numerical Analysis Prelim committee 2022-2023
Member, Postdoc Recruiting Committee 2021-2022

DISSERTATION COMMITTEES Edison Muclari, PhD in Mathematics In Progress
Cole Pospisil, PhD in Mathematics In Progress
Susanna Lange, PhD in Mathematics 2022

EXTERNAL SERVICE **Editorial Board**, PeerJ Physical Chemistry 2021 – Present
Assistant Editors, Computational and Mathematical Biophysics 2015 – Present

Lead Guest & Guest Editors

- PeerJ Special Issue: AI-driven chemistry for drug design 2021
- CMB Special Issue: Drug design and discovery for COVID-19 2021
- CMB Special Issue: Mathematical Molecular Bioscience and Biophysics 2019
- CMB Special Issue: Computational and Mathematical Drug Design and Discovery 2018

Journal Reviewer

- Scientific Report
- Bioinformatics
- Journal of Computer-Aided Molecular Design
- International Journal of Numerical Methods in Biomedical (x3)
- Communications in Information & Systems (x5)
- Journal of Computation Chemistry
- Bioinformatics and Biology Insights
- PLOS Computational Biology
- Foundations of Data Science
- Inverse Problems and Imaging
- Computational and Mathematical Biophysics (x3)
- Briefings in Bioinformatics (x2)
- Journal of Chemical Information and Modeling (x16)
- Mathematical Biosciences and Engineering (x2)
- Journal of the Royal Society Interface (x3)
- ACS Omega (x2)
- Computers in Biology and Medicine
- PeerJ Computer Science
- Computers and Mathematics with Applications
- Current Research in Structural Biology

Book Reviewer, Review of new book proposal, publisher: Wiley-VCH 2022

Grant Reviewer, NSF-SCALE MoDL 2021

Conference Organizer

- Organizer (with David Murrugarra), Minisymposium on Molecular Biosciences: Advances in molecular property and structure predictions, SIAM Conference on the Life Sciences July 11-14, 2022

ACADEMIC INVITED VISIT	Mathematical Biosciences Institute Ohio State University, Columbus, OH	Aug. 2015 – Dec. 2015
	Laboratoire Analyse, Géométrie et Applications Universite Paris 13, Paris, France	May 2010 – Aug. 2010
HONORS AND AWARDS	SCMLLS Travel Support Fund <i>(For presenting a poster at Scientific Computing meets Machine Learning and Life Sciences conference at Texas Tech University)</i>	2019
	NSF-CBMS Travel Support Fund <i>(For giving a talk at NSF-CBM conference at University of Alabama)</i>	2019
	Field Institute Travel Support Fund <i>(For giving a talk at Workshop on the Mathematics of Drug Design/Discovery in Field Institute at University of Toronto)</i>	2018
	MBI Travel Support Fund <i>(For attending conferences in Mathematical Biosciences Institute at Ohio State University)</i>	2013, 2016
	College of Arts & Sciences Outstanding Dissertation Award, University of Alabama <i>(Awarded to a Doctoral Candidate who has the best dissertation in College of Arts & Sciences division)</i>	2016
	Outstanding Research Award, University of Alabama <i>(Awarded to a Doctoral Candidate who has the best research performance in Department of Mathematics)</i>	2015
	IMA Travel Support Fund <i>(For attending conferences in Institute for Mathematics and its Applications at University of Minnesota)</i>	2015
	Best Poster Prize, SIAM-SEAS <i>(Awarded to the graduate student who has the best poster in SIAM-SEAS 2015 conference)</i>	2015
	AMS Travel Support Fund <i>(For attending 2015 Joint Math Meetings)</i>	2015
	Ainsworth Fellowship, University of Alabama <i>(Awarded to the top three students in the Mathematics Department, University of Alabama with outstanding research performance)</i>	2014 – 2015
	Travel Support Fund, University of Alabama <i>(For attending meetings and conferences)</i>	2013, 2014
	NSF funded Graduate Research Assistantship (DMS-1016579)	2013 – 2015
	Henry Miller Fellowship, University of Alabama <i>(Awarded to students in the Mathematics Department, University of Alabama with excellent performance on qualifying exam and teaching)</i>	2011 – 2013
	Travel Award for Dissertation Research Enhancement, PUF <i>(Awarded to top ranking students in PUF-Master Program)</i>	2010
	Honors Program Scholarship, University of Sciences, Vietnam <i>(Awarded to students with exceptional performance on national entrance exams)</i>	2005 – 2009

REFEREED
JOURNAL
PUBLICATIONS

- [25] Timothy Szocinska, **Duc Duy Nguyen**, and Guo-Wei Wei, AweGNN: Auto-parametrized weighted element-specific graph neural networks for molecules *Computers in Biology and Medicine*, doi: 10.1016/j.complbiomed.2021.104460, (2021)
- [24] Dong Chen, Kaifu Gao, **Duc Duy Nguyen**, Xin Chen, Yi Jiang, Guo-Wei Wei, and Feng Pan, Algebraic graph-assisted bidirectional transformers for molecular property prediction, *Nature Communications*, doi: 10.1038/s41467-021-23720-w, (2021)
- [23] **Duc Nguyen**, Kaifu Gao, Jiahui Chen, Rui Wang, and Guo-Wei Wei, Unveiling the molecular mechanism of SARS-CoV-2 main protease inhibition from 137 crystal structures using algebraic topology and deep learning, *Chemical Science*, doi: 10.1039/D0SC04641H, (2020)
- [22] Jiahui Chen, Kaifu Gao, Rui Wang, **Duc Nguyen**, and Guo-Wei Wei, Review of COVID-19 antibody therapies, *Annual Review of Biophysics*, **50(1)**, (2020)
- [21] Kaifu Gao, **Duc Nguyen**, Meihua Tu, and Guowei Wei, Generative network complex for the automated generation of druglike molecules, *Journal of Chemical Information and Modeling*, doi: 10.1021/acs.jcim.0c00599 (2020)
- [20] Kaifu Gao, **Duc Duy Nguyen**, Jiahui Chen, Rui Wang, and Guo-Wei Wei, Repositioning of 8565 Existing Drugs for COVID-19, *The Journal of Physical Chemistry Letters*, doi: 10.1021/acs.jpcclett.0c01579 (2020)
- [19] Rui Wang, **Duc Duy Nguyen**, and Guo-Wei Wei, Persistent spectral graph, *International journal for numerical methods in biomedical engineering*, doi: 10.1002/cnm.3376 (2020)
- [18] Kaifu Gao, **Duc D. Nguyen**, Vishnu Sresht, Alan M. Mathiowetz, Meihua Tu and Guo-Wei Wei, Are 2D fingerprints still valuable for drug discovery?, *Physical Chemistry Chemical Physics*, doi: 110.1039/D0CP00305K (2020)
- [17] Jian Jiang, Rui Wang, Menglun Wang, Kaifu Gao, **Duc D. Nguyen**, and Guo-Wei Wei, Boosting tree-assisted multitask deep learning for small scientific datasets, *Journal of Chemical Information and Modeling*, doi: 10.1021/acs.jcim.9b01184 (2020)
- [16] **Duc D. Nguyen**, Zixuan Cang, and Guo-Wei Wei, A review of mathematical representations of biomolecular data, *Physical Chemistry Chemical Physics*, doi: 10.1039/C9CP06554G (2020)
- [15] **Duc D. Nguyen**, Kaifu Gao, Menglun Wang, and Guo-Wei Wei, MathDL: Mathematical deep learning for D3R Grand Challenge 4, *Journal of Computer Aided Molecular Design*, doi:10.1007/s10822-019-00237-5 (2019)
- [14] Christopher Grow, Kaifu Gao, **Duc D. Nguyen**, and Guo-Wei Wei, Generative network complex (GNC) for drug discovery, *Communications in Information and Systems*, **19(3)**, 241–277 (2019)
- [13] **Duc D. Nguyen** and Guo-Wei Wei, AGL-Score: Algebraic Graph Learning Score for Protein-Ligand Binding Scoring, Ranking, Docking, and Screening, *Journal of Chemical Information and Modeling*, (2019)
- [12] **Duc D. Nguyen** and Guo-Wei Wei, DG-GL: Differential geometry based geometric learning of molecular datasets, *International Journal for Numerical Methods in Biomedical Engineering*, **35(3)**, e3179 (2019)

- [11] **Duc Duy Nguyen**, Zixuan Cang, Kedi Wu, Menglun Wang, Yin Cao and Guo-Wei Wei, Mathematical deep learning for pose and binding affinity prediction and ranking in D3R Grand Challenges, *Journal of Computer-Aided Molecular Design*, **33**, 71–82 (2018)
- [10] **Duc D Nguyen**, Tian Xiao, Menglun Wang and Guo-Wei Wei, Rigidity strengthening: A mechanism for protein-ligand binding, *Journal of Chemical Information and Modeling*, **57**, 1715–1721 (2017)
- [9] Bao Wang, Zhixiong Zhao, **Duc Nguyen** and Guo-Wei Wei, Feature functional theory - binding predictor (FFT-BP) for the blind prediction of binding free energy, *Theoretical Chemistry Account*, **136**, 55 (2017)
- [8] **Duc D Nguyen**, Bao Wang and Guo-Wei Wei, Accurate, robust and reliable calculations of Poisson-Boltzmann binding energies, *Journal of Computational Chemistry*, **38**, 941–948 (2017)
- [7] **Duc D Nguyen** and Guo-Wei Wei, The impact of surface area, volume, curvature and Lennard-Jones potential to solvation modeling, *Journal of Computational Chemistry*, **38**, 24–36 (2017)
- [6] **Duc D Nguyen**, Kelin Xia and Guo-Wei Wei, Generalized flexibility-rigidity index, *Journal of Chemical Physics*, **144**, 234106 (2016)
- [5] **Duc D. Nguyen** and S. Zhao, A second order dispersive FDTD algorithm for transverse electric Maxwell's equations with complex interface, *Computers and Mathematics with Applications*, **71**, 1010–1035 (2016)
- [4] Y. Zhang, **D.D. Nguyen**, K. Du, J. Xu, and S. Zhao, Time-domain numerical solutions of Maxwell interface problems with discontinuous electromagnetic waves, *Advances in Applied Mathematics and Mechanics*, **8**, 353–385 (2016)
- [3] **Duc D. Nguyen** and S. Zhao, A new high order dispersive FDTD method for Drude material with complex interfaces, *Journal of Computational and Applied Mathematics*, **285**, 1–14 (2015)
- [2] **Duc D. Nguyen** and S. Zhao, Time-domain matched interface and boundary (MIB) modeling of Debye dispersive media with curved interfaces, *Journal of Computational Physics*, **278**, 298–325, (2014)
- [1] **Duc D. Nguyen** and S. Zhao, High order FDTD methods for transverse magnetic modes with dispersive interfaces, *Applied Mathematics and Computation*, **226**, 699–707, (2014)
- CONFERENCE PUBLICATIONS
- [1] E. Audusse, R. Klein, **D. D. Nguyen**, S. Vater, Preservation of the Discrete Geostrophic Equilibrium in Shallow Water Flows, *Finite Volumes for Complex Applications VI Problems & Perspectives Springer Proceedings in Mathematics*, **04**, pp. 59–67, (2011)
- SUBMITTED
- [1] Ekaterina Rapinchuk, **Duc Nguyen**, and Guo-Wei Wei, Multiscale Laplacian Learning, (2022)
- [2] Masud Rana, **Duc Nguyen**, EISA-Score: Element Interactive Surface Area Score for Protein-Ligand Binding Affinity Prediction , (2022)

- IN PROGRESS [1] Sally R. Ellingson, **Duc Nguyen**, and Masud Rana, Robust and reliable training data for machine learning based models in drug design, (2022)
- [2] Masud Rana, **Duc Nguyen**, Multi-atom types improving algebraic graph learning of molecular datasets, (2022)
- CONFERENCES Topology-based Learning, Biomolecular Topology and Related Topics, Institute for Mathematical Sciences, Singapore, Jul. 11–15, 2022, Virtual Format (invited talk)
- Joint Mathematics Meetings, Seattle, WA, Apr. 8, 2022, Virtual Format (invited talk)
- The Fourth TSIMF Conference on Computational and Mathematical Bioinformatics and Biophysics, Dec. 12–15, 2021, Virtual Format (invited talk)
- University of Georgia Applied Mathematics Seminar, Mar. 10, 2021
- Georgia Southern University General Mathematics Sciences Colloquium, Feb. 26, 2021
- TSIMF Conference on Computational and Mathematical Bioinformatics and Biophysics, Dec. 19–23, 2020, Virtual Format (invited talk)
- Commonwealth Computational Summit 2020 , Oct. 12–16, 2020, Virtual Format (invited lightning talk)
- Fall Eastern Sectional Meeting , Oct. 03–04, 2020, Virtual Format (invited talk)
- SIAM Conference on Mathematics of Data Science 2020 , May 04–June 30, 2020, Virtual Format (invited talk)
- Scientific Computing meets Machine Learning and Life Sciences, Oct. 07–09, 2019, Texas Tech University, Lubbock, TX (contributed poster)
- D3R 2019 Workshop, Aug. 22–23, 2019, Hotel La Jolla, La Jolla, CA (participant)
- NSF-CBMS Conference: Mathematical Molecular Bioscience and Biophysics, May 13–17, 2019, University of Alabama (invited talk)
- Workshop on the Mathematics of Drug Design/Discovery, Jun. 4–7, 2018, The Fields Institute, University of Toronto, Canada (invited talk)
- D3R Workshop, Feb. 22–23, 2018, Scripps Institution of Oceanography, UC San Diego, CA (participant)
- The 3rd Annual Meeting of SIAM Central States Section, Sep. 30–Oct. 1, 2017, Colorado State University, Fort Collins, CO (invited talk)
- Workshop 1: Topological, Geometric, and Statistical Techniques in Biological Data Analysis, Sep. 12–16, 2016, Mathematical Biosciences Institute, Ohio State University, OH (contributed poster)
- SIAM Conference on the Life Sciences (LS16), Jul. 11–14, 2016 The Westin Boston Waterfront, Boston, Massachusetts (invited speaker)
- Workshop 4: Mathematical Challenges in Drug and Protein Design, Dec. 7–11, 2015, Mathematical Biosciences Institute, Ohio State University , OH (contributed poster)
- Workshop 3: Modeling and Computation of Transmembrane Transport, Nov. 16–20, 2015, Mathematical Biosciences Institute, Ohio State University , OH (participant)
- Workshop 2: Multiple Faces of Biomolecular Electrostatics, Oct. 12–16, 2015, Mathematical Biosciences Institute, Ohio State University , OH (participant)

- Workshop 1: Geometric and Topological Modeling of Biomolecule, Sep. 28–Oct. 2, 2015, Mathematical Biosciences Institute, Ohio State University, OH (participant)
- Mathematics of Biological Charge Transport: Molecular and Beyond, Jul. 20–24, 2015, IMA, University of Minnesota, Minneapolis, MN (contributed poster)
- SIAM Southeastern Atlantic Section Conference (SIAM-SEAS 2015), Mar. 20–22, 2015, University of Alabama at Birmingham, Birmingham, AL (contributed poster)
- Graduate Recruiting Expo 2015, Feb. 27, 2015, University of Alabama, Tuscaloosa, AL (contributed talk)
- 2015 Joint Mathematics Meetings, Jan. 10–13, 2015, San Antonio, TX (contributed talk)
- 3MT - Three Minute Thesis Competition: Semi-Final Competition: Department Winners compete, Nov. 05, 2014, University of Alabama, Tuscaloosa, AL (contributed talk)
- Joint Applied Mathematics Meeting, University of Alabama at Birmingham, Birmingham, Nov. 8, 2014 (contributed talk)
- South Central Conference on Advanced Numerical Methods and Applications, Apr. 5–7, 2013, University of Arkansas at Little Rock (contributed poster)
- Mathematical Challenges in Biomolecular/Biomedical Imaging and Visualization, Feb. 18–22, 2013, MBI, Ohio State University (contributed poster)
- 25th Annual University of Alabama System Applied Mathematics Meeting, Nov. 3, 2012, University of Alabama in Huntsville (participant)
- Ninth Mississippi State – UAB conference on Differential Equations & Computational Simulations, Oct. 4–6, 2012, Mississippi State University (participant)
- 36th Annual SIAM Southeastern Atlantic Section Conference (SEAS 2012), Mar. 24–25, 2012, University of Alabama in Huntsville (participant)
- Joint Applied Mathematics Meeting, University of Alabama at Birmingham, Birmingham, Nov. 5, 2011 (participant)
- 2nd Midwest Conference on Mathematical Methods for Images and Surfaces, Michigan State University, East Lansing, Aug. 27–28, 2011 (participant)