CURRICULUM VITAE SCOTT E. FIELD

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HIGHER EDUCATION

Graduate:

Brown University, Providence RI

Physics M.Sc., 2010.
Physics Ph.D, 2011. Advisor: Professor Jan S. Hesthaven, Division of Applied Mathematics.
Dissertation: *Applications of Discontinuous Galerkin Methods to Computational Relativity.*

Undergraduate:

University of Rochester, Rochester NY

Mathematics B.S., 2006.
Physics B.S., 2006. Advisor: Professor Arie Bodek, Department of Physics.

POSITIONS HELD

1. Associate Professor, Department of Mathematics, University of Massachusetts Dartmouth (9/2022 -)
2. Graduate Program Co-Director, Engineering & Applied Science PhD Program, University of Massachusetts Dartmouth (1/2025 -)
3. Affiliate Faculty, Data Science (9/2016 -)
4. Adjunct Faculty, Department of Physics, University of Rhode Island (Sabbatical Spring 2024, Fall 2024)
5. Co-director & Graduate Program Director, Data Science, University of Massachusetts Dartmouth (10/2017 - 12/2023)
6. Assistant Professor, Department of Mathematics, University of Massachusetts Dartmouth (9/2016 - 8/2022)
7. Adjunct Professor, Mechanical Engineering, University of Massachusetts Dartmouth (7/2017 - 7/2018)
8. Visiting Scientist, Cornell Center for Astrophysics (9/2016 - 8/2017)
9. Research Associate, Department of Astronomy, Cornell University (9/2014 - 9/2016)
10. Lecturer, Department of Physics, Cornell University (1/2015 - 5/2015)

11. Postdoctoral Researcher, Department of Physics, University of Maryland (8/2011 - 8/2014)
12. NASA Goddard-UMD Joint Space-Science Institute Prize Postdoctoral Fellow (8/2011 - 8/2014)
13. Maryland Center for Fundamental Physics, University of Maryland (8/2011 - 8/2014)

COURSES TAUGHT

UMass Dartmouth:

1. Data Science Capstone, DSC 498 (Fall 2018, Fall 2019, Fall 2021, Fall 2022, Fall 2023)
2. Graduate Internship, EGR 500 (Summer 2020, Fall 2021, Summer 2023)
3. Introduction to Scientific Computation, MTH 280 (Spring 2017, Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022)
4. Data Science Capstone, DSC 499 (Spring 2019, Spring 2020, Spring 2021, Spring 2022)
5. Reinforcement Learning, EAS 595 (Spring 2021)
6. Advanced Numerical Methods for PDEs, MTH 575 (Fall 2020)
7. Advanced Topics in High Performance Computing, EAS 595 (Spring 2019)
8. High Performance Scientific Computing, EAS 520, DSC 520, & MTH 420 (Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2022, Fall 2023)
9. Undergraduate Research in Scientific Computing, MTH 495 (Fall 2017, Spring 2018, Spring 2022)
10. Complex Analysis, MTH 421 & MTH 499 (Fall 2017)

University of Rhode Island:

1. Classical Mechanics, PHY 322 (Fall 2024)

Cornell University:

1. Computational Physics, PHYS 4480/7680 & ASTRO 7690 (Spring 2015)

Brown University:

1. Theory of Relativity (Summer 2011, 2012, 2013, 2014)

ACADEMIC AND PROFESSIONAL HONORS

1. Inaugural Award for Outstanding Graduate Faculty Research Mentor, University of Massachusetts Dartmouth (4/2023)
2. Gravitational Wave International Committee, 2011 Thesis Prize Honorable Mention (2/2012)

3. NASA Goddard-UMD Joint Space-Science Institute Prize Postdoctoral Fellowship (8/2011)
4. Brown University, Anthony Houghton award for excellence in theoretical physics (5/2011)
5. Brown University, Full member of Sigma Xi research honor society (5/2011)
6. University of Rochester, Stoddard Prize for outstanding senior thesis (2006)
7. University of Rochester, Highest Distinction in Physics (2006)
8. University of Rochester, High Distinction in Mathematics (2006)
9. University of Rochester, Undergraduate Physics Teaching Award (2006)
10. Fermilab National Laboratory, Research Experience for Undergraduates (Summer 2003)
11. University of Rochester, Take Five Scholar (2005 - 2006)
12. University of Rochester, Rush Rhees Academic Scholar (2001 - 2005)

SCHOLARSHIP AND PROFESSIONAL ACTIVITIES

Research Interests:

- Bayesian inference for large datasets, scientific machine learning and AI, data-driven gravitational-wave models
- Scientific computing, high performance computing, object and task-based parallel programing
- Discontinuous Galerkin methods for hyperbolic PDEs, computational general relativity and fluid dynamics, near-field to far-field methods

Peer-Reviewed Journal Publications (student):

1. Tousif Islam, Avi Vajpeyi, Feroz H. Shaik, Carl-Johan Haster, Vijay Varma, Scott E. Field, Jacob Lange, Richard O'Shaughnessy, Rory Smith, "Analysis of GWTC-3 with fully precessing numerical relativity surrogate models", submitted to Physical Review D. GWTC-3 surrogate catalog.
2. LISA Consortium Waveform Working Group; Afshordi, et al. "Waveform Modelling for the Laser Interferometer Space Antenna", accepted to Living Review.
3. Katie Rink, Ritesh Bachhar, Tousif Islam, Nur E. M. Rifat, Kevin Gonzalez-Quesada, Scott E. Field, Gaurav Khanna, Scott A. Hughes, Vijay Varma, "Gravitational wave surrogate model for spinning, intermediate mass ratio binaries based on perturbation theory and numerical relativity", Accepted to Physical Review D.
4. Scott E. Field, Vijay Varma, et al. "GWSurrogate: A Python package for gravitational wave surrogate models", submitted to the Journal of Open Source Software (JOSS).
5. Tousif Islam, Guglielmo Faggioli, Gaurav Khanna, Scott E. Field, Maarten van de Meent, Alessandra Buonanno, "Phenomenology and origin of late-time tails in eccentric binary black hole mergers", Submitted to Physical Review D.

6. Tousif Islam, Gaurav Khanna, Scott E. Field, "Adding higher-order spherical harmonics in non-spinning eccentric binary black hole merger waveform models", Submitted to Physical Review D.
7. Lorena Magana Zertuche, Leo C. Stein, Keefe Mitman, Scott E. Field, Vijay Varma, Michael Boyle, Nils Deppe, Lawrence E. Kidder, Jordan Moxon, Harald P. Pfeiffer, Mark A. Scheel, Kyle C. Nelli, William Throwe, Nils L. Vu, "High-Precision Ringdown Surrogate Model for Non-Precessing Binary Black Holes", Submitted to Physical Review D.
8. Bhooshan Gadre, Michael Purrer, Scott E. Field, Serguei Ossokine, Vijay Varma, "A fully precessing higher-mode surrogate model of effective-one-body waveforms", Physical Review D 110, 124038 (2024).
9. Manas Vishal, Scott E. Field, Katie Rink, Sigal Gottlieb, Gaurav Khanna, "Toward exponentially-convergent simulations of extreme-mass-ratio inspirals: A time-domain solver for the scalar Teukolsky equation with singular source terms", Physical Review D 110, 104009 (2024).
10. Tousif Islam, Scott E. Field, Gaurav Khanna, "Comparing numerical relativity and perturbation theory waveforms for a non-spinning equal-mass binary", Universe, 10(1), 25. This is a themed issue in honor of Prof. Jorge Pullin on his 60th birthday (2024).
11. Scott E. Field, Sigal Gottlieb, and Gaurav Khanna. "Editorial for the research topic: Advances in Computational Relativity", Frontiers in Applied Mathematics and Statistics, 10, 1420155 (2024).
12. Jooheon Yoo, Keefe Mitman, Vijay Varma, Michael Boyle, Scott E. Field, Nils Deppe, François Hébert, Lawrence E. Kidder, Jordan Moxon, Harald P. Pfeiffer, Mark A. Scheel, Leo C. Stein, Saul A. Teukolsky, William Throwe, and Nils L. Vu, "Numerical relativity surrogate model with memory effects and post-Newtonian hybridization", Physical Review D 108, 064027 (2023).
13. Tousif Islam, Scott E. Field, Gaurav Khanna, "Remnant black hole properties from numerical-relativity-informed perturbation theory and implications for waveform modelling", Physical Review D 108, 064048 (2023).
14. Tousif Islam, Scott E. Field, Gaurav Khanna, Niels Warburton, "Survey of gravitational wave memory in intermediate mass ratio binaries", Physical Review D 108, 024046 (2023).
15. Scott E. Field, Sigal Gottlieb, Gaurav Khanna, and Ed McClain, "Discontinuous Galerkin method for linear wave equations involving derivatives of the Dirac delta distribution", Spectral and High Order Methods for Partial Differential Equations ICOSAHOM 2020+1. Lecture Notes in Computational Science and Engineering, vol 137. Springer (2023).
16. Scott E. Field, Sigal Gottlieb, Zachary J. Grant, Leah F. Isherwood, and Gaurav Khanna, "A GPU-accelerated mixed-precision WENO method for extremal black hole and gravitational wave physics computations", Communications on Applied Mathematics and Computation 5, 97–115 (2023).
17. Tousif Islam, Scott E. Field, Scott A. Hughes, Gaurav Khanna, Vijay Varma, Matthew Giesler, Mark A. Scheel, Lawrence E. Kidder, Harald P. Pfeiffer, "Surrogate model for gravitational wave signals from non-spinning, comparable- to large-mass-ratio black hole binaries built on black hole perturbation theory waveforms calibrated to numerical relativity", Physical Review D 106, 104025 (2022). **One of the journal's Editors**

Suggestion article.

18. Vijay Varma, Sylvia Biscoveanu, Tousif Islam, Feroz H. Shaik, Carl-Johan Haster, Maximiliano Isi, Will M. Farr, Scott E. Field, Salvatore Vitale, "Evidence of large recoil velocity from a black hole merger signal", Physical Review Letters 128, 191102 (2022). **One of the journal's Editors Suggestion and Featured in Physics article.**
19. Brendan Keith, Akshay Khadse, Scott E Field, "Learning orbital dynamics of binary black hole systems from gravitational wave measurements", Physical Review Research 3, 043101 (2021).
20. Tousif Islam, Scott E. Field, Carl-Johan Haster, Rory Smith, "High-precision source characterization of intermediate mass-ratio black hole coalescences with gravitational waves: The importance of higher-order multipoles", Physical Review D 104, 084068 (2021).
21. Rory Smith, Ssohrab Borhanian, Bangalore Sathyaprakash, Francisco Hernandez Vivanco, Scott Field, Paul Lasky, Ilya Mandel, Soichiro Morisaki, David Ottaway, Bram Slagmolen, Eric Thrane, Daniel Toyra, Salvatore Vitale, "Bayesian inference for gravitational waves from binary neutron star mergers in third-generation observatories", Physical Review Letters, 127, 081102 (2021).
22. Tousif Islam, Scott E. Field, Carl-Johan Haster, and Rory Smith, "Improved analysis of GW190412 with a precessing numerical relativity surrogate waveform model", Physical Review D 103, 104027 (2021).
23. Dwyer S. Deighan, Scott E. Field, Collin D. Capano, and Gaurav Khanna, "Genetic-algorithm-optimized neural networks for gravitational wave classification", Neural Computing and Applications (2021).
24. Tousif Islam, Vijay Varma, Jackie Lodman, Scott E Field, Gaurav Khanna, Mark A Scheel, Harald P Pfeiffer, Davide Gerosa, Lawrence E Kidder, "Eccentric binary black hole surrogate models for the gravitational waveform and remnant properties: Comparable mass, nonspinning case", Physical Review D 103, 064022 (2021).
25. Feroz H. Shaik, Jacob Lange, Scott E. Field, Richard O'Shaughnessy, Vijay Varma, Lawrence E. Kidder, Harald P. Pfeiffer, and Daniel Wysocki, "Impact of subdominant modes on the interpretation of gravitational-wave signals from heavy binary black hole systems", Physical Review D 101, 124054 (2020).
26. Nur E. M. Rifat, Scott E. Field, Gaurav Khanna, and Vijay Varma, "A Surrogate Model for Gravitational Wave Signals from Comparable- to Large-Mass-Ratio Black Hole Binaries", Physical Review D 101, 081502(R) (2020).
27. Vijay Varma, Scott E. Field, Mark A. Scheel, Jonathan Blackman, Davide Gerosa, Leo C. Stein, Lawrence E. Kidder, and Harald P. Pfeiffer, "Surrogate models for precessing binary black hole simulations with unequal masses", Physical Review Research 1, 033015 (2019).
28. Michael Boyle, Daniel Hemberger, Dante Iozzo, Geoffrey Lovelace, Serguei Ossokine, Harald P. Pfeiffer, Mark A. Scheel, Leo C. Stein, C.J. Woodford, Aaron B. Zimmerman, Nousha Afshari, Kevin Barkett, Jonathan Blackman, Katerina Chatziioannou, Tony Chu, Nicholas Demos, Nils Deppe, Scott E. Field, Nils L. Fischer, Evan Foley, Heather Fong, Alyssa Garcia, Matthew Giesler, Francois Hebert, Ian Hinder, Reza Katebi, Haroon Khan, Lawrence E. Kidder, Prayush Kumar, Kevin Kuper, Halston Lim, Maria Okounkova, Teresita Ramirez, Samuel Rodriguez, Hannes R. Rüter, Patricia

Schmidt, Bela Szilagyi, Saul A. Teukolsky, Vijay Varma, and Marissa Walker, "The SXS Collaboration catalog of binary black hole simulations", Classical and Quantum Gravity, Volume 36, Number 19 (2019).

29. Prayush Kumar, Jonathan Blackman, Scott Field, Mark Scheel, Chad Galley, Michael Boyle, Lawrence Kidder, Harald Pfeiffer, Bela Szilagyi, Saul Teukolsky, "Constraining the parameters of GW150914 & GW170104 with numerical relativity surrogates", Physical Review D 99, 124005 (2019).
30. Vijay Varma, Scott Field, Mark A Scheel, Jonathan Blackman, Lawrence E Kidder, Harald P Pfeiffer, "Surrogate model of hybridized numerical relativity binary black hole waveforms", Phys. Rev. D 99, 064045 (2019).
31. Harbir Antil, Dangxing Chen, Scott E. Field. "A Note on QR-Based Model Reduction: Algorithm, Software, and Gravitational Wave Applications," IEEE's Computing in Science & Engineering, 20, 4, August 2018.
32. Jeroen Meidam, Ka Wa Tsang, Janna Goldstein, Michalis Agathos, Archisman Ghosh, Carl-Johan Haster, Vivien Raymond, Anuradha Samajdar, Patricia Schmidt, Rory Smith, Kent Blackburn, Walter Del Pozzo, Scott E. Field, Tjonnie Li, Michael Purrer, Chris Van Den Broeck, John Veitch, Salvatore Vitale. "Parameterized tests of the strong-field dynamics of general relativity using gravitational wave signals from coalescing binary black holes: Fast likelihood calculations and sensitivity of the method", Phys. Rev. D 97, 044033 (2018).
33. Jonathan Blackman, Scott E. Field, Mark A. Scheel, Chad R. Galley, Christian D. Ott, Michael Boyle, Lawrence E. Kidder, Harald P. Pfeiffer, Bela Szilagyi. "A Numerical Relativity Waveform Surrogate Model for Generically Precessing Binary Black Hole Mergers," Physical Review D 96, (2017).
34. Jonathan Blackman, Scott E. Field, Mark A. Scheel, Chad R. Galley, Daniel A. Hemberger, Patricia Schmidt, and Rory Smith. "A Surrogate Model of Gravitational Waveforms from Numerical Relativity Simulations of Precessing Binary Black Hole Mergers." Physical Review D 95, 104023 (2017).
35. Richard O'Shaughnessy, Jonathan Blackman, and Scott E. Field. "An architecture for efficient multimodal gravitational wave parameter estimation with linear surrogate models," Classical and Quantum Gravity Volume 34, Number 14, June 2017.
36. Lawrence Kidder, Scott Field, Francois Foucart, Erik Schnetter, Saul Teukolsky, Andy Bohn, Nils Deppe, Peter Diener, Francois Hebert, Jonas Lippuner, Jonah Miller, Christian Ott, Mark Scheel, Trevor Vincent. "SpECTRE: A task-based discontinuous Galerkin code for relativistic astrophysics," Journal of Computational Physics, Volume 335, 15 April 2017, Pages 84-114.
37. Rory Smith, Scott Field, Kent Blackburn, Carl-Johan Haster, Michael Purrer, Vivien Raymond and Patricia Schmidt. "Fast and Accurate Inference on Gravitational Waves from Precessing Compact Binaries" Physical Review D 94, 044031 (2016).
38. Jonathan Blackman, Scott Field, Chad Galley, Béla Szilágyi, Mark Scheel, Manuel Tiglio, Daniel Hemberger. "Fast and accurate prediction of numerical relativity waveforms from binary black hole mergers using surrogate models" Physical Review Letters, Volume 115, Issue 12, September 2015.
39. Scott Field and Stephen Lau. "Fast recovery of far-field time-domain signals from near-field data" Journal of Scientific Computing, Volume 64, Issue 3, September 2015.
40. Scott Field and Paul Huwe. "Modern Gravitational Lens Cosmology for Introductory

Physics and Astronomy Students" Phys. Teach. 53, 266 April 2015.

41. Priscilla Canizares, Scott Field, Jonathan Gair, Vivien Raymond, Rory Smith and Manuel Tiglio. "Accelerated gravitational-wave parameter estimation with reduced order modeling" Physical Review Letters 114, 071104, February 2015.
42. Scott Field, Chad Galley, Jan Hesthaven, Jason Kaye, and Manuel Tiglio. "Fast prediction and evaluation of gravitational waveforms using surrogate models" Physical Review X 4, 031006 (2014).
43. Priscilla Canizares, Scott Field, Jonathan Gair, and Manuel Tiglio. "Gravitational wave parameter estimation with compressed likelihood evaluations" Physical Review D, Volume 87, Issue 12, June 2013.
44. Harbir Antil, Scott Field, Frank Herrmann, Ricardo Nochetto, and Manuel Tiglio. "Two-step greedy algorithm for reduced order quadratures" Journal of Scientific Computing, May 2013.
45. Alex Benedict, Scott Field, and Stephen Lau. "Fast evaluation of asymptotic waveforms from gravitational perturbations" Classical and Quantum Gravity Volume 30, Number 5, 055015, February 2013
46. Scott Field, Chad Galley, and Evan Ochsner. "Towards beating the curse of dimensionality for gravitational waves using Reduced Basis" Phyical Review D, Volume 86, Issue 8 October 2012
47. J. David Brown, Peter Diener, Scott Field, Jan Hesthaven, Frank Herrmann, Abdul Mroué, Olivier Sarbach, Erik Schnetter, Manuel Tiglio, and Michael Wagman. "Numerical simulations with a first order BSSN formulation of Einstein's field equations" Physical Review D, Volume 85, Issue 8 April 2012
48. Sarah Caudill, Scott Field, Chad Galley, Frank Herrmann, and Manuel Tiglio. "Reduced basis representations of multi-mode black hole ringdown gravitational waves" Classical and Quantum Gravity Volume 29, Number 9, 095016, April 2012. **One of the journal's highlights from 2011-2012.**
49. Scott Field, Chad Galley, Frank Herrmann, Jan Hesthaven, Evan Ochsner, and Manuel Tiglio. "Reduced basis catalogs for gravitational wave templates" Physical Review Letters, Volume 106, Issue 22, June 2011
50. Scott Field, Jan Hesthaven, Stephen Lau, and Abdul Mroue. "Discontinuous Galerkin method for the spherically reduced BSSN system with second-order operators" Physical Review D, Volume 82, Issue 10, November 2010
51. Scott Field, Jan Hesthaven, and Stephen Lau. "Persistent junk solutions in time-domain modeling of extreme mass ratio binaries" Physical Review D, Volume 81, Issue 12, June 2010
52. Scott Field, Jan Hesthaven, and Stephen Lau. "Discontinuous Galerkin method for computing gravitational waveforms from extreme mass ratio binaries" Classical and Quantum Gravity Volume 26, Number 16, 21, August 2009

Conference Proceedings:

1. M. Purrer, R. Smith, S. Field, P. Canizares, V. Raymond, J. Gair, M. Hannam. "Accelerating Parameter Estimation of Gravitational Waves from Black Hole Binaries with Reduced Order Quadratures", Proceedings of the 14^{th} Marcel Grossmann meeting, 2015.

Other publications:

1. Christian D. Ott, Mark Scheel, Peter Diener, Philipp Mosta, Luke Roberts, David Radice, Sherwood Richers, Roland Haas, Erik Schnetter, Lawrence Kidder, Saul Teukolsky, Scott Field, and Francois Foucart. "Magnetars, black hole collisions for LIGO, and a next generation numerical relativity code." Blue Waters 2016 Annual report (2016)

PhD dissertation:

1. Applications of Discontinuous Galerkin Methods to Computational General Relativity, `https://repository.library.brown.edu/studio/item/bdr:11327/` (5/2011)

Undergraduate honors thesis:

1. Search for Ξ_b and Σ_b with the CDF II Detector at Fermilab, `http://hdl.handle.net/1802/2878` (5/2006)

Internal collaboration notes:

1. Search for $\Theta^0_{cs} \to D_s P$ state in CDF. CDF Note Number: CDF/ANAL/BOTTOM/CDFR/7638 (2005)
2. Search for Penta Quark in the channel of $\Phi P \pi$. CDF Note Number: CDF/ANAL/BOTTOM/CDFR/7144 (2005)

Open Source Packages:

1. Radiation boundary condition and asymptotic waveform evaluation (near-field to far-field) numerical tables for time-domain simulation of wave propagation problems on curved spacetimes `http://www.dam.brown.edu/people/sfield/KernelsRWZ/`
2. Surrogates provide a fast and accurate evaluation mechanism for gravitational waveforms which would otherwise be found through solving differential equations. The GWSurrogate software package contains surrogate data, and an easy-to-use evaluation interface: `https://pypi.python.org/pypi/gwsurrogate/` (`https://github.com/sxs-collaboration/gwsurrogate`). Additional surrogate data is found on `https://www.black-holes.org/surrogates/` and `https://zenodo.org/communities/bhptoolkit/`.
3. Greedycpp is a fast, scalable and easy-to-use parallelization of the greedy algorithm for building application-specific basis, empirical interpolants, and reduced-order quadrature (ROQ) rules `https://bitbucket.org/sfield83/greedycpp`.
4. GWTools is a collection of tools for working with gravitational waveforms `https://pypi.org/project/gwtools/`.
5. I have made modest contributions to the publicly available LIGO Analysis Library (LAL) Suite, `https://github.com/lscsoft/lalsuite`, most notably the reduced-order quadrature pipeline for fast parameter estimation studies and the numerical relativity surrogate models. I was a member of the code review team for all of these projects.

6. I have made modest contributions to the Black Hole Perturbation Toolkit (BHPTK), `https://bhptoolkit.org/`, most notably the surrogate model packages.
7. I have made modest contributions to gw_remnant, an easy-to-use python package to efficiently extract the remnant mass, remnant spin, peak luminosity, and the final kick imparted on the remnant black hole directly from the gravitational radiation. This package was developed and maintained by Tousif Islam.
8. NRSurCat-1 is a catalog of posterior samples associated with the paper "Analysis of GWTC-3 with fully precessing numerical relativity surrogate models." This includes 47 binary black hole gravitational wave events (from 2015-2020, LVK O1-O3) analyzed using the numerical relativity surrogate models.

EXTERNAL GRANTS RECEIVED

1. NSF research grant AST-2407454, "Collaborative Research: CDS&E: Data-Driven Discovery of Neural ODE Dynamics, Astrophysical Models, and Orbits (Neural ODE DynAMO)", Scott Field (PI @ UMassD), Brendan Keith (PI @ Brown), Michael Puerrer (PI @ URI), $603,834 ($189,022 UMassD award amount) (2024 - 2027)
2. NSF ACCESS supercomputer allocation grant TG-PHY990002, "Gravitational Waves From Compact Binaries: Computational Contributions to LIGO", Scott Field (one of many co-PIs), Saul Teukolsky (PI). 14,000,000.0 Core-hours (SDSC Expanse), 13,000,000.0 Core-hours (Purdue Anvil), 1,000.0 Node-Hours (TACC Stampede3), 200,000.0 Core-hours (NCSA Delta CPU), 50,000.0 GB storage (SDSC Expanse Projects Storage) (2024-2025) The estimated value of these awarded resources is $119,870.05
3. NSF XSEDE supercomputer allocation grant SEE-230009, "Anvil for students enrolled in High Performance Scientific Computing taught at the University of Massachusetts Dartmouth", Vijay Varma (PI), Scott Field (co-PI). 50,000 core-hours on Purdue's Anvil supercomputer (2023-2025). The estimated value of these awarded resources is $208.00.
4. NSF research grant DMS-2309609, "Developing high order stable and efficient methods for long time simulations of gravitational waveforms", Scott Field (PI). Co-Pis: Sigal Gottlieb and Gaurav Khanna. $349,101 (2023 - 2026).
5. NSF ACCESS supercomputer allocation grant TG-PHY990002, "Gravitational Waves From Compact Binaries: Computational Contributions to LIGO", Scott Field (one of many co-PIs), Saul Teukolsky (PI). 13,300,000.0 Core-hours (SDSC Expanse), 12,000,000.0 Core-hours (Purdue Anvil), 100,000.0 Core-hours (NCSA Delta CPU), 2,000.0 Node-Hours (TACC Stampede3), 1.0 GB storage (TACC Long-term tape Archival Storage), 50,000.0 GB (SDSC Expanse Projects Storage), 1,000.0 GB (NCSA Delta Storage). (2023-2024). The estimated value of these awarded resources is $112,312.17
6. Frontera supercomputer allocation grant PHY20018, "Gravitational Waves From Compact Binaries: Computational Contributions to LIGO", Scott Field (one of many co-PIs), Saul Teukolsky (PI). 550,000 SUs (1 SU is equal to 1 node-hour) . (2023-2024).

7. NSF training grant DMS-1950644 (subaward) "The Mathematical Association of America's National Research Experience for Undergraduates Program (NREUP): Mixed model implicit and IMEX Runge-Kutta Methods", Zheng Chen (PI), Yanlai Chen (co-PI), Scott Field (co-PI), Sigal Gottlieb (co-PI, Alfa Heryudono (co-PI), $13,000 (6/2023 - 7/2023).
8. Office of Naval Research, "The Marine and UnderSea Technology Research Program (MUST) at UMass Dartmouth: Learning nonlinear dynamical systems from sparse and noisy data with applications to signal detection and recovery", Scott Field (PI), Zheng Chen (co-PI), Alfa Heryudono (co-PI), Vijay Varma (co-PI) $438,284. (2023 - 2026).
9. NSF ACCESS supercomputer allocation grant TG-PHY990002, "Gravitational Waves From Compact Binaries: Computational Contributions to LIGO", Scott Field (one of many co-PIs), Saul Teukolsky (PI). 5,700,000.0 Core-hours (SDSC Expanse), 10,350,000.0 Core-hours (Purdue Anvil), 1,600,000.0 Core-hours (PSC Bridges-2), 10,000.0 GB storage (PSC Bridges-2 Ocean) (2022-2023) The estimated value of these awarded resources is $95,481.98
10. NSF XSEDE supercomputer allocation grant TG-ASC160058, "Renewal: Stampede 2 for Students enrolled in High Performance Scientific Computing taught at the University of Massachusetts Dartmouth", Scott Field (PI). 4,340 node-hours (1 node-hour $\approx$ 68 single-core computing hours) (2022-2023). The estimated value of these awarded resources is $1,219.16
11. Air Force Office of Scientific Research, Defense University Research Instrumentation Program, "A multi-architecture hardware computing cluster for the development and efficient implementation of a variety of robust and scalable numerical algorithms" Sigal Gottlieb (PI), Scott Field (one of many co-PIs). $600,000 (2022 - 2023).
12. NSF research grant PHY-2110496, "Rapid, high-fidelity numerical models of gravitational waves from generic binary black hole mergers", Scott Field (PI). $210,000. (2021 - 2025)
13. NSF research grant OAC-2201106 "CC* Compute: COllaborative Next-generation Technology In the Northeast: the UMassUnity Machine (CONTINUUM)", Mike Zink (PI), Scott Field (Senior Personnel). $399,676. (2022 - 2024).
14. NSF research grant DMS-1912716, "High order numerical methods for gravitational wave computations", Scott Field (PI). Co-Pis: Sigal Gottlieb and Gaurav Khanna. $275,000 (2019 - 2023)
15. NSF research grant PHY-1806665, "Maximizing scientific outcomes of gravitational wave experiments with rapid, high-fidelity numerical models", Scott Field (PI). $193,437. (2018 - 2022)
16. NSF, "Implementation of a Contextualized Computing Pedagogy in STEM Core Courses and Its Impact on Undergraduate Student Academic Success, Retention, and Graduation", Yanlai Chen (PI), Scott Field (one of 11 senior personnel). $650,000. 9/1/2020 – 8/31/2025.
17. Office of Naval Research, Defense University Research Instrumentation Program, "A Heterogeneous Terascale Computing Cluster for the Development of GPU Optimized High-order Numerical Methods", Sigal Gottlieb (PI), Co-Pis: Vanni Bucci, Yanlai Chen, Geoffrey Cowles, Bo Dong, Scott Field, Alfa Heryudono, Gaurav Khanna, Maricris Mayes, Mehdi Raessi, Amit Tandon, Mazdak Tootkaboni. $643,899 (2018

- 2019).

18. NSF XSEDE supercomputer allocation grant TG-ASC160058, "Renewal: Stampede 2 for Students enrolled in High Performance Scientific Computing taught at the University of Massachusetts Dartmouth", Scott Field (PI). 2,340 node-hours (1 node-hour $\approx$ 68 single-core computing hours) (2019-2020). The estimated value of these awarded resources is $597.08
19. NSF XSEDE supercomputer allocation grant TG-ASC160058, "Renewal: Stampede 2 for Students enrolled in High Performance Scientific Computing taught at the University of Massachusetts Dartmouth", Scott Field (PI). 2,340 node-hours (1 node-hour $\approx$ 16 single-core computing hours) (2017-2019)
20. National Institute of Aerospace grant "High-order Compact Discontinuous Galerkin for Unstructured Grids", Scott Field (PI). $26,560 (2017 - 2018).
21. NSF XSEDE supercomputer allocation grant TG-ASC160058, "Stampede for Students enrolled in High Performance Scientific Computing taught at the University of Massachusetts Dartmouth", Scott Field (PI). 81,000 supercomputing units (1 SU $\approx$ one computing hour) (2016-2017). The estimated value of these awarded resources is $658.58
22. NSF Physics at the Information Frontier research grant PHY-1316424 "Reduced order modeling for gravitational waves", Scott Field (co-PI), Chad Galley (co-PI), Manuel Tiglio (PI). $375,000 (2013-2016)
23. NSF research grant PHY-1208861, "Reduced Basis for Gravitational Waves: Select, Solve, Represent, Predict", Scott Field (co-PI), Chad Galley (co-PI), Frank Herrmann (co-PI), Evan Ochsner (co-PI), Manuel Tiglio (PI). $150,000 (2012-2015)
24. NSF XSEDE supercomputer allocation grant TG-PHY090080, "Binary Black Hole Parameter Space Studies", Scott Field (co-PI), Frank Herrmann (co-PI), Manuel Tiglio (PI). 2,700,000 supercomputing units (1 SU $\approx$ one computing hour) (2012-2013)

INTERNAL & OTHER GRANTS RECEIVED

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1. CSCDR suplemental student funding. Sarah Caudill, Scott Field, Vijay Varma (Summer 2024).
2. Provost's Departmental Seminar Series Funding, "Computational Science Seminar Series" Zheng Chen, Bo Dong, and Scott Field. $1,000 (2023-2024).
3. NASA, Mass Space Science Consortium, "Towards Building Ringdown Numerical Relativity Surrogate Models". Tyson George (student), Scott Field (project mentor). $7,500 (Summer 2023).
4. CAS Research and Professional Development Support Grant. Scott Field. $1,000 (Spring 2023).
5. NASA, Mass Space Science Consortium, "Neural ODE's for Modeling Binary Black Hole Systems". Keigan Cullen (student), Scott Field (project mentor). $2,500 (Fall 2022).
6. NASA, Mass Space Science Consortium, "Neural ODE's for Modeling Binary Black Hole Systems". Brian Cornet (student), Scott Field (project mentor). $3,500 (Fall 2022).

7. NASA, Mass Space Science Consortium, "Machine-learning based gravitational wave models". Tyson George (student), Scott Field (project mentor). $1,750 (Fall 2022).
8. CAS Travel Grant. Scott Field. $475 (2022).
9. Provost's Departmental Seminar Series Funding, "Computational Science Seminar Series" Zheng Chen, Bo Dong, and Scott Field. $1,000 (2022-2023).
10. NASA, Mass Space Science Consortium, "Towards Building Ringdown Numerical Relativity Surrogate Models". Tyson George (student), Scott Field (project mentor). $5,625 (Summer 2022).
11. NASA, Mass Space Science Consortium, "Efficient EMRI Waveform Modeling Using a Discontinuous Galerkin Method". Katie Rink (student), Scott Field (project mentor). $6,000 (Summer 2022).
12. NASA, Mass Space Science Consortium, "Neural ODE's for Modeling Binary Black Hole Systems". Keigan Cullen (student), Scott Field (project mentor). $1,500 (Summer 2022).
13. Provost Travel Grant. Scott Field. $500 (2022).
14. CAS Travel Grant. Scott Field. $1000 (2022).
15. Northeast Cyberteams, "Learning Dynamical Systems with GPU-Enabled Scientific Machine Learning". Brian Cornet (student), Scott Field (project mentor). $4,700
16. Northeast Cyberteams, "Optimization and Parallelization of A Numerical Gravitational-Wave Model". Katie Rink (student), Scott Field (project mentor). $4,700
17. NASA, Mass Space Science Consortium, "Computing far-field gravitational wave signals". Rebecca Rodrigues (student), Scott Field (project mentor). $2,500 (Fall 2021).
18. NASA, Mass Space Science Consortium, "High-accuracy ringdown gravitational wave models". Tyson George (student), Scott Field (project mentor). $5,000 (Fall 2021, Spring 2022).
19. Provost's Departmental Seminar Series Funding, "Computational Science Seminar Series" Zheng Chen, Bo Dong, and Scott Field. $1,000 (2021-2022).
20. NASA, Mass Space Science Consortium, "Comparative Analysis of Binary Black Hole Models in the Intermediate Mass Ratio Regime". Keigan Cullen (student), Scott Field (project mentor). $5,500 (Summer 2021, Spring 2022).
21. NASA, Mass Space Science Consortium, "Virtual reality visualizations of merging black holes". Chris Gilbert (student), Scott Field (project mentor). $3,500 (Summer 2021).
22. NASA, Mass Space Science Consortium, "Implementing a Dirac δ-function Source Term for the Teukolsky Equations into a Discontinuous Galerkin Solver". Katie Rink (student), Scott Field (project mentor). $3,500 (Summer 2021).
23. NASA, Mass Space Science Consortium, "Simulating the Aretakis instability for a Spinning Black Hole". Connor Kenyon (student), Scott Field (project mentor). $3,000 (Summer 2020).
24. Provost's Departmental Seminar Series Funding, "Computational Science Seminar Series" Zheng Chen, Bo Dong, and Scott Field. $1,000 (2019-2020).
25. CAS Event Fund. "Events: AfterMath Symposium and @Math", Yanlai Chen, Zheng Chen, Gary Davis, Scott Field, Alfa Heryudono, Saeja Kim, and Donghui Yan. $2,000 (2019-2020).
26. CSCVR Seminar Series Funding, "Computational Science Seminar Series", Zheng

Chen, Bo Dong and Scott Field. $1,000 (2019-2020).

27. CSCVR student funding. $5,000 (2019-2020).
28. SIAM Student Chapter funding. Yanlai Chen, Matthew Cormier, Bo Dong, Scott Field, Alfa Heryudono, Rebecca Pereira. $500 (2019-2020)
29. CSCVR, COE, and CAS funding for on-campus public talk "Rainer Weiss, 2017 Nobel Prize winner for the discovery of gravity waves" (2019). $3,600.
30. Data Science Interface Grant, "Dataflow Notebooks: Improving Reproducibility in Notebook Environments", David Koop (PI), Scott Field (co-PI). $16,000 (2017-2019).
31. CAS Event Fund. "Events: AfterMath Symposium and @Math", Gary Davis, Scott Field, Sigal Gottlieb, Alfa Heryudono, Saeja Kim, and Donghui Yan. $1,600 (2018-2019).
32. Provost's Departmental Seminar Series Funding, "Computational Science Seminar Series" Bo Dong and Scott Field. $1,000 (2018-2019).
33. Provost Travel Grant. Scott Field. $500 (2019).
34. NASA, Mass Space Science Consortium, "Project continuation: Rapid classification of gravitational wave signals using deep neural networks". Dwyer Deighan (student), Scott Field (project mentor). $2,500 (Summer 2019).
35. NASA, Mass Space Science Consortium, "A Convolution Method for the Teleportation of Gravitational Waves to the Far Field. Kimberly Matsuda (student), Scott Field (project mentor). $2,800 (Winter 2018 - Spring 2019).
36. Provost's Departmental Seminar Series Funding, "Computational Science Seminar Series" Bo Dong and Scott Field. $1,000 (2017-2018).
37. SIAM Student Chapter funding. Yanlai Chen, Bo Dong, Scott Field, Alfa Heryudono, and Jiahua Jiang. $500 (2017-2018).
38. CAS Event Fund. "Events: AfterMath Symposium and @Math", Gary Davis, Scott Field, Sigal Gottlieb, Alfa Heryudono, Saeja Kim, and Donghui Yan. $1,600 (2017 - 2018).
39. NASA, Mass Space Science Consortium, "Rapid classification of gravitational wave signals using deep neural networks". Dwyer Deighan (student), Scott Field (project mentor). $6,000 (Spring 2018 - Summer 2018).
40. Provost Travel Grant. Scott Field. $500 (2018).
41. CAS Travel Grant. Scott Field. $1000 (2018).
42. CSCVR, "RCM-2 equipment resource", Bo Dong, Scott Field, and Alfa Heryudono. $600 (2018).
43. SIAM Student Chapter funding. Yanlai Chen, Bo Dong, Scott Field, Alfa Heryudono, and Jiahua Jiang. $500 (2016-2017)
44. Libraries Open Access Grant, University of Maryland (4/2014)
45. Research travel grant, Institute of Astronomy, Cambridge University (6/2013)
46. Brown University, Research Travel Grant "Reduced basis methods for problems in General Relativity" (4/2010 and 10/2010)

SEMINARS, COLLOQUIUM, AND CONFERENCE PRESENTATIONS

1. "Hands-on: SpECTRE setup and technology check", tutorial run as part of Simulating Extreme Spacetimes with SpEC and SpECTRE (ICERM workshop), 8/2024. Invited, international workshop.
2. "Learning Nonlinear Dynamical Systems from Sparse and Noisy Data: Applications to Signal Detection and Recovery", Marine & UnderSea Technology Research Program (MUST) Day, UMassD (7/2024). Invited, regional conference.
3. "Exponentially-convergent simulations of extreme-mass-ratio binary black hole systems: A discontinuous Galerkin method for the Teukolsky equation with singular source terms", North American High Order Methods Conference (NAHOMCon2024), Dartmouth College, 6/2024. Invited keynote speaker, national conference.
4. "Exponentially-convergent simulations of extreme-mass-ratio binary black hole systems: A discontinuous Galerkin method for the Teukolsky equation with singular source terms", Center for Mathematics and Artificial Intelligence, George Mason University, 3/2024. Invited, Colloquium.
5. "A machine learning approach for studying binary black hole collisions", Salve Regina, 3/2024. Invited, Colloquium.
6. "Towards a general $s \neq 0$ Teukolsky solver", U2GRC group meeting, 12/2023. Contributed, research group meeting.
7. "Potential Applications of Scientific Machine Learning to the Binary Black Hole Problem", Scientific Machine Learning Workshop, Banff International Research Station, 6/2023. Invited, international workshop.
8. "Learning Dynamical Systems from Noisy Far-Field Measurements with Applications to Binary Black Holes", SIAM Conference on Mathematics of Data Science (MDS22), 9/2022. Invited, international conference.
9. "Surrogate models, methods, and applications: Learning high-fidelity gravitational-wave models from numerical relativity data", UVA Gravity Seminar, 11/2022. Invited, seminar.
10. "Learning orbital dynamics of binary black hole systems from gravitational wave measurements", April APS Meeting 2022, 4/2022. Contributed, national conference.
11. "Learning orbital dynamics of binary black hole systems from gravitational wave measurements", Center for the GW Universe Focus Workshop on Machine Learning & Artificial Intelligence in GW Universe Research, 4/2022. Invited, international workshop.
12. "Learning high-fidelity gravitational wave models from numerical relativity data", Integrated Applied Mathematics Program at the University of New Hampshire, 3/2022. Invited, seminar.
13. "Gravitational Wave Parameter Estimation with Compressed Likelihood Evaluations", Institute for Pure & Applied Mathematics's semester program "Mathematical and Computational Challenges in the Era of Gravitational Wave Astronomy" (11/2021). Invited, international conference.
14. "From weeks to seconds: A data-driven, gray-box modeling approach for computationally challenging simulations", Supercomputing 2021 (11/2021). Invited, international conference.
15. "Learning orbital dynamics of binary black hole systems from gravitational wave measurements", Sixteenth Marcel Grossmann Meeting (7/2021). Contributed, interna-

tional conference.

16. "A Discontinuous Galerkin Method for Wave Equations on Curved Geometries with Dirac Delta Source Terms", SIAM Annual Meeting 2021, (7/2021). Contributed, international conference.
17. "A Discontinuous Galerkin Method for Wave Equations on Curved Geometries with Dirac Delta Source Terms", ICOSAHOM2020, (7/2021). Contributed, international conference.
18. "Improved analysis of GW190412 with a precessing numerical relativity surrogate waveform model", APS April Meeting, virtual, 4/2021. Contributed, national conference.
19. "Template-based gravitational wave search algorithms for compact binaries", Signal Processing group meeting (Kathleen Wage GMU, John Buck UMassD), 3/2021. Invited, research group meeting talk.
20. "Discovering black holes and gravitational waves: A closer look at the recent Nobels", UMassD Homecoming Talk, 10/2020. A video of the talk is available here. Invited, public outreach talk.
21. "New Approaches to Inference", Statistical Methods for the Detection, Classification, and Inference of Relativistic Objects, ICERM, 11/2020. Invited, panelist.
22. "Tutorial: Learning high-fidelity gravitational-wave models from numerical relativity data", Statistical Methods for the Detection, Classification, and Inference of Relativistic Objects, ICERM, 11/2020. Invited, workshop.
23. "A Surrogate Model for Gravitational Wave Signals from Comparable- to Large- Mass-Ratio Black Hole Binaries", Cordoba Gravity Group Seminar, virtual (7/2020). Invited, seminar.
24. "The EMRI Surrogate package", Black Hole Perturbation Toolkit Spring 2020 workshop, virtual (5/2020). Invited, talk.
25. "A Surrogate Model for Gravitational Wave Signals from Comparable- to Large-Mass-Ratio Black Hole Binaries", APS April Meeting, virtual, (4/2020). Contributed, talk.
26. "Discovering black holes and gravitational waves: simulation and data science", Holy Cross, Mathematics Colloquium (2/2020). Invited, Colloquium.
27. "Discovering Black holes and gravitational waves: algorithms, simulation, and data science", Salve Regina University, Data Science Colloquium, (10/2019). Invited, Colloquium.
28. "Optimized convolutional neural networks for the detection of multimodal gravitational wave signals", International Congress on Industrial and Applied Mathematics, Valencia Spain, (7/2019). Invited, talk.
29. "Optimized convolutional neural networks for the detection of multimodal gravitational wave signals", Eastern Gravity Meeting, UMassD, (6/2019). Contributed, talk.
30. Evaluation of far-field gravitational-wave signals from near-field data, Applied Math Seminar, UMass Lowell (4/2019). Invited, seminar.
31. Optimized convolutional neural networks for the detection of multimodal gravitational wave signals, April APS meeting, Denver, CO (4/2019). Contributed, national conference.
32. Discovering Black Holes and Gravitational Waves: Algorithms and Simulation, The Institute for Computational and Experimental Research in Mathematics Public Lec-

ture, Brown University, (2/2019). A video of the talk is available here. Invited, public lecture.

33. Model- and data-specific spectral quadrature rules for likelihood evaluations with noisy data, International Conference on Spectral and High Order Methods, London, England, (7/2018). Invited, international conference.
34. Building a 1D model, Reduced Order Modeling for Gravitational-Waves, Max Planck Institute for Gravitational Physics, (6/2018). Invited, international workshop.
35. Parametric fits II: Cross validation, automation, forward stepwise greedy. Reduced Order Modeling for Gravitational-Waves, Max Planck Institute for Gravitational Physics, (6/2018). Invited, international workshop.
36. Make the problem simpler: Waveform decompositions, Reduced Order Modeling for Gravitational-Waves, Max Planck Institute for Gravitational Physics, (6/2018). Invited, international workshop.
37. Black Holes and Computational Waves, keynote talk at HPCDay, Northeastern (5/2018). Invited keynote, regional conference.
38. GWSurrogate: An easy-to-use interface to gravitational wave surrogate models, April APS meeting, Columbus, OH (4/2018). Contributed, national conference.
39. GWSurrogate: An easy-to-use interface to gravitational wave surrogate models, 20th Eastern Gravity Meeting, Penn State (6/2017). Contributed, national/regional conference.
40. Fast recovery of far-field time-domain signals from near-field data, Applied and Computational Math Seminar, George Mason University (5/2017). Invited, seminar.
41. Fast recovery of far-field time-domain signals from near-field data, numerical analysis seminar, Worcester Polytechnic Institute (4/2017). Invited, seminar.
42. A Task-based Discontinuous Galerkin Code for Relativistic Astrophysics, Center for Computational Relativity and Gravitation, RIT (11/2016). Invited, seminar.
43. A Task-based Discontinuous Galerkin Code for Solving Multiphysics Problems in General Relativity, 21st International Conference on General Relativity and Gravitation, Columbia University (7/2016). Contributed, international conference.
44. A Task-based Discontinuous Galerkin Code for Solving Multiphysics Problems in General Relativity, 19th Eastern Gravity Meeting, University of New Hampshire (5/2016). Contributed, national/regional conference.
45. SpECTRE: A new code, SXS Presentations, (3/2016). Invited, web-based seminar attended by members of Cornell, Caltech, CITA, Cal State Fullerton, and AEI.
46. Efficient numerical methods for gravitational wave data science, scientific computing seminar, U. Mass Dartmouth (3/2016). Invited, seminar.
47. Efficient computational approaches to gravitational wave data science, astronomy seminar, Brown University (3/2016). Invited, seminar.
48. Nonspinning numerical relativity waveform surrogates, 18th Eastern gravity meeting, RIT (5/2015). Contributed, national/regional conference.
49. Nonspinning numerical relativity waveform surrogates: assessing the model, April APS meeting, Baltimore, MD (4/2015). Contributed, national conference.
50. A Discontinuous Galerkin Method for the Spherically Reduced Einstein Field Equations with Second-Order Operators, SIAM conference on Computational Science and Engineering, Salt Lake City, UT (3/2015). Invited, international conference.

51. Fast and exact evaluation of asymptotic waveforms from gravitational perturbations, theoretical astrophysics seminar, Cornell University (9/2014). Invited, seminar.
52. Surrogate gravitational waveform models, 17th Eastern Gravity Meeting, West Virginia University (5/2014). Contributed, national/regional conference.
53. Surrogate models for effective one body gravitational waveforms, April APS meeting, Savannah, GA (4/2014). Contributed, national conference.
54. Matrix completion and the Netflix challenge, TAPIR lunch seminar, California Institute of Technology (3/2014). Invited, brown-bag lunch talk.
55. Surrogate gravitational waveform models, gravitational theory seminar, U. of Maryland (1/2014). Invited, seminar.
56. Surrogate gravitational waveform models, theoretical astrophysics seminar, Cornell University (11/2013). Invited, seminar.
57. Surrogate and reduced order modeling for gravitational waves, 6^{th} Numerical Relativity - Data Analysis meeting, Mallorca, Spain (9/2013). Contributed, international meeting.
58. Gravitational Wave Parameter Estimation with Compressed Likelihood Evaluations, Applied Mathematics Modeling and Computer Science special session on Applied Analysis & Inverse Problems, Waterloo, Ontario, Canada (8/2013). Contributed, international conference.
59. Fast recovery of far-field time-domain signals from near-field data, Applied Mathematics Modeling and Computer Science special session on Recent Progress in Hyperbolic Problems, Waterloo, Ontario, Canada (8/2013). Invited, international conference.
60. Surrogate gravitational wave models, TAPIR lunch seminar, California Institute of Technology (6/2013). Invited, brown-bag lunch talk.
61. Gravitational wave parameter estimation with compressed likelihood evaluations, Reduced Order Modeling in General Relativity, Caltech (6/2013). Contributed, poster session.
62. Fast evaluation of asymptotic waveforms from gravitational perturbations, TAPIR seminar, California Institute of Technology (5/2013). Invited, seminar.
63. Application-specific quadrature for fast evaluation of parameterized inner products with noisy data, mathematics colloquium, University of New Mexico (4/2013). Invited, colloquium.
64. Fast recovery of far-field signals from gravitational perturbations, computational science seminar, U. Mass Dartmouth (4/2013). Invited, seminar.
65. Fast evaluation of asymptotic waveforms from gravitational perturbations, gravitational theory seminar, U. of Maryland (3/2013). Contributed, seminar.
66. A Generalized Discontinuous Galerkin Scheme for Accurate Modeling of Binary Black Holes, applied and computational math seminar, George Mason University (2/2013). Invited, seminar.
67. Fast waveform extraction from gravitational perturbations, 15^{th} Capra Meeting on Radiation Reaction, U. of Maryland (6/2012). Contributed, international conference.
68. Numerical simulations with a first order BSSN formulation of Einstein's field equations, April APS meeting, Atlanta, GA (3/2012). Contributed, national conference.
69. Reduced basis representations of multi-mode black hole ringdown gravitational waves, April APS meeting, Atlanta, GA (3/2012). Contributed, national conference.

70. A reduced basis representation for chirp and ringdown gravitational wave templates, Joint Space-Science Institute mini-symposium, U. of Maryland (9/2011). Invited, regional meeting.
71. High-order accurate modeling of extreme mass ratio binaries and static junk solutions, U. of Massachusetts Dartmouth (6/2011). Invited, seminar.
72. Greedy algorithm for building a reduced basis of gravitational wave templates, 14th Eastern gravity meeting, Princeton (6/2011). Contributed, regional/national meeting.
73. A Discontinuous Galerkin Method for BSSN-Type Systems, Advances and Challenges in Computational General Relativity, Brown University (5/2011). Contributed, international conference.
74. Applications of Discontinuous Galerkin Methods to Computational General Relativity, dissertation defense, Brown University (4/2011). Dissertation defense talk.
75. Greedy algorithm for building a reduced basis of gravitational wave templates, astrophysics journal club, Brown University (2/2011). Contributed, seminar.
76. Greedy construction of an efficient and accurate gravitational waveform template bank for LIGO, astronomy seminar, CITA (1/2011). Invited, seminar.
77. Persistent junk solutions in time–domain modeling of extreme mass ratio binaries, 14^{th} Capra Meeting on Radiation Reaction, University of Guelph (6/2010). Contributed, international conference.
78. High-order accurate modeling of extreme mass ratio binaries and static junk solutions, gravitational theory seminar, U. of Maryland (4/2010). Invited, seminar.
79. Issues with Trivial Initial Data in Extreme Mass Ratio Binary Modeling, physics coffee hour presentation, Brown University (12/2009). Contributed, brown-bag lunch.
80. Discontinuous Galerkin as a Hybrid of Methods: Applications to Hydrodynamics, Cornell University (8/2009). Invited, seminar.
81. Modeling Extreme Mass Ratio Binaries, 13^{th} Capra Meeting on Radiation Reaction, Indiana University (5/2009). Contributed, international conference.
82. Extreme Mass Ratio Binaries and Incorporation of Self-Force, astrophysics journal club, Brown University (5/2009). Invited, seminar.
83. Modeling Extreme Mass Ratio Binaries with a Discontinuous Galerkin Method, Preliminary exam talk (12/2008). Preliminary defense talk.
84. Introduction to Discontinuous Galerkin methods and Application to Extreme Mass Ratio Binaries, Cornell numerical relativity group (6/2008). Contributed, local group presentation.
85. Search for Ξ_b and Σ_b with the CDF II Detector at Fermilab, New York undergraduate research conference (5/2006). Contributed, regional meeting.
86. Search for Strange-Charmed Pentaquark States in the 1.96 TeV ppbar collision, APS meeting, Tampa, Florida (4/2005). Contributed, national conference.

MENTORSHIP

Students:

1. Advisor for the following University of Massachusetts Dartmouth PhD students: Feroz Shaik (2019 -), Connor Kenyon (2019 -), Manas Vishal (2021 -), Som Bishoyi (2022 - ; Co-advised by Gaurav Khanna), Adhrit Ravichandran (2022 - ; Co-advised by Vijay Varma), Tousif Islam (2019 - 2023. "Connecting numerical relativity, perturbation theory, and gravitational wave astrophysics"),
2. Advisor for the following University of Massachusetts Dartmouth masters students: Brian Cornet (2021 -), Tyson George (2022 - 2023. "Building Numerical Relativity Surrogate Models with Neural Networks"), Katie Rink (2020 - 2022. "Computationally Efficient Methods for Modelling Binary Black Holes: Intermediate to Extreme Mass-Ratio Limit"), Kevin Gonzalez-Quesada (2020 - 2022. "Scalar and Gravitational Transient Hair for Near-Extremal Black Holes". Co-advised by Gaurav Khanna), Colin Brown (2020 - 2021. "Reproducible Notebooks: A Study in the Replicability and Reproducibility of Computational Notebooks"), Feroz Shaik (2018 - 2019. "Impact of subdominant modes on the interpretation of gravitational-wave signals from heavy binary black hole systems"), Nur Rifat (2018 - 2020. "A Surrogate Model for Gravitational Wave Signals from Comparable- to Large-Mass-Ratio Black Hole Binaries"), Divya Sreenivasan (2018 - 2019. "Training optimizations for CNN classifiers"), Aakash Kardam (2017 - 2018. "A Comparison of Nodal Discontinuous Galerkin Schemes for Hypersonic Flow Over a Blunt Body"), Devin Viegas (2017 - 2018. "Simulating Orbital Resonance With a Python-based N-body Code"), Dominic Gastald (2017. "A Pseudospectral Approach to Scalar Collapse").
3. Research project supervisor for the following University of Massachusetts Dartmouth undergraduate students: Tyson George (2021 - 2022), Rebecca Rodrigues (2021 - 2023, "A Python package for near-field-to-far-field algorithms"), Keigan Cullen (2020 - 2023. "Neural Ordinary Differential Equations with Applications to Gravitational Wave Modeling"), Dwyer Deighan (2017 - 2021), Trevor Robertson (2019 - 2020), Kimberly Matsuda (2017 - 2019. "A Convolution Method for the Teleportation of Gravitational Waves to the Far Field"), Derek Marshall (Honors project, 2018, "Utilizing Transcription Factors and Feature Reduction Methods to Determine Drug Response in Cancer Cells"), David Manning (summer RA, 2017), Matthew Wise (Senior project, 2017. "Convolutional Neural Networks for Gravity Wave Detection"),
4. Research project supervisor for the following summer interships: Deeshani Mitra (2023), Som Dev Bishoyi (2021), Manas Vishal (2020), and Estuti Shukla (2020).
5. Research project supervisor for the following high school students: Emerson Maccarone (2019).

Additional activities & experiences:

1. Domain expert guest faculty for MTH 540 (Mathematical & Computational Consulting). (Fall 2018, Fall 2019, Fall 2020).
2. Participation in University of Maryland's new mentoring program aimed to engage freshman in meaningful semester-long research. Responsibilities include designing a research project, supervising student research and developing student research skills. Two students were supervised throughout the spring semester. (1/2013 - 5/2013)
3. Tousif Islam was awarded a Kavli Institute for Theoretical Physics (KITP) graduate fellowship (2021).
4. Jason Kaye's undergraduate applied math research project "The Interpolation of Gravitational Waveforms" for which he was awarded the "Provost's prize" in recognition

of outstanding honors thesis. Additionally, as part of this project Jason was awarded a summer grant through Brown's "Undergraduate Teaching and Research Awards" program. (5/2011 - 5/2012)

5. Michael Wagman's undergraduate physics research project "Simulating Turduckened Black Holes with a Discontinuous Galerkin Scheme" for which he was awarded the "Mildred Widgoff Prize for Excellence in Thesis Preparation." Additionally, as part of this project Mike was awarded a summer grant through Brown's "Undergraduate Teaching and Research Awards" program. (10/2010 - 5/2012)

OTHER PROFESSIONAL ACTIVITIES

Selected summer school, workshop, and conference participation:

1. "LISA Symposium", UC Dublin/Virtual (7/2024).
2. "High-Performance Computing Day", UMass Dartmouth (11/2023).
3. "Capra 26", virtual (6/2023).
4. "RI Regional AI and Data Meeting", Brown University (6/2022). Breakout session convener/organizer on data ethics.
5. "RI Regional AI and Data Virtual Meeting", URI (5/14/2021). Breakout session convener/organizer.
6. "AMD EPYC Advanced User Training on Expanse", XSEDE (4/21/2021).
7. "High-Performance Computing Day", UMass Lowell (5/21/2019).
8. "Black Hole Perturbation Toolkit Workshop", MIT (3/11/2019).
9. "Scientific Machine Learning", ICERM/Brown University (1/30/2019).
10. "Black Hole Initiative Conference," Harvard University (5/2017).
11. "Conference on Computational Science and Engineering," SIAM (2/2013).
12. "Chirps, Mergers and Explosions," summer program held at Kavli Institute for Theoretical Physics (8/2012)
13. "Near Field Cosmology as a Probe of Early Universe, Dark Matter and Gravity," Joint Space-Science Institute (11/2011)
14. "International conference on advances in scientific computing," Brown University (12/2009)
15. "Prospects in theoretical physics summer school: Computational Astrophysics," Princeton University (7/2009)

Conference organization:

1. Co-principle organizer of "Simulating Extreme Spacetimes with SpEC and SpECTRE" at the Institute for Computational and Experimental Research in Mathematics (Brown University) (8/5/2024 - 8/9/2024).
2. Co-organizer of the "23rd Eastern Gravity Meeting" at the University of Rhode Island (6/9/2023 - 6/10/2023).
3. Co-principle organizer of "Advances in Computational Relativity: Fall 2020 Reunion Event" (7/25/2022 - 8/12/2022)

4. As part of the "Advances in Computational Relativity: Fall 2020 Reunion Event" event, I was also a workshop organizer for the "Numerical Relativity Community Summer School" (Aug 8 - 12, 2022).
5. Co-principle organizer of "Advances in Computational Relativity" at the Institute for Computational and Experimental Research in Mathematics (ICERM); Fall 2020. Over 500 researchers participated in this program.
6. As part of the program "Advances in Computational Relativity" I was also a workshop organizer for: (i) Advances and Challenges in Computational Relativity (9/2020), (ii) Mathematical and Computational Approaches for Solving the Source- Free Einstein Field Equations (10/2020), (iii) Mathematical and Computational Approaches for the Einstein Field Equations with Matter Fields (10/2020), and (iv) Statistical Methods for the Detection, Classification, and Inference of Relativistic Objects (11/2020).
7. Planning committee member for the American Statistical Association's Student Research Symposium (Boston Chapter). 3/2021, 3/2022.
8. Co-organizer of minisymposium "Topological data analysis and deep learning: theory and signal applications", International Congress on Industrial and Applied Mathematics (ICIAM), Valencia, Spain (7/15/2019 - 7/19/2019)
9. Organizing committee member of the Eastern Gravity Meeting at UMassD (5/31/2018 - 6/1/2018). Website
10. Organizing committee member for the New England Section of the American Physical Society (APS-NES) which took place at UMassD from 11/2/2018 to 11/3/2018. Website
11. Co-principle organizer of "ROM for Gravitational waves", a weeklong international workshop held at the Albert Einstein Institute of gravitational physics in Golm, Germany (6/2018). Workshop website
12. Organizing committee member for Reduced Order Modeling in General Relativity, a two day workshop at California Institute of Technology (6/2013). Workshop website
13. Local Organizing Committee for Capra Meeting on Radiation Reaction, a weeklong workshop at The Center for Scientific Computation and Mathematical Modeling (CSCAMM) University of Maryland (6/2012). Workshop website
14. Principle workshop organizer for Advances and Challenges in Computational General Relativity, a three day workshop at Brown University attended by over 80 researchers (5/2011). Workshop website

Other professional service:

1. Simulating eXtreme Spacetimes (SXS) executive committee member (2022 -)
2. External committee member for the following PhD students: Ritesh Bachhar (URI; 2024 -)
3. Served on NASA Postdoctoral Program (NPP) Primary Panel (2024)
4. Ad hoc reviewer for NSF CAREER proposals (2024)
5. Guest editor for a special issue *Advances in Computational Relativity* in Applied Mathematics and Statistics (2022 - 2024)
6. Served on an NSF panel for a Division of Physics (PHY) program within the Directorate for Mathematical and Physical Sciences (2023).
7. Chair of the SIAM Annual Meeting (AN21) session "Partial Differential Equations"

(7/2021)

8. Book reviewer for "Introduction to Python Programming for Scientists and Engineers", Cambridge University Press (2020).
9. Served on an NSF panel for a Division of Mathematical Sciences (DMS) program within the Directorate for Mathematical and Physical Sciences (2020).
10. Served on an NSF panel for a Division of Physics (PHY) program within the Directorate for Mathematical and Physical Sciences (2019).
11. Referee for DiRAC allocation proposal (2018).
12. Review editorial board member of Frontiers' Astronomy and Space Sciences Journal (2015 - 2023)
13. Chair of the April APS session "Gravitational Waveforms and Perturbation Theory" (4/2015)
14. Referee for Physical Review D (2024), Physical Review D (2024), Journal of Computational Physics (2024), Journal of Computational Physics (2024), Expert Systems With Applications (2024), Special issue "Scientific Machine Learning" for Foundations of Data Science (2024), Physical Review D (2023), Physical Review D (2023), Physical Review D (2023), Journal of Scientific Computing (2023), Journal of Computational Physics (2023), Journal of Computational Physics (2023), Physical Review D (2022), Physical Review D (2022), Physical Review Letters (2022), Physical Review Letters (2022), Expert Systems With Applications (2022), SIAM Journal on Numerical Analysis (2022), Physical Review Reseaerch (2022), SIAM Journal on Numerical Analysis (2021), Physical Review D (2021), Physical Review D (2021), Physical Review D (2021), Physical Review D (2021), Physical Review Letters (2021), Physical Review Letters (2021), Nature Physics(2020), Physical Review D (2020), Nature Scientific Reports (2020), Journal of Scientific Computing (2020), physical Review D (2020), physical Review D (2019), physical Review D (2019), Physical Review Letters (2019), Physical Review Letters (2019), Nature Physics (2019), Journal of Scientific Computing (2019), Physical Review D (2019), The Physics Teacher (2019), Classical and Quantum Gravity (2019), Journal of Scientific Computing (2018), Classical and Quantum Gravity (2018), The Journal of Computational Physics (2018), Journal of Scientific Computing (2018), Physical Review D (2018), Journal of Scientific Computing (2018), Physical Review Letters (2018), Physical Review D (2018), Journal of Computational Physics (2018), Physical Review Letters (2018), Journal of Scientific Computing (2018), Journal of Scientific Computing (2018), Physical Review D (2017), Journal of Computational Physics (2017), Journal of Scientific Computing (2017), Journal of Computational Physics (2017), LIGO Scientific Collaboration Papers (2016), Physical Review Letters (2016), Physical Review D (2016), The Physics Teacher(2016), LIGO Scientific Collaboration Papers (2016), Physical Review D (2015), Physical Review D (2015), Classical and Quantum Gravity (2015), Physical Review D (2014), Open Numerical Methods Journal (2014) , Classical and Quantum Gravity (2014), Journal of Scientific Computing (2011), Journal of Computational Physics (2011), Applied Mathematics and Computation (2010)

Long-term Visits:

1. Albert Einstein Institute (AEI) Hannover & Golm, (7/2018)
2. Perimeter institute (2/23/2015 - 2/27/2015)

3. Theoretical Astrophysics Including Relativity, Caltech (2/2014 - 3/2014)
4. Institute of Astronomy, Cambridge University (9/2013 - 10/2013)
5. Theoretical Astrophysics Including Relativity, Caltech (4/2013 - 6/2013)

Outreach & DEI:

1. Designed the Data Science Project Prompt for Hack.Diversity. Hack.Diversity's mission is to transform the economy by breaking down barriers for underrepresented racial groups in tech. (2021 -)
2. Mentor, module designer, and selection committee member of the UMassD ACCOMPLISH program. The ACCOMPLISH program aims to provide a multi-faceted financial and social support and contextualized computing-centered educational framework for eligible STEM students to propel them into the nation's high-quality STEM workforce. (2020 -)
3. Assisted in the design of the hackathon project challenge held at UMass Dartmouth for undergraduate and graduate students (4/2024)
4. Co-organized public lecture "A Virtual ICERM Public Event: Q&A with Kip Thorne, Nobel Prize-winning Theoretical Physicist". (Video recording) This event drew in nearly 400 attendees. (2020)
5. Co-organized public lecture by Rainer Weiss, "2017 Nobel Prize winner for the discovery of gravity waves" (5/2019) that was attend by over 250 people. (New article)
6. Public ICERM lecture "Discovering Black Holes and Gravitational Waves: Algorithms and Simulation" (2/2019). Over 120 attendees; a video of the talk is available here
7. Science fair judge at Portsmouth High School (1/2018, 1/2020, 1/2024).
8. Collaboration with Howard University, a top-rated Historically Black College or University, to facilitate summer research experiences for under-represented groups. NSF grant 1208861 (co-PI) provides summer support for one student (Summer 2012)
9. Public outreach program showcasing current research efforts, Ladd Observatory (11/2009)
10. Math and Science Partnership (MSP) program providing outreach (e.g., assisting with science fairs and student projects) to high-need Rhode Island schools (2008)
11. Revised and rewrote many of the labs currently being used at Brown University in courses 1560 and 2010, (2007-2008)
12. Developed the sonoluminescence lab at the University of Rochester, (2005)

Additional Experience:

1. Algorithm development consultant for Moodzic iPhone app. Software organizes a music library according to listener's "moods." (11/2011 - 5/2012)
2. Research assistant, Italian Red Cross Internship. Assisted with an ongoing study charting the lasting effects of the Chernobyl accident by testing soil and water samples at sites around Rome. (2/2004-7/2004)
3. Research assistant, Institute for Brain and Neural Systems, Brown University. Assisted in writing an algorithm which performs cursive handwriting recognition and a context-based object feature tracking algorithm. Both projects used C++. (Summers of 2002 and 2003)

In the news:

1. Our contributions to LISA science (2024).
2. Our re-analysis of GWTC-3 and discovery of fast-moving black hole was featured in phys.org (2023).
3. Our discovery of a fast-moving black hole was featured in Discover Magazine and Science News(2022). Also appearing in French, Dutch, and Indian news outlets.
4. Our application of machine learning to modeling binary black hole dynamics was featured by LLNL (2022)
5. Our work on blackhole perturbation theory and gravitational-wave models was featured in the internationally-recognized digital magazine (winner of the 2020 National Magazine Awards) Quanta and Wired (2021). This article was also translated into other languages like Chinese

ADMINISTRATIVE EXPERIENCE & LEADERSHIP

Co-director & Graduate Program Director, Data Science (10/2017 - 12/2023):

I served as the program co-director & Graduate program director of Data Science at the University of Massachusetts Dartmouth from 10/2017 to 12/2023. Over this time period, the program size (undergraduate + graduate) grew from 27 to 426 students. As such, a significant amount of my work involved managing the growth of the program, improving coordination and efficiency, and making sure students continued to receive excellent support. Some accomplishments and activities include:

1. Our MS program was ranked 20th best nationally by Fortune magazine (2022)
2. Our MS program was rated the 8th best value school (2020)
3. Designed, procured, and co-maintainer of *Tukey*, the Data Science Rapid Prototyping Sever which includes 2 GPUs and 1TB of RAM (2021 -)
4. Creator of the following data science programs: minor, bridge, graduate certificate, 3+2 BA/MS with Salve Regina
5. Creator and organizer of an orientation program for graduate data science students
6. Creator and organizer of Data Science Capstone Day & Awards
7. Webmaster of the data science website
8. Implemented programs to support data science research activities (e.g. research grants) and instructional support (graders, laptop loan program, etc.)
9. Assisted with the creation and development of MOUs and transfer agreements between UMassD and other regional, national, and international Universities
10. Creator and maintainer of email lists for data science affiliated faculty and students
11. Promoted internship programs to students and supported multiple summer internships
12. Co-developed MS admission standards and guidelines for reviewing the large volume of applications (well over 1000) we receive each year
13. Coordinated with and developed standards for various MS pathway programs
14. Co-developed block enrollment policies and guidelines for the MS program
15. Setup and manage public-facing data science email addresses for prospective students

16. Worked with Deans' office and faculty to expand instructional capacity for the MS program, which involved TA lines and graders, course offerings, block enrollments, re-directing computing resources, and more
17. Provided direction and guidance to the data science program's administrative assistant
18. Participated in regional data science events at URI, Salve Regina, Brown, ASA student symposium, and others as representative of our data science program
19. Coordinated and participated in open house events, accepted student days, and data science specific orientation events
20. Degree certifications for all minor, BS, MS, and 4+1 BS/MS students
21. Assisted with our BS and MS program's 7-year annual assessment (AQAD) review
22. Coordinate our yearly NECHE assessment and review

Chair of the curriculum council for the Engineering and Applied Sciences (EAS) PhD program (2022 - 12/2023):

1. Assisted in the creation of a new *data science and machine learning* Ph.D. track (2023)
2. Assisted in the creation of new graduate courses such as *Scientific Machine Learning* and *Mathematics of Deep Learning* (2023)
3. Administered qualifying exams using a new twice-per-year format
4. Updated program-of-study forms for the computational science and engineering track
5. Assisted with application review and interviewing prospective students
6. Focused on growing the computational science and engineering (CSE track) application pool with targeted advertising and promotion. Over this time, the application pool grew at least twofold with high-quality international applicants.

UNIVERSITY SERVICE

Service to the Department:

1. Co-webmaster of the department website (2018 -)
2. Faculty advisor to the U. Mass Dartmouth student chapter of the Society for Industrial and Applied Mathematics (SIAM) (2016 -)
3. Graduate Program Co-Director, Engineering & Applied Science PhD Program (1/2025 -)
4. Co-organizer of mathematics/CSCVR seminar series (2017 - 5/2024)
5. Creator and organizer of an orientation program for freshman and sophomore math and data science majors (2017 - 12/2023)
6. Co-director & Graduate Program Director, Data Science (10/2017 - 12/2023)
7. Department's representative on the Biomedical Engineering and Biotechnology (BMEBT) graduate committee (2016 - 12/2023)
8. Department representative on the data science program steering committee (2016 - 12/2023)
9. Member of faculty search & screen committee (2017 - 2018)

10. Data custodian of the Department's University channel through the Tightrope program (2017 - 2018)
11. Honors thesis committee member for the following undergraduate students: Salvador Balkus (2021), Courtney Burns (2018), Hannah Smith (2017)

Service to the College & University:

1. Dissertation committee member for the following PhD students: Bhaskar Verma (EAS-CIS Ph.D., 2024 -), Deepak Kumar (EAS-CIS Ph.D., graduated 2023), Riazat Ryan (EAS-CIS Ph.D., graduated 2023), Richard Bellizzi (EAS-CSE Ph.D., graduated 2023), Chris Hixenbaugh (EAS-CSE Ph.D., graduated 2023), Alec Yonika (EAS-CSE Ph.D., graduated 2022), Caroline Mallary (EAS-CSE Ph.D., graduated 2020), Jason Galary (Mechanical Engineering Ph.D., graduated 2018), Tiffany Ferreira (EAS-CSE Ph.D., current student).
2. Thesis committee member for the following MS students: Pahalavan Dheivanayahi (Data Science MS, graduated 2023), Daniel Kosakowski (Physics MS, graduated 2023), Alex Correia (Physics MS, graduated 2023), Kevin Gonzalez-Quesada (Physics MS, graduated 2022), Harshitha Srinivas Rao (Data Science MS, graduated 2021), Sudarshan Neopane (Physics MS, graduated 2021), Connor Kenyon (Physics MS, graduated 2021), Nishad Muhammed (Physics MS, graduated 2020), Vishal Tiwari (Physics MS, graduate 2020), Nur Rift (Physics MS, graduated 2020), Gabriel Casabona (Physics MS, graduated 2019), Pritom Mozumdar (Physics MS, graduated 2018).
3. Campus representative to the XSEDE Campus Champions program (2017 -)
4. Center for Scientific Computing and Visualization Research (CSCVR) faculty member (2016 -)
5. Maintains the CSCVR website (2016 -)
6. Designed, procured, and co-maintainer of *horizon*: Rapid Prototyping Sever for Research in gravity (2021 -)
7. Member of the speaker's bureau, which provides information on our programs to local high schools through visiting schools (2020 - 12/2023)
8. Academic advisor to the Big Data Student Club (2020 - 12/2023)
9. Member of the Graduate Council (2017 - 12/2023)
10. Created and manages the CSCVR email lists (2016 -)
11. Member of HPC facilitator search & screen committee (2020 - 2021)
12. Member of CSCDR faculty search & screen committee (2021 - 2022)
13. Data custodian of the CSCVR's University channel through the Tightrope program (2016 - 2018)
14. Assisted with HPCDay activities including the education round-table and student poster judge (5/2016)

OTHER TEACHING EXPERIENCES

Teaching Assistant:

1. Brown University, Everyday Mechanics and Special Relativity: From Earthly Speed to the Speed of Light! (7/2014)

   Science program for senior middle school students. Supported experiments, assisted in course design, lectures.

2. Brown University, Techniques in Experimental Physics (9/2006 - 12/2007)

   Graduate course developing essential research skills. Supported experiments, held office hours, revised lab manuals.

3. Brown University, Basic Physics 3 (6/2007 - 8/2007)

   Non-calculus based introduction to electricity, magnetism, and some modern physics. Corrected homeworks, proctored exams, led recitations and held office hours.

4. University of Rochester, Honors Waves and Modern Physics (1/2006 - 5/2006)

   Calculus based introduction to quantum theory. Corrected homeworks, proctored exams, led recitations and held office hours.

5. University of Rochester, Honors Intro Classical Mechanics (9/2005 - 12/2005)

   Calculus based introduction to classical mechanics. Supported computational problem-solving, corrected homeworks, proctored exams, led recitations and held office hours.

6. University of Rochester, Experiments in Electricity, Magnetism and Modern Physics (9/2003 - 5/2005)

   Led bi-weekly three-hour laboratory sessions and graded reports.

PROFESSIONAL MEMBERSHIPS

1. Simulating eXtreme Spacetimes (SXS)
2. LISA consortium
3. UMass-URI Gravity Research Consortium (U2GRC)
4. American Physical Society (APS)
5. American Mathematical Society (AMS)
6. Society for Industrial and Applied Mathematics (SIAM)
7. Sigma Xi scientific research society

COURSE WORK

Undergraduate:

- Physics: Mechanics (Honors), Electricity and Magnetism (Honors), 20th Century Modern Physics (Honors), Electricity and Magnetism I-II, Statistical Mechanics, Classical Mechanics I, Quantum Mechanics of Physical systems, Advanced Experimental Techniques, Quantum Mechanics, 20th Century Particle Physics, Quantum Mechanics I.
- Mathematics: Calculus I-IV (Honors), Probability, Algebra (Honors), Differential Geometry I-II, Functions of a Real Variable (Honors), History of Mathematics, Fourier Series and Boundary Problems, Complex Analysis with Applications.

Graduate:

- Physics: Classical Mechanics, Electricity and Magnetism, Quantum Mechanics I-II, Advanced Quantum Mechanics, Statistical Mechanics, Quantum Theory of Fields I-II, Solid State Physics, General Relativity + Cosmology.
- Applied Mathematics: Boundary Conditions for Hyperbolic Systems, Numerical Solution of PDEs I-II, Conservation Laws, Initial Value Problems ODE/PDE and Related Issues, High Performance Discontinuous Galerkin.
- Mathematics: Differential Geometry, Algebraic Geometry, Partial Differential Equations I-II.