



Associate Vice President for
Research - DEI Initiatives

University Diversity and
Social Transformation
Professor of Mathematics

📍 University of Michigan
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Ann Arbor, MI 48109-1043

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Trachette Jackson

Applied Mathematician, Mathematical Oncologist

Education

Ph.D. in Applied Mathematics

Sep 1994 - Aug 1998

University of Washington

BSc. in Mathematics

Aug 1990 - May 1994

Arizona State University

Summa Cum Laude, University Honors, Honors in Major

Academic Appointments

**Associate Vice President for Research -
DEI Initiatives**

Oct 2023 - present

University of Michigan

- 🌐 [OVPR Website](#)

**Assistant Vice President for Research -
DEI Initiatives**

April 2022 - Oct 2023

University of Michigan

**Diversity and Social Transformation
Professor**

Aug 2021 - present

University of Michigan

- 🌐 [UDSTP Website](#)

Rogel Cancer Center Member

April 2018 - present

University of Michigan

Professor of Mathematics

Aug 2008 - present

University of Michigan

Associate Professor of Mathematics

Sept 2003 - Aug 2008

University of Michigan

Assistant Professor of Mathematics

Sept 2000 - Aug 2003

University of Michigan

**John Hope Franklin Postdoctoral
Fellow**

Sept 1999 - Aug 2000

Duke University

Postdoctoral Fellow

Sept 1998 - Aug 1999

University of Minnesota

Institute for Mathematics and its Applications

NSF Graduate Fellow

Sept 1995 - June 1998

University of Washington

Department of Applied Mathematics

Honors and Awards

- 2023 Leah Edelstein-Keshet Prize from the Society of Mathematical Biology
- 2021 First African American to become a Fellow of the Society of Industrial and Applied Mathematics (SIAM)
- 2021 University Diversity and Social Transformation Professorship
- 2020 Featured Article in LSA Magazine [🔗](#)
- 2020 "This Is Michigan" Campaign Feature [🔗](#)
- 2018 Highlighted in *Forbes* magazine article, Girls, If You Want To Change The World*, Try STEM [🔗](#)
- 2018 Voted into the Inaugural class of the Association for Women in Mathematics (AWM) Fellows [🔗](#)
From the AWM website: *The AWM Fellows program recognizes individuals who have demonstrated a sustained commitment to the support and advancement of women in the mathematical sciences, consistent with the AWM mission to encourage women and girls to study and to have active careers in the mathematical sciences, and to promote equal opportunity and the equal treatment of women and girls in the mathematical sciences.*
- 2018 Featured in the American Mathematical Society (AMS) Notices for Women's History Month [🔗](#)
From the AMS website: *Within the US, women from diverse social, economic, and racial backgrounds have slowly found their footing and risen to the forefront in mathematics. We take this opportunity to honor some of them.*
- 2016 Featured in STEM Gems: How 44 Women Shine in Science, Technology, Engineering and Mathematics, And How You Can Too! [🔗](#)
From the STEM Gems website: *This book tells the stories of 44 inspiring women in STEM to show girls and young women around the world a new set of women heroes to look up to.*
- 2014 DAPCEP Real McCoy Award
- 2013 Featured in Darwin's Extra Sense
This is a documentary project on the new math of the life sciences that was premiered at the Joint Math Meetings on January 11th, 2013. The movie features leaders in the field of Mathematical Biology and is freely available. [🔗](#)
- 2013 Interviewed for the Scientific American blog, "Roots of Unity" and AWM News
- 2012 Simon's Foundation Fellowship Advertised in the NY Times
- 2012 Elizabeth Caroline Crosby Award
- 2012 Elected to the IMA Board of Governors
- 2011 Imes & Moore Mentorship Award
From the LSA website: *The Imes & Moore Mentorship Award is presented to faculty members who have made exceptional contributions toward recruiting and mentoring graduate students in the sciences from disadvantaged and non-traditional backgrounds.*
- 2011 Featured in a 2-page article in SIAM News
- 2011 Featured on the AMS Women in Mathematics Poster
- 2010 Blackwell-Tapia Award
From the Blackwell-Tapia website: *The Blackwell-Tapia Prize recognizes a mathematician who has contributed significantly to research in his or her area of expertise, and who has served as a role model for mathematical scientists and students from underrepresented minority groups, or has contributed in other significant ways to addressing the program of underrepresentation of minorities in math.*
- 2008 Diverse: Issues In Higher Education Standout Scholar
- 2005 James S. McDonnell 21st Century Research Award
- 2003 Robert D. and Janet E. Neary Faculty Research Award
- 2003 Amoco Faculty Undergraduate Teaching Award
- 2003 Alfred P. Sloan Research Fellowship
- 2003 WWNF Career Enhancement Fellowship for Junior Faculty
- 2003 Elizabeth Caroline Crosby Research Award
- John Hope Franklin Postdoctoral Fellowship
- NSF Graduate Fellowship

Grants and Other Funding

Active

NSF DMS: Bridging the gap between Agent Based Models of complex biological phenomena and real-world data using Surrogate Models (\$600,000.00) **Status:** Funded **Role:** PI

NIH U01: Multiscale Computational Models Guided By Emerging Cellular Dynamics Quantification For Predicting Optimum Immune Checkpoint And Targeted Therapy Schedules (\$2,456,110.00) **Status:** Funded; **Role:** PI

NSF S-STEM: The MaCSS Scholars Program at University of Michigan (\$1,500,000) **Status:** Funded **Role:** Co-I

Completed

NIH U01: From Mechanism to Population: Modeling HPV-related Oropharyngeal Carcinogenesis (\$3,189,863) **Status:** Funded; **Role:** Co-I (Lead the modeling efforts aimed at connecting molecular and cellular aspects of oropharyngeal tumor growth).

Simon's Foundation Collaboration Grant for Mathematics: Modeling Tumor Angiogenesis \$35,000) **Status:** Funded; **Role:** PI

NIH/FDA: Wireless Pharmaceutical Analysis Deice (WPAD) and Computational Model to Determine in Vivo Drug Dissolution in GI Tract for Distinguishing Meaningful Product Differences and Ensuring Bioequivalence (\$6,576,550) **Status:** Funded; **Role:** Co-I (Assist with the modeling efforts aimed at developing a mechanistic fluid transport model to estimate gastrointestinal fluid volume and its dynamic change over time).

NSF I³: Building Bridges, Creating Community and Wise Mentoring: Building Institutional Capacity to Enhance Diversity in STEM Disciplines \$1,250,000.00) **Status:** Completed ; **Role:** Co-I (Developed and directed the Marjorie Lee Brown Bridge to the PhD program in Applied and Interdisciplinary Mathematics).

NSF UMB: Interdisciplinary Training and Curriculum for Undergraduates in Biological and Mathematical Sciences (UBM) at the University of Michigan \$904,519.00) **Status:** Completed; **Role:** Co-PI (Developed and co-directed the Supplying Undergraduates Biology and Mathematics Education and Research Group Experiences (SUBMERGE) program at the University of Michigan).

James S. McDonnell Foundation 21st Century Scientist: Combining Continuous And Discrete Approaches To Study Sustained Angiogenesis Associated With Vascular Tumor Growth \$435,000) **Status:** Completed ; **Role:** PI

NIH NIGMS C5a in Defense Against Murine Gram-Negative Pneumonia: An Administrative Supplement for the Study of Complex Biological Systems (\$114,750) **Status:** Completed ; **Role:** Co-PI

NSF DMS Multiphase Tissue Mechanics of Tumor Encapsulation (\$101,000.00) **Status:** Completed ; **Role:** PI


Publications

bold = my current or past graduate student underline = my current or past undergraduate underline = my current or past postdoc

1. Bergman D, Jain HV, Norton KA, Jackson TL (2024) Connecting Agent-based Models with High-dimensional Parameter Spaces to Multidimensional Data Using SMORe ParS - A Surrogate Modeling Approach, *Bull Math Bio* 86(11). [🔗](#)
2. **Wang X** Bergman D, Sweis R, Pearson AT, Trujillo E, Jackson, TL (2023) Mathematical Model Predicts Tumor Control Patterns Induced by Fast and Slow Cytotoxic T Lymphocyte Killing Mechanisms *Scientific reports* 13(1):22541. [🔗](#)

3. [Bergman D](#), Jackson TL (2023) Phenotype switching in a global method for agent-based models of biological tissue. *PLoS ONE* 18(2): e0281672. [🔗](#)
4. Jain HV, Norton KA, Prado BB, Jackson TL (2022) SMORe ParS: A novel methodology for bridging modeling modalities and experimental data applied to 3D vascular tumor growth. *Front Mol Biosci.* 9:1056461. [🔗](#)
5. [Bergman D](#), Sweis R, Pearson AT, **Nazari F**, Jackson, TL (2022) A Global method for fast simulations of molecular dynamics in multiscale agent-based models of biological tissues *iScience* 25(6). [🔗](#)
6. **Sund D**, Brouwer A, Meza R, Jackson, TL, Eisenburg M (2022) Understanding the Mechanisms of HPV-related Carcinogenesis: Implications for Cell Cycle Dynamics. *J Theoret Biol* 551-552:111235. [🔗](#)
7. Alshorman A, Al-hosainat N, Jackson TL. Analysis of HIV latent Infection Model with Multiple Infection Stages and Different Drug Classes. *J Biol Dynam* 6(1):713. [🔗](#)
8. [Zheng Z](#), Kun Z, Jackson TL, Lowengrub J (2022) Tumors Growing under Darcy's Law Move Towards Regions of Lower Extracellular Matrix Conductivity Under Steady Morphology. *J Math Biol.* 85(1). [🔗](#)
9. Jackson TL (2022) Mathematical Modeling Turns Cancer Discoveries into Effect Treatments *SIAM News*. [🔗](#)
10. [Storey KM](#) and Jackson TL (2021) An Agent-Based Model of Combination Oncolytic Viral Therapy and Anti-PD-1 Immunotherapy Reveals the Importance of Spatial Location When Treating Glioblastoma. *Cancers* 3(21) [🔗](#)
11. Jain HV, Sorribes IC, Handelman SK, Barnaby J, Jackson TL (2021) Standing Variations Modeling Captures Inter-Individual Heterogeneity in a Deterministic Model of Prostate Cancer Response to Combination Therapy. *Cancers* 13(8). [🔗](#)
12. Okuneye L, [Bergman D](#), Bloodworth J, Pearson A, Swies R, Jackson TL (2021) A Validated Mathematical Model of FGFR3-Mediated Tumor Growth Reveals Pathways to Harness the Benefits of Combination Targeted Therapy and Immunotherapy in Bladder Cancer *Comp Sys Onc* 3(1). [🔗](#)
13. **Nazari F**, Pearson AT, Jackson TL (2021) Mathematical Characterization of Heterogeneity in a Cancer Stem Cell Driven Tumor Growth Model with Nonlinear Self-Renewal. *J Biol Sys* 29(1). [🔗](#)
14. **Nazari F**, Okejas AE, Nör JE, Pearson AT, Jackson TL (2020) In silico Models Accurately Predict In vivo Response for IL-6 Blockade in Head and Neck Cancer. *Cancer Research* 80(7). [🔗](#)
15. [Storey KM](#), Lawler SE and Jackson TL (2020) Modeling Oncolytic Viral Therapy, Immune Checkpoint Inhibition, and the Complex Dynamics of Innate and Adaptive Immunity in Glioblastoma Treatment. *Front. Physiol.* 11:151. [🔗](#)
16. Yu A, Jackson TL, Tsume Y, Koenigsknecht M, Wysocki J, Marciani L, Amidon GL, Frances A, Baker JR, Hasler W, Wen B, Pai A, Sun D (2020) Mechanistic Deconvolution of Oral Absorption Model with Dynamic Gastrointestinal (GI) Fluid to Predict Regional Rate and Extent of GI Drug Dissolution. *AAPS J* 2(3). [🔗](#)
17. **Nazari F**, Pearson AT, Nör JE, Jackson TL (2018) A Mathematical Model for IL-6-mediated, Stem Cell Driven Tumor Growth and Targeted Treatment. *PLoS Comput Biol* 4(1): e1005920. [🔗](#)
18. Jackson TL, **Jain HV** (2017) Mathematical Modeling of Cellular Cross Talk Between Endothelial and Tumor Cells Highlights Counterintuitive Effects of VEGF Targeted Therapies. *Bull Math Bio* 80(5). [🔗](#)
19. Yu A, Jackson TL, Tsume Y, Koenigsknecht M, Wysocki J, Marciani L, Amidon GL, Frances A, Baker JR, Hasler W, Wen B, Pai A, Sun D (2017) Mechanistic Fluid Transport Model to Estimate Gastrointestinal Fluid Volume and its Dynamic Change Over Time. *AAPS J* 19(6). [🔗](#)
20. [Pearson A](#), Ingram P, Bai S, Yoon E, Jackson TL, Buckanovich RJ (2017) Sampling From Single-Cell Observations to Predict Tumor Cell Growth In-vitro and In-vivo. *Oncotarget* 8. [🔗](#)

21. Farhat A, Jiang D, Cui D, Keller ET, Jackson TL (2017) An Integrative Model of Prostate Cancer Interaction With the Bone Microenvironment. *Math Biosci* (2017) 294. [🔗](#)
22. Swiecicki PL, Bellile E, Sacco AG, Pearson AT, Taylor JM, Jackson TL, Chepeha DB, Spector ME, Shuman A, Malloy K, Moyer J, McKean E, McLean S, Sukari A, Wolf GT, Eisbruch A, Prince M, Bradford C, Carey TE, Wang S, Nör JE, Worden FP (2016) A phase II trial of the BCL-2 homolog domain 3 mimetic AT-101 in combination with docetaxel for recurrent, locally advanced, or metastatic head and neck cancer. *Invest New Drugs* 34(4). [🔗](#)
23. Pearson A, Finkel K, Warner K, Nor F, Tice D, Martins M, Jackson TL, Nor JE (2016) Patient Derived Xenograft (PDX) Tumors Increase Growth Rate with Time *Oncotarget* 7(7). [🔗](#)
24. Pearson AT, Jackson TL, Nör JE (2016) Modeling head and neck cancer stem cell-mediated tumorigenesis. *Cell Mol Life Sci* 73(17). [🔗](#)
25. **Cook, AL**, Ziazadeh, DR, Lu J, Jackson TL (2015) A Multiscale Modeling Framework for Investigating Synergism Between Chemotherapy and Molecular Targeted Therapies. *DCDS-B* 2(6).
26. Jackson TL, Komarova NL, Swanson KR (2014) Mathematical Oncology: Using Mathematics to Enable Cancer Discoveries. *Am Math Monthly* 21(9).
27. Zheng X, Koh GY, Jackson TL (2013) A continuous model of angiogenesis: initiation, extension, and maturation of new blood vessels modulated by vascular endothelial growth factor angiopoietins, platelet-derived growth factor-B, and pericytes *Dis Cont Dynam Sys B* 18(4).
28. **Gentry SN** and Jackson TL (2013) A Mathematical Model of Cancer Stem Cell Driven Tumor Initiation: Implications of Niche Size and Loss of Homeostatic Regulatory Mechanisms. *PLoS ONE* 8(8):e71128. [🔗](#)
29. **Jain HV** and Jackson TL (2013) A Hybrid Model of the Role of VEGF Binding in Endothelial Cell Migration and Capillary Formation. *Frontiers in Oncol* 3(102).
30. Kim JK and Jackson TL (2013) Mechanisms for enhancing sustainability of p53 pulses *PLoS One* 8(6) e65242. [🔗](#)
31. Gentry BG, **Gentry SN**, Jackson TL, Zemlicka J, Drach JC (2011) Phosphorylation of Endogenous and Fraudulent Nucleotides to Di- and Triphosphates by Guanosine Monophosphate Kinase *Biochem Pharm* 80.
32. Zheng X, Jackson TL (2010) A Multiscale Model of Cell Elongation, Proliferation and Maturation During Angiogenesis. *Bull Math Bio* 72.
33. **Bauer AL**, Rohlf T, Jackson TL, Jiang Y (2010) Receptor Cross-Talk in Angiogenesis: Mapping Environmental Cues to Cell Phenotype using a Stochastic, Boolean Signaling Network. *J Theoret Biol* 64(3).
34. Ventruea AC, Jackson TL, Merajver SD (2009) On the Role of Cell Signaling Models in Cancer Research *Cancer Res* 69(400).
35. **Gentry SN**, Ashkenazi R, Jackson TL (2009) A Maturity-Structured Mathematical Model of Mutation Acquisition in the Absence of Homeostatic Regulation *Math Model Nat Phenom* 4(2).
36. **Bauer AL**, Jackson TL, Jiang Y (2009) Topography of Extracellular Matrix Mediates Vascular Morphogenesis and Migration Speeds *PLoS Comp Biol* 5(7):e1000445. [🔗](#)
37. **Jain HV**, Nör JE, Jackson TL (2009) Quantification of Endothelial Cell-Targeted Anti Bcl-2 Therapy and its Suppression of Tumor Growth and Vascularization *Molec Cancer Therap* 8(10).
38. Ashkenazi R, **Heusel SN**, Jackson TL (2008) Pathways to Tumorigenesis: Mathematical Modeling of Cancer Stem Cell Hypothesis *Neoplasia* 10(11).
39. Bortz DM, Jackson TL, Taylor KA, Younger JG (2008) Klebsiella pneumoniae flocculation dynamics. *Bull. Math. Biol.* 70(3).

41. Chung H, Cartwright MM, Bortz DM, Jackson TL, Younger JG (2008) Dynamical System Analysis of Staphylococcus Epidermidis Bloodstream Infection *Shock* 30(5).
42. **Jain HV**, Nör JE, Jackson TL (2008) Investigating the VEGF-Bcl-2-CXCL8 Pathway and Its Role in Sustained Angiogenesis *Bull Math Biol* 70(1).
43. Kiel MJ, He S, Ashkenazi R, **Heusel SN**, Teta M, Kushner JA, Jackson TL, Morrison SJ (2007) Hematopoietic stem cells do not segregate chromosomes asymmetrically and cannot be reliably identified based on bromo-deoxyuridine label-retention *Nature* 449xiii.
44. **Bauer AL**, Jackson TL, Jiang Y (2007) A Cell-Based Model Exhibiting Branching and Anastomosis During Tumor-Induced Angiogenesis *Biophys J* 92.
45. Dong Z, Song W, Sun Q, Zeitlin BD, Karl E, Spencer DM, **Jain HV**, Jackson TL, Núñez G, Nör JE (2007) Apoptotic Requirement for Microvessel Disruption *Exp. Cell Res.* 313(6).
46. Ashkenazi R, Jackson TL, Dontu G, Wicha MS (2007) Breast Cancer Stem Cells - Research Opportunities Utilizing Mathematical Modeling *Stem Cell Rev* 3(2).
47. Wu M, Kwon HY, Rattis F, Blum J, Zhao C, Ashkenazi R, Jackson TL, Gaiano N, Oliver T, Reya T (2007) Imaging Hematopoietic Precursor Division in Real-Time *Cell - Stem Cell* 1(5).
48. Jackson TL, Ashkenazi R, **Heusel SN**, **Jain HV** (2006) Cancer Modeling: A Perspective on What's New and What's Next *Contemp Math* 40.
49. Chung H, Jackson TL, Bortz DM, Cartwright M, Younger J (2006) Multiple-compartment bacterial clearance kinetics during murine bacteremia *J Crit Care* 21(4). 
50. Garner AL, Lau YY, Jackson TL, Uhler MD, Jordan D, Gilgnebach RM (2005) Incorporating spatial dependence into a multicellular tumor spheroid growth model. *J Appl Phys* 98.
51. Ben-David I, Price SE, Bortz DM, Cohen SE, **Bauer AL**, Jackson TL, Younger JG (2005) Dynamics of intrapulmonary bacterial growth in a murine model of repeated microaspiration. *Am J Res Cell and Molec Biol* 33.
52. Bushnell PJ, Shafer TJ, Bale AS, Boyes WK, Simmons JE, Eklund C, Jackson TL (2005) Developing an Exposure-Dose-Response Model for Organic Solvents: Overview and Progress on in vitro Models and Dosimetry. *Envir Tox Pharm* 19(3).
53. Jackson TL (2004) A Mathematical Investigation of the Multiple Pathways to Recurrent Prostate Cancer: Comparison with Experimental Data. *Neoplasia* 6(6).
54. Lai R, Jackson TL (2004) A Mathematical Model of Receptor-Mediated Apoptosis: Dying to Know Why FasL is a Trimer. *Math. Biosci Engin* 1(2).
55. Jackson TL (2004) A Mathematical Model of Prostate Tumor Growth and Androgen-Independent Relapse. *Dis Conti. Dynam Sys* 4(1).
56. Jackson TL, Arciero J, Kirschner D (2004) A Mathematical Model of Tumor Immune Evasion and siRNA Treatment. *Dis Contin Dynam Sys* 4(1).
57. Criminale WO, Jackson TL, Nelson PW (2004) Limit Cycle-Strange Attractor Competition. *Stud Appl Math* 112.
58. Jackson TL (2003) Intracellular Accumulation and Mechanism of Action of Doxorubicin in a Spatio-Temporal Tumor Model. *J Theor Biol* 220(2).
59. Jackson TL (2002) Vascular Tumor Growth and Treatment: Consequences of polyclonality, competition, and dynamic vascular support. *J Math Biol* 44(3).
60. Lubkin SR, Jackson TL (2002) Multiphase Mechanics of Capsule Formation in Tumors. *J. Biomech Eng* 124(2).

61. Jackson TL, Byrne H (2002). A Mechanical Model of Tumor Encapsulation and Transcapsular Spread. *Math Biosci* 180.
62. Jackson TL, Byrne HM (2002) A Mathematical Model to Study the Effects of Drug Resistance and Vasculature on the Response of Solid Tumors to Chemotherapy. *Math Biosci* 164.
63. Jackson TL, Senter PD, Murray JD (2002) Development and Validation of a Mathematical Model to Describe Anti-cancer Prodrug Activation by Antibody-Enzyme Conjugates. *J Theo Med* 2(2).
64. Jackson TL, Lubkin SR, Murray JD (1999) Theoretical Analysis of Conjugate Localization in Two-Step Cancer Chemotherapy, *J Math Biol* (39)4.
65. Jackson TL, Lubkin SR, Siemers NO, Kerr D, Senter PD, Murray JD (1999) Mathematical and Experimental Analysis of Localization of Anti-Tumor Antibody Enzyme Conjugates. *Br. J. of Cancer* 80(11).
66. Tang B, Sitomer A, Jackson TL (1997) Population Dynamics and Competition in Chemostat Models with Adaptive Nutrient Uptake, *J Math Biol* 35.

Books and Edited Collections

- Jackson TL and Radunskya A. (Eds.) Applications of Dynamical Systems in Biology and Medicine, Springer NY (2015).
- Jackson TL. Modeling Tumor Vasculature: Molecular, Cellular, and Tissue Level Aspects and Implications Springer Pub Group (2012).

Teaching

Course Developer and Instructor: University of Michigan
Winter 2002, 2003, 2005, 2014

Math 563: Advanced Mathematical Methods for the Biomedical Sciences.

Course Developer and Instructor: University of Michigan

Winter and Fall 2001, Fall 2004, Fall 2005, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2013, Fall 2014, Fall 2015, Fall 2016, Fall 2017, Fall 2018, Fall 2021, Fall 2022

Math 463: Introduction to Mathematical Biology.

Instructor: University of Michigan

Spring 2005, Spring 2012, Spring 2014, Spring 2016

Math Math 454: Boundary Value Problems for Partial Differential Equations.

Instructor: University of Michigan

Fall 2000, Winter 2006

Math 115: First Calculus I.

Student Training and Mentoring

Postdoctoral/Clinical Assistant Professors

- Daniel Bergman (2020 - 2023)
- Kamaldeen Okuneye (2020 - 2021)
- Katie Storey (2018 - 2021)
- Darlington David (2019 - 2020), UMAPS Scholar
- Alexander Pearson (2013-2017), Internal Medicine Oncology, NIH K-Award Mentee
- Xiaoming Zheng (2006-2009), Associate Professor Central Michigan University
- Rina Ashkenazi (2005- 2008), Minnesota Center for Financial & Actuarial Math
- David Bortz (2004 - 2007), Associate Professor University of Colorado, Boulder

PhD Students

- Shirlyn Wang, AIM PhD Student, Current Thesis Advisor
- Jessie Conrad AIM PhD Student, Current Co-Thesis Advisor
- Ursula Trigos-Raczkowski AIM PhD Student, Current Co-Thesis Advisor
- Jonathan Guzman AIM PhD Student, Current Co-Thesis Advisor
- Derrick Sund, AIM PhD Student, Current Co-Thesis Advisor
- Fereshteh Nazari, SAL MCMSC PhD (2017), Co-Thesis Advisor
- Alexander Yu, Pharmacology PhD Student, Current Committee Member
- Cornelius Cilliers, Chemical Engineering PhD Student, Current Committee Member
- Kevin Hannay, AIM PhD (2017) Committee Member
- Olivia Walch, AIM PhD (2016) Committee Member
- Andrew Brouwer AIM PhD (2015), Committee Member
- Daniel Dewoskin, AIM PhD (2015) Student, Committee Member
- Jae Kyoung Kim, AIM PhD (2013), Co-supervised with D. Forger
- Ambika Natarajan, PIBS Student, One semester + summer rotation 2011
- Shanshan Cheng, CCMB Student, One semester rotation 2009
- Harsh Jain AIM PhD (2008), Thesis Advisor
- Sara Heusel AIM PhD (2008), Thesis Advisor
- Amy Bauer AIM PhD (2007), Thesis Advisor
- Andy Stein, AIM PhD (2007), Thesis Advisor

Master's Students

As the founder and director of the Marjorie Lee Browne Bridge to the PhD program in Applied and Interdisciplinary Mathematics, I have supervised and mentored the following six cohorts of underrepresented minority master's students.

- 2011: Daniel Jonas, Ray Navarrete, Andre Souza, Dana Suttman
- 2012: Alexis Cook, Adrian Ochoa, David McMillon, Louis Ly
- 2013: Bryan Nevarez, Joe Borja, Erick Vega, Ismael Xique
- 2014: Derrick Sund, Adrian Caraballiera
- 2015: Jonathan Guzman, Anthony Della Pella, Jay Barazza, Brittany Jackson
- 2016: David Guzman, Alex Kapiamba, Jenia Rousseva, Ursula Trigos
- 2017: Joseph Ballardo, Esteban Coronel, Uzziel Cortez, Moise Mouyebe
- 2018: Karina Aponte, Fernando Barba, LeMar Callaway, Daniel Maes
- 2019: Emilee Cardin, Joanne Dong, Annaliese Keiser, Oscar Gonzalez
- 2020: Cyril Codor, Ram Deigo Ekstrom, Orlando Ferrer, Jose Lozano
- 2021: Mia Smith, Shivani Prabala, Saida Fatema
- 2022: Dania Ali Abuhijleh, Gerardo Dutan, Jordan Grant, Javier Santiago
- 2023: Nick Freeman, Barry Henaku, Renato Pinto Reveggino, Bridgett Slone

Undergraduate Students

- Shengchao Zhao, 2021 - present
- Ali Farhat, 2015 - 2017
- Daqian Jiang, Summer 2013 + 2013-2014 academic year
- Joshua Abramson Summer 2013 + 2013-2014 academic year
- Zach Berg, Summer 2012 + 2012-2013 academic year
- Beatrix Belogh, 2012-2013 academic year
- Hilary Monaco, 2011-2012 academic year
- Joshua Abramson, Winter and Summer 2011
- James Brunner, Summer 2010
- Xiao Ai Chi, Summer and Fall 2009
- Noah Smith, 2005-2007
- Crystal Kosebutzi, Summer and Fall 2005
- Ronald Lai, Summer and Fall 2004
- Julia Arceiro, 2001-2003

Selected Invited Conferences, Workshops, and Seminars

- 2024: Oxford University Mathematics Public Lecture
- 2024: J. Sutherland Frame Lecture at JMM
- 2023 SMB Leah Keshet Lecture
- 2023 UNC Computational Medicine Seminar
- 2023 Woods Lecture Series
- 2022 Arizona State University, Invited Lecture
- 2021 Princeton University New Horizons Lecture
- 2021 JMM Porter Lecture, Invited Address
- 2021 Mathematics Across the Cannon Invited Speaker
- 2020 Mathematics Applied to Biology and Medicine Conference, CIRM Marseille France; plenary speaker
- 2020 Livestrong Cancer Institute, UT Austin Basic and Translational Research Workshop, keynote address
- 2020 Systems Approaches to Cancer Biology, plenary speaker
- 2020 Mathematics and Computational Sciences (MCS) Special Interest Group (SIG) of the International Society of Pharmacometrics (ISoP); invited speaker
- 2019 Joint Mathematics Meetings, SIAM Mathematics and Cancer Minisymposium
- 2019 International Symposium on Mathematical and Computational Oncology; Keynote Speaker
- 2019 University of Washington, Applied Mathematics: The Next 50 Years; Plenary Speaker
- 2018 UCONN Health Center for Quantitative Medicine; Invited Speaker
- 2018 Society for Mathematical Biology Annual Meeting, Sydney Australia
- 2018 Genomes, Cells, and Mathematics Workshop, Hong Kong
- 2018 AACR Annual Meeting, Chicago
- 2018 Chicago State University, Departmental Colloquium
- 2017 CSBC-PSO Mathematical Oncology Meeting
- 2017 Duke University, Mathematical Biology Seminar Speaker
- 2017 University of Washington Boeing Lecturer
- 2017 Alma College, Departmental Colloquium
- 2016 SAMSI Workshop: Methodology for Precision Medicine
- 2016 Williams College Oliver Lecture and Class of 1960 Speaker
- 2014 Dorothy Wrinch Lecture Series in Biomathematics, Inaugural Lecture
- 2014 Biomathematics and Ecology Education and Research Conference
- 2014 International Cancer Modeling Workshop, Seoul, Korea
- 2013 AMSI Public Lecture, University of Sydney, Australia
- 2012 Infinite Possibilities Conference, Keynote Speaker
- 2011 MIT Women in Mathematics Lecture Series
- 2011 AWM Michor Symposium, Joint Mathematics Meetings
- 2010 University of Dundee Cancer Modeling Summer School
- 2010 H. Lee Moffitt Cancer Center Integrated Mathematical Oncology Seminar
- Computational Biology Center at Memorial Sloan-Kettering Cancer Center
- 2008 ABRCMS, Invited Plenary Speaker
- 2008 MSRI Diversity Conference, Invited Lecture
- 2008 Distinguished Lecture Series, Invited Speaker Lewis and Clark College
- 2008 Gordon Conference, Invited Session Organizer
- 2007 University of Arizona, Applied Mathematics Colloquium
- 2007 MAA Carriage House Distinguished Lecture
- 2006 Falconer Lecture at the Mathematical Association of America MathFest
- Michigan MAA Section Meeting, 2006
- Cancer Modeling Workshop, Dundee Scotland, 2006
- Cornell Summer Math Institute, 2006
- SIAM Annual Meeting, Invited Topical Speaker (July, 2005)

Leadership, Service, and Professional Activities

Ongoing

- 2013 - present MLB Scholars Steering committee (Chair)
- 2011 - present Faculty Director of the MLB Scholars Bridge to the PhD Program

By Year

- 2023 AMS Claytor-Gilmer Fellowship Committee
- 2012 - 2022 AIM Graduate Admissions Committee (Member)
- 2021 Karen EDGE Fellows Selection Committee Member
- 2021 SIAM Julian Cole Prize Selection Committee Member
- 2021 AIM Workshop: Modeling Tumor Angiogenesis, Organizer
- 2021 UM Mathematics Climate Committee
- 2020 AAAS Illustrating Mathematics Committee Member
- 2020 National Academies of Sciences, Engineering and Mathematics Board Member on Mathematical Sciences and Analytics
- 2019 AMS Education and Diversity Department Panelist; Bridge-to-PhD and Postbac Programs Working to Open Doors for Students from UR Groups
- 2019 UC Merced Applied Mathematics Program; External Review Committee Member
- 2019-2021 International Symposium on Mathematical and Computational Oncology; Organizing Committee
- 2019 Faculty Director of the M-Sci Academy
- 2019 LSA Launch Committee Member
- 2019 UM Mathematics DEI Recruiting Committee Member
- 2018 AWM Fellow Selection Committee
- 2018 NAM Panelist: Advising Our Students on the Transition to Graduate School
- 2017 Women in Science and Engineering (WISE) Review Committee (Chair)
- 2017 AWM Session Organizer, Poster Presentation Mentor
- 2017-2020 UM LSA Executive Committee
- 2017 M-Sci + CSP STEM Working Group
- 2017 U-M Advisory Group for the National Conference on Institutional Strategies
- 2017 LSA Nominating Committee
- 2016 SIAM Life Sciences Conference, Organizing Committee Member
- 2016 AWM Workshop at SIAM Annual Meeting, Co-organizer
- 2016 UM Mathematics Department Climate Committee Member
- 2016 UM Mathematics Department Minority Recruiting Committee (Chair)
- 2015-2022 South Carolina EPSCoR Evaluation and Review Board
- 2015-2018 Dean's Ad Hoc Faculty Diversity Taskforce Member
- 2015 LSA Launch Committee Convener
- 2014 National Blackwell-Tapia Prize Committee Member
- 2014 LSA Executive Committee Member
- 2014 President's Advisory Panel On The Biosciences At The University Of Michigan
- 2014 Acting Director of M-SCI, the LSA component of M-STEM Academies
- 2013 - 2019 NIH TWDC Study Section Member
- 2013 WhAM! Research Collaboration Workshop for Women, Co-organizer
- 2013 AMS Centennial Fellowship Committee
- 2013 AWM Research Symposium, Session Organizer
- 2013-2016 UM Mathematics Department Master's Committee
- 2012-2013 NIH MABS Study Section Member
- 2012 LSA Dean Search Committee
- 2012 MSRI Spring Opportunities Workshop Organizer
- 2012-2015 IMA Board of Governors
- 2011-2012 LSA Grievance Committee
- 2011 Rackham Merit Fellowship Evaluation Committee
- 2011 Mathematics Representative for Faculty Allies

- 2010-2013 AWM Executive Committee (Elected Position)
- 2010-2014 Duke University NSF RTG External Review Committee
- 2010-2015 UM Mathematics DEI Recruiting Committee Member
- 2010-2013 UM Mathematics STEP Committee Member
- 2010-2012 UM Mathematics Department External Liaison
- 2010 Bridges to the PhD Advisory Committee Member
- 2010 Rackham Merit Fellowship Evaluation Committee Member
- 2010 Panel on Teaching: Making a Course Your Own
- 2008-2018 Senior Editor, Cancer Research
- 2008-2011 SIAM Diversity Committee Member
- 2008-2014 Diversity Committee for the Mathematical Biology Institute
- 2008-2011, Advisory Board for the NIMBioS
- 2008 External Review Committee for Mount Holyoak College
- 2006-2009 Steering Committee Member for ABRCMS
- 2006-2008 Human Resources Committee for the MSRI
- 2006 SIAM ANNUAL MEETING, Organizing Committee Member
- 2006 IPAM Cells and Materials, Organizing Committee Member
- Co-organizer, 2004 Annual Meeting of the Society for Mathematical Biology

EDITORIAL BOARDS

- 2021-present La Mathematica
- 2020-present Computational Systems Biology
- 2019-present Bulletin of Mathematical Biology
- 2019-present Mathematical Medicine and Biology
- 2017-present Journal of Nonlinear Science
- 2010-2018 Cancer Research, Senior Editor

PROFESSIONAL SOCIETIES AND MEMBERSHIPS

- American Association for Cancer Research
- Lifetime Member, Society for Mathematical Biology
- Member, Society for Industrial and Applied Mathematics
- Member, Association for Women in Mathematics
- Lifetime Member, National Association for Mathematics (NAM)
- Member, American Mathematical Society