

# CURRICULUM VITAE

**Name:** Alfa R.H. Heryudono

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**College:** College of Arts and Sciences

**Document Use:** Extended CV in UMass Dartmouth Office of the Provost standard format.

**Title:** Associate Professor of Mathematics, University of Massachusetts Dartmouth.

## Higher Education

- Ph.D., Applied Mathematics, Summer 2008.  
Advisor: Tobin A. Driscoll.  
University of Delaware, Newark, DE.  
Thesis title: Adaptive radial basis function methods for the numerical solution of partial differential equations, with application to the simulation of the human tear film.  
<http://search.proquest.com/docview/304650733>
- M.S., Mathematics, Summer 2002.  
Advisor: Chunqing Lu.  
Southern Illinois University Edwardsville, Edwardsville, IL.
- B.S., Physics, Summer 2000.  
Advisor: Rosari Saleh.  
University of Indonesia, Jakarta, Indonesia.

## Appointments and Teaching Experience

- Associate Professor.  
Dept. of Mathematics, University of Massachusetts Dartmouth.  
Fall 2014 - present.
- Assistant Professor.  
Dept. of Mathematics, University of Massachusetts Dartmouth.  
Fall 2008 - Spring 2014.
- Visiting Researcher.  
Dept. of Scientific Computing, Uppsala University, Sweden.  
Spring 2019, Sabbatical Leave.
- Marie Curie Research Fellow.  
Dept. of Scientific Computing, Uppsala University, Sweden.  
Summer 2010 until Summer 2012.
- Listing of 18 courses (undergraduate and/or graduate) I have taught at UMass Dartmouth.  
<http://www.math.umassd.edu/~aheryudono/teaching.html>
  1. EAS621/EAS622: Scientific Computing Research Seminar.
  2. MTH420/EAS520/DSC520: High Performance Scientific Computing.
  3. EAS501: Advanced Mathematical Methods.
  4. MTH499/MTH599: Computational Mathematics Seminar.
  5. MTH474/574/MNE539: Numerical Optimization and Engineering Optimization.
  6. MTH473/573: Numerical Linear Algebra.
  7. MTH472/572: Numerical Methods for PDEs.
  8. MTH463: Mathematical Modeling.

9. MTH440/540: Mathematical and Computational Consulting.
10. MTH361: Numerical Analysis 1.
11. DSC301/MTH353: Matrix Methods in Data Analysis and Applied Linear Algebra.
12. MTH280: Introduction to Scientific Programming.
13. MTH213: Calculus for Applied Science and Engineering III.
14. MTH212: Differential Equation.
15. MTH211: Analytic Geometry and Calculus III.
16. MTH112: Analytic Geometry and Calculus II.
17. MTH111: Analytic Geometry and Calculus I.
18. MTH101: Elements College Math I.

### Ph.D. Students Supervised

Ph.D. students who officially graduated under my supervision or co-supervision.

Math Genealogy: <https://www.mathgenealogy.org/id.php?id=127418&fChrono=1>.

1. 2017. Sidafa Conde. Main Advisor: Sigal Gottlieb. Co-Advisor: Alfa Heryudono. Workplace after graduation: Sandia National Labs, Mythic AI, and EMA3D.
2. 2019. Leah Isherwood. Main Advisor: Sigal Gottlieb. Co-Advisor: Alfa Heryudono. Workplace after graduation: MIT Lincoln Lab.
3. 2022. Alec Yonika. Main Advisor: Alfa Heryudono. Co-Advisor: Gaurav Khanna. Workplace after graduation: Mikel Inc, BAE Systems, Inc.
4. 2023. Richard Bellizzi. Main Advisor: Alfa Heryudono. Co-Advisor: Yanlai Chen. Workplace after graduation: Nye Fuchs Lubricants.
5. 2023. Christopher Hixenbaugh. Main Advisor: Alfa Heryudono. Workplace after graduation: Naval Undersea Warfare Center (NUWC).

### Scholarship and Professional Activities

#### Publications

##### [Peer-review Research Journal][PRJ]

1. A. Heryudono and M. Raessi, “Adaptive Partition of Unity Interpolation Method with Moving Patches”, *Mathematics and Computers in Simulation, Elsevier, 2023*.  
<https://doi.org/10.1016/j.matcom.2023.03.006>
2. E. Hoq, O. Aljarrah, J. Li, J. Bi, A. Heryudono, W. Huang, “Data-driven Methods for Stress Field Predictions in Random Heterogeneous Materials”, *Engineering Applications of Artificial Intelligence, Elsevier, 2023*. <https://doi.org/10.1016/j.engappai.2023.106267>
3. O. Aljarrah, J. Li, A. Heryudono, W. Huang, and J. Bi, “Predicting Part Distortion Field in Additive Manufacturing: A Data-driven Framework”, *Journal of Intelligent Manufacturing, Springer 2022*.  
<https://doi.org/10.1007/s10845-021-01902-z>
4. J. Hou, A. Heryudono, W. Huang, and J. Li, “Parametric Stress Field Solutions for Heterogeneous Materials using Proper Generalized Decomposition”, *Acta Mechanica, Springer 2022*.  
<https://doi.org/10.1007/s00707-022-03384-3>
5. I. Tominec, E. Larsson, and A. Heryudono, “A Least Squares Radial Basis Function Finite Difference Method with Improved Stability Properties”, *SIAM Journal on Scientific Computing, volume 3, issue 2, 2021*. <https://doi.org/10.1137/20M1320079>
6. A. Yonika, A. Heryudono, and G. Khanna, “Space-time Collocation Method: Loop Quantum Hamiltonian Constraints”, *International Journal of Modern Physics C, Computational Physics and Physical Computation, volume 31, number 11, 2020*.  
<https://doi.org/10.1142/S0129183120501661>

7. R. Mollapourasl, M. Haghi, and A. Heryudono, “Numerical Simulation and Applications of the Convection-Diffusion-Reaction Equation with the Radial Basis Function in a Finite-Difference Mode”, *Journal of Computational Finance*, volume 23, number 5, 2020.  
<https://doi.org/10.21314/JCF.2020.382>
8. O. Aljarrah, J. Li, W. Huang, A. Heryudono, and J. Bi, “ARIMA-GMDH: A Low-Order Integrated Approach for Predicting and Optimizing the Additive Manufacturing Process Parameters”, *International Journal of Advanced Manufacturing Technology* 106, 701–717 (2020).  
<https://doi.org/10.1007/s00170-019-04315-8>
9. O. Aljarrah, J. Li, W. Huang, A. Heryudono, and J. Bi, “A Self-organizing Evolutionary Method to Model and Optimize Correlated Multiresponse Metrics for Additive Manufacturing Processes”, *Smart and Sustainable Manufacturing Systems* 3, no. 2 (2019): 190-214.  
<https://doi.org/10.1520/SSMS20190024>
10. B. Smith, R. Laoulache, A. Heryudono, and J. Lee, “Numerical Study of Rectangular Spectral Collocation Method on Flow over a Circular Cylinder”, *Journal of Mechanical Science and Technology*. Volume 33, Issue 4, April 2019  
<http://dx.doi.org/10.1007/s12206-019-0325-y>
11. A. Heryudono and J. Lee, “Free Vibration Analysis of Euler-Bernoulli Beams with Non-ideal Clamped Boundary Conditions by Using Padé Approximation”, *Journal of Mechanical Science and Technology*. Volume 33, Issue 3, March 2019.  
<http://dx.doi.org/10.1007/s12206-019-0216-2>
12. A. Safdari-Vaighani, E. Larsson, and A. Heryudono, “Radial Basis Function Methods for the Rosenau equation and Other Higher PDEs”, *Journal of Scientific Computing* 75, 1555–1580, 2018. <https://doi.org/10.1007/s10915-017-0598-1>
13. E. Larsson, V. Shcherbakov, and A. Heryudono, “A Least Squares Radial Basis Function Partition of Unity Method for Solving PDEs”, *SIAM Journal on Scientific Computing* Volume 39, Issue 6, 2017. <https://doi.org/10.1137/17M1118087>
14. M. Kowalewski, E. Larsson, and A. Heryudono, “An Adaptive Interpolation Scheme for Molecular Potential Energy Surfaces”, *The Journal of Chemical Physics*, vol 145, 2016  
<http://dx.doi.org/10.1063/1.4961148>
15. A. Heryudono, E. Larsson, A. Ramage, and L. Von Sydow, “Preconditioning for Radial Basis Function Partition of Unity Methods”, *Journal of Scientific Computing*, 67, 1089–1109, 2016. <http://dx.doi.org/10.1007/s10915-015-0120-6>
16. Y. Chen, S. Gottlieb, A. Heryudono, and A. Narayan, “A Reduced Radial Basis Function Method for Partial Differential Equations on Irregular Domains”, *Journal of Scientific Computing*. 66, 67–90, 2016. <http://dx.doi.org/10.1007/s10915-015-0013-8>
17. B. Smith, R. Laoulache, A. Heryudono, “Implementation of Neumann Boundary Condition with Influence Matrix Method for Viscous Annular Flow using Pseudospectral Collocation”, *Journal of Computational and Applied Mathematics*. Volume 285, 100-115, 2015.  
<http://dx.doi.org/10.1016/j.cam.2015.02.012>
18. A. Safdari-Vaighani, A. Heryudono, and E. Larsson, “A Radial Basis Function Partition of Unity Collocation Method for Convection-Diffusion Equations Arising in Financial Applications”, *Journal of Scientific Computing*, 64, 341-367, 2015.  
<http://dx.doi.org/10.1007/s10915-014-9935-9>
19. E. Larsson, E. Lehto, A. Heryudono, and B. Fornberg, “Stable Computation of Differentiation Matrices and Scattered Node Stencils Based on Gaussian Radial Basis Functions”, *SIAM Journal on*

*Scientific Computing, Volume 35, Issue 4 (2013).*

<http://dx.doi.org/10.1137/120899108>

20. A. Neves, T. Driscoll, A. Heryudono, A. Ferreira, C. Soares, R. Jorge, “Adaptive Methods for Analysis of Composite Plates with Radial Basis Functions”, *Mechanics of Advanced Materials and Structures, Volume 18, Issue 6 (2011), Pages 420-430.*  
<http://dx.doi.org/10.1080/15376494.2010.528155>
21. A. Heryudono and T. Driscoll, “Radial Basis Function Interpolation on Irregular Domain through Conformal Transplantation”, *Journal of Scientific Computing 44 (2010), no. 3, 286-300.* <http://dx.doi.org/10.1007/s10915-010-9380-3>
22. A. Heryudono, R.J. Braun, T. Driscoll, L.P. Cook, K. Maki, and P.E. King-Smith, “Single-Equation Models for the Tear Film in a Blink Cycle: Realistic Lid Motion”, *Mathematical Medicine and Biology, Volume 24, 2007, Pages 347-377.*  
<http://dx.doi.org/10.1093/imammb/dqm004>
23. T. Driscoll and A. Heryudono, “Adaptive Residual Subsampling Methods for Radial Basis Function Interpolation and Collocation Problems”, *Computers and Mathematics with Applications, Volume 53, Issue 6, March 2007, Pages 927-939.*  
<http://dx.doi.org/10.1016/j.camwa.2006.06.005>

**[Peer-review Research/Conference Proceedings][PRP]**

1. R. Bellizzi, J. Galary, and A. Heryudono, “Bearing Lubricant Corrosion Identification Through Transfer Learning”, *International Congress and workshop on Industrial Artificial Intelligence (IAI2021), Lecture Notes in Mechanical Engineering. Springer 2022.*  
[https://doi.org/10.1007/978-3-030-93639-6\\_15](https://doi.org/10.1007/978-3-030-93639-6_15)
2. B. Burnett, S. Gottlieb, Z.J. Grant, A. Heryudono, “Performance Evaluation of Mixed-Precision Runge-Kutta Methods”, *IEEE High-Performance Extreme Computing Conference (HPEC) (pp. 1-6). IEEE 2021.* <https://doi.org/10.1109/HPEC49654.2021.9622803>
3. R. Bellizzi, J. Galary, and A. Heryudono, “Bearing Lubricant Defect Segmentation Using Synthetic Data”, *18th International Conference on Machine Learning and Data Mining (MLDM21), NY, 2021. Transaction on Machine Learning and Data Mining. Vol 14, No. 2 (2021) P-ISSN 1865-6781, E-ISSN 2509-9337 ISBN 978-3-942952-89-7*  
[http://www.ibai-publishing.org/journal/issue\\_mldm/2021\\_October/mldm\\_14\\_2\\_55\\_69.php](http://www.ibai-publishing.org/journal/issue_mldm/2021_October/mldm_14_2_55_69.php)
4. P. Biswas, J. Li, A. Heryudono, and J. Bi, “Prediction Of Printing Failure Of a 3D Printed Drone Propeller using Fused Deposition Modeling”, *Dassault Systemes Science in the Age of Experience Conference, Boston, June 2018.* <https://tinyurl.com/y42x6rcu>
5. F. Bernal, A. Heryudono, and E. Larsson, “Numerical Solution of the Viscous Flow Past a Cylinder with a Non-Global yet Spectrally Convergent Meshless Collocation Method”, *Spectral and High-Order Methods for Partial Differential Equations ICOSAHOM 2016, Lecture Notes in Computational Science and Engineering, Volume 119, Springer, August 2017.*  
[https://doi.org/10.1007/978-3-319-65870-4\\_35](https://doi.org/10.1007/978-3-319-65870-4_35)
6. E. Larsson, S. Gomes, A. Heryudono, A. Safdari-Vaighani, “Radial Basis Function Methods in Computational Finance”, *Reviewed and accepted for presentation and proceedings publication at the 13th International Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2013. ISBN: 978-84-616-2723-3.* <http://user.it.uu.se/~bette/CMMSE13.pdf>
7. A. Neves, A. Heryudono, T. Driscoll, A. Ferreira, and C. Soares, “Adaptive Methods for Analysis of Composite Beams and Plates with Radial Basis Functions”, *Proceedings of the ninth international conference on computational structures technology, Civil-Comp Press, Stirlingshire, UK, Paper 8, 2008.* <http://dx.doi.org/10.4203/ccp.88.8>

## [Peer-review Education Journal][PREJ]

1. Y. Chen, G. Davis, S. Gottlieb, A. Hausknecht, A. Heryudono, and S. Kim, “Transformation of a Mathematics Department’s Teaching and Research through a Focus on Computational Science”, *Journal of Computational Science Education. Volume 4, Issue 1 2013*.  
[http://www.shodor.org/media/content//jocse/volume4/issue1/chen\\_2013](http://www.shodor.org/media/content//jocse/volume4/issue1/chen_2013)

## [Technical Report][TR]

1. C. Hixenbaugh, E. Chabot, A. Heryudono, “Mixed Precision Reinforcement Learning for Control Simulation of Unmanned Undersea Vehicle”, 2022, Naval Undersea Warfare Center technical report and defense technical report AD1200547 for public clearance.  
<https://apps.dtic.mil/sti/citations/trecms/AD1200547>
2. C. Hixenbaugh, E. Chabot, A. Heryudono, “Minimizing Oscillatory Signals in Deep Reinforcement Learning Control of Unmanned Undersea Vehicles”, 2021, Naval Undersea Warfare Center technical report and defense technical report AD1177533 for public clearance.  
<https://apps.dtic.mil/sti/citations/trecms/AD1177533>
3. A. Heryudono and E. Larsson, “FEM-RBF: A Geometrically Flexible, Efficient Numerical Solution Technique for Partial Differential Equations with Mixed Regularity”, *Marie Curie FP7 Technical Report, August 16 2012*.  
<https://cordis.europa.eu/docs/results/235/235730/final1-finalreport.pdf>
4. S. Sarra, A. Heryudono, and C. Wang, “A Numerical Study of a Technique for Shifting Eigenvalues of Radial Basis Function Differentiation Matrices”, *Marshall University Mathematics Technical Report 1, 2011*. <https://tinyurl.com/kypd8hnj>
5. K. Maki, M. Ozlem, D. Schwendeman, C. Please, J. Phillips, M. Case, A. Heryudono, K. Bhalezcio, A. Atena, T. Witelski, J. Sun, J. Fehribach, “Maximizing Minimum Pressure in Fluid Dynamic Bearings of Hard Disk Drives”, *23rd Mathematical Problems in Industry Technical Report, June 2007*. <https://core.ac.uk/download/pdf/15863.pdf>
6. D.G Arnold, P. Chen, A. Heryudono, J. Nam, J.M. Ramirez, N. Williams, “Sparse Aperture Radar Imaging”, *Mathematical Modeling in Industri IX, University of Minnesota Technical Report, August 2005*. <https://tinyurl.com/mv6zdpvu>
7. U. Beuscher, S. Bayram, P. Broadbridge, T. Driscoll, D.A. Edwards, J. Fehribach, J. Graham-Eagle, R. Haskett, A. Heryudono, H. Huang, D. Larson, R. Moore, S. Pennell, C. Raymond, B. Ronkese, L. Rossi, R. Srinivasan, “Multi-Phase Flow in a Thin Porous Material”, *20th Mathematical Problems in Industry Technical Report, June 2004*. <https://core.ac.uk/download/pdf/16009.pdf>

## [Manuscripts Submitted or Preprint][MIP]

1. (Preprint) Q. Zhuang, A. Heryudono, F. Zheng, and Z. Zhang.  
Manuscript Title: Radial Basis Methods for Integral Fractional Laplacian Using Arbitrary Radial Functions. The preprint is available at <https://ssrn.com/abstract=4283586>.
2. (Submitted) R. Bellizzi, C. Hixenbaugh, M.T. Hoffmann, and A. Heryudono. Manuscript Title: Performance of Reinforcement Learning in Molecular Dynamics Simulations: A Case Study of Hydrocarbon Dynamics. Submitted to International Congress and workshop on Industrial Artificial Intelligence (IAI2023).

## Grant Proposals [PROP]

Grants proposals are divided into 5 categories: Research Grant Proposals, Computational Resources Grant Proposals, Education-Training-Conference Grant Proposals, Student Support Proposals, and Service Grant Proposals.

## Research Grant Proposals

1. **[Funded]** Proposal submitted to Office of Naval Research (ONR)-MUSTIV: ICS category on July 12, 2022, N00014-23-1-2141, Project ID S31320000056116. Learning Nonlinear Dynamical Systems from Sparse and Noisy Data with Applications to Signal Detection and Recovery, \$301,297 (total direct cost) for the duration 2023–2025. PI: Scott Field. Co-PI: Zheng Chen, Alfa Heryudono, Vijay Varma. External Collaborators: NUWC: Brianna Johnson. Brown University: Brendan Keith.
2. **[Funded]** Proposal submitted to Office of Naval Research (ONR)-MUSTII: ICS category on May 12, 2020, N00014-20-1-2849, Project ID S31320000049160. Computational Strategies for Scientific Data-Driven Learning for Marine and UnderSea Technology Applications for \$436,218 (Total Direct Cost: \$309,507) for the duration 2020–2023. PI: Alfa Heryudono. Co-PI: Yanlai Chen, Sigal Gottlieb, Gaurav Khanna. Industry Collaborators: NUWC: Christopher Hixenbaugh, Eugene Chabot, Makia Powell. Mikel, Inc: Alec Yonika.
3. **[Funded]** Proposal submitted to National Science Foundation on Nov 26, 2019, number 2012011, PUMA-VOF: Partition of Unity Multivariate Approximation for the Volume-of-Fluid Method for \$200,000 for the duration 2020–2023. PI: Alfa Heryudono. Co-PI: Mehdi Raessi.
4. **[Funded]** Proposal submitted for external funding to National Science Foundation (12/13/2012), number 1318427, Computation of Crowded Geodesics on the Universal Teichmüller Space for Planar Shape Matching in Computer Vision for \$325,698.00 for the duration 2013–2016. PI: Akil Narayan. Co-PI: Alfa Heryudono.
5. **[Funded]** Whitepaper submitted for proposal invitation 11/06/2011: AFOSR. Development of a Robust Pseudospectral-RBF Hybrid Method for High-Order Moving Interface Simulation for \$40,000 for 2 years. PI: Alfa Heryudono.
6. **[Funded]** Marie Curie Research Executive Agency FP7, number 235730, FEM-RBF: A Geometrically Flexible, Efficient Numerical Solution Technique for Partial Differential Equations with Mixed Regularity for €117,397. The project starts 06/01/2010 for 17 months. UMassD PI: Alfa Heryudono. Uppsala PI and Co-PI: Elisabeth Larsson and Axel Målqvist (Uppsala University).

## Computational Resources Grant Proposals

1. **[Funded]** Proposal submitted to DURIP Air Force Office of Scientific Research on May 14, 2021, FA9550-22-1-0107. A Multi-Architecture Hardware Computing Cluster for the Development and Efficient Implementation of a Variety of Robust and Scalable Numerical Algorithms, \$600,000. PI: Sigal Gottlieb. Co-PI/PD: Geoffrey Cowles, Gaurav Khanna, Arghavan Louhghalam, Maricris Mayes, Yanlai Chen, Scott Field, Alfa Heryudono, Mehdi Raessi, Mazdak Tootkaboni, Alireza Asadpoure, Zheng Chen.
2. **[Funded]** Proposal submitted to DURIP Air Force Office of Scientific Research on July 7, 2017, CFDA# PA-AFRL-AFOSR-2017-0001 12.300, A Heterogeneous Terascale Computing Cluster for the Development of GPU Optimized High-Order Numerical Methods for \$643,899. PI: Sigal Gottlieb. Co-PI: Yanlai Chen, Gaurav Khanna, Alfa Heryudono, Scott Field, Maricris Mayes, Amit Tandon, Geoffrey Cowles, Bo Dong, Mehdi Raessi, Vanni Bucci, Mazdak Tootkaboni.
3. **[Funded]** XSEDE Supercomputing Access, number DMS170002 for the duration Jan 31, 2017 – Jan 30, 2018. The computing hours are worth \$5646. PI: Alfa Heryudono and Co-PI: Sidafa Conde. My student needs this supercomputer access for his project: On the Development of Higher Order Strong Stability Preserving (SSP) Time Evolution Method of PDE.
4. **[Funded]** Proposal submitted on 02/02/2017 for purchasing a new rapid prototyping server to the CSCVR for \$6199. Team: Alfa Heryudono, Glenn Volkema, Adam Hausknecht.
5. **[Funded]** Proposal submitted for external funding 09/13/2009: AFOSR Defense University Research Instrumentation Program (DURIP): A Heterogeneous Terascale Computing Cluster for the Development of GPU Optimized High Order Numerical Methods. \$199,800. PI: Sigal Gottlieb, Co-PIs: Robert Fisher, Alfa Heryudono, Gaurav Khanna, Saeja Kim, Cheng Wang.
6. **[Funded]** Proposal submitted for external funding 08/10/2009: National Science Foundation, MRI-R<sup>2</sup>: Acquisition of a Heterogeneous Terascale Shared Campus Computing Facility, from 06/01/2010–06/01/2011 for \$199,480. PI: Robert Fisher. Co-PI: Geoffrey W. Cowles, Sigal Gottlieb, Gaurav Khanna, Cheng Wang. Senior Personnel: Alfa Heryudono, Saeja Kim, Nima Rahbar, Amit Tandon.

## Education-Training-Conference Grant Proposals

1. **[Funded]** Proposal submitted to MAA NREUP program on Feb 1, 2023, Mixed Model Implicit and IMEX Runge-Kutta Methods for \$34,745 for Summer 2023 (portion funded by Tondeur) and Summer 2024 (portion funded by the NSF). PI: Zheng Chen. Co-PI: Sigal Gottlieb, Yanlai Chen, Scott Field, Alfa Heryudono.
2. **[Funded]** Proposal submitted for external funding 04/24/2010: National Science Foundation, Division of Mathematical Sciences, number 1040883, NSFCBMS Regional Conference in the Mathematical Sciences. Radial Basis Functions: Mathematical Developments and Applications from 06/20/2011 to 06/24/2011 for \$35,000. PI: Saeja Kim, Co-PIs: Alfa Heryudono, Cheng Wang, and Sigal Gottlieb.

## Student Support Proposals

1. **[Funded]** Proposal submitted on Dec 18, 2022, for 2023 Summer CSCDR Graduate Travel Support, to UMassD CSCDR directors, for \$3,500. Graduate student travel to SIAM Conference on Computational Science and Engineering. Proposers: Alfa Heryudono. Graduate Student: Ben Burnett.
2. **[Funded]** Proposal submitted on Dec 13, 2021, for 2022 Spring Graduate Research Support to Northeast Cyberteam. Learning dynamical systems with GPU-enabled scientific machine learning for \$3,000. Proposers: Alfa Heryudono and Scott Field. Graduate Student: Brian Cornet.
3. **[Funded]** Proposal submitted on Feb 26, 2020, for 2020 Summer CSCVR Graduate Travel Support, to UMassD CSCVR directors for \$1,700. Faculty: Alfa Heryudono and Mehdi Raessi. Graduate Student: Cory Hoi.
4. **[Funded]** SIAM Student Chapter fund (Fall 2019 - Spring 2020) for \$500 from SIAM. Alfa Heryudono, Yanlai Chen, Bo Dong, Scott Field, Zheng Cheng, and Rebecca Pereira (Graduate Student).
5. **[Funded]** Proposal submitted for 2019 Summer CSCVR Graduate Research Support, to the CSCVR directors for \$2,500. Faculty: Alfa Heryudono. Graduate Student: Leah Isherwood.
6. **[Funded]** Proposal submitted for 2018 Summer CSCVR Graduate Research Support, to the CSCVR directors for \$4,058. Team: Mehdi Raessi, and Alfa Heryudono. Graduate Student: Cory Hoi.
7. **[Funded]** SIAM Student Chapter fund (Fall 2018 - Spring 2019) for \$500 from SIAM. Alfa Heryudono, Yanlai Chen, Bo Dong, Scott Field, Zheng Cheng, and Leah Isherwood (Graduate Student).
8. **[Funded]** SIAM Student Chapter fund (Fall 2017 - Spring 2018) for \$500 from SIAM. Alfa Heryudono, Yanlai Chen, Bo Dong, Scott Field, and Jiahua Jiang (Graduate Student).
9. **[Funded]** SIAM Student Chapter fund (Fall 2016 - Spring 2017) for \$500 from SIAM. Alfa Heryudono, Yanlai Chen, Bo Dong, Scott Field, and Jiahua Jiang (Graduate Student).
10. **[Funded]** SIAM Student Chapter fund (Fall 2015 - Spring 2016) for \$500 from SIAM. Alfa Heryudono, Yanlai Chen, Bo Dong, and Jiahua Jiang (Graduate Student).
11. **[Funded]** SIAM Student Chapter fund (Fall 2014 - Spring 2015). \$500 from SIAM. Alfa Heryudono, Yanlai Chen, Akil Narayan, and Leah Isherwood (Graduate Student).
12. **[Funded]** SIAM Student Chapter fund (Fall 2013 - Spring 2014). \$500 from SIAM. Alfa Heryudono, Yanlai Chen, Akil Narayan, and Edward McClain (Graduate Student).
13. **[Funded]** SIAM Student Chapter fund (Fall 2012 - Spring 2013). \$480 from SIAM. Alfa Heryudono, Yanlai Chen, Saeja Kim, and Zachary Grant (Graduate Student).
14. **[Funded]** SIAM Student Chapter fund (Fall 2011 - Spring 2012). \$500 from SIAM. Alfa Heryudono, Yanlai Chen, Saeja Kim, and Sidafa Conde (Graduate Student).
15. **[Funded]** SIAM Student Chapter fund (Fall 2010 - Spring 2011). \$400 from SIAM. Alfa Heryudono, Cheng Wang, Saeja Kim, and Charles Poole (Undergraduate Student).
16. **[Funded]** SIAM Student Chapter Startup (Fall 2009 - Spring 2010). \$400 from SIAM. Alfa Heryudono, Cheng Wang, and Dan Higgs (Graduate Student).

## Service Grant Proposals

1. **[Funded]** Proposal submitted to UMassD CAS on September 23, 2022. CAS Student Engagement Event Fund for \$2,000. Pr: Saeja Kim. Co-Pr: Scott Field, Yanlai Chen, Zheng Chen, Gary Davis, Alfa Heryudono, Donghui Yan.

2. [**Funded**] CAS Student Engagement Event Fund \$2000 (for AfterMath and @Math Events). Submitted: Sept 24, 2019. Pr: Scott Field, Co-Pr: Yanlai Chen, Zheng Chen, Gary Davis, Alfa Heryudono, Saeja Kim, Donghui Yan.
3. [**Funded**] UMass Dartmouth Undergraduate Seminar Series. Fall 2012 - Spring 2013. \$1000. PIs: Yanlai Chen and Alfa Heryudono.
4. [**Funded**] UMass Dartmouth Undergraduate Seminar Series. Fall 2011 - Spring 2012. \$1000. PIs: Yanlai Chen and Alfa Heryudono.
5. [**Funded**] UMass Dartmouth Undergraduate Seminar Series. Fall 2009 - Spring 2010. \$1000. PIs: Saeja Kim and Alfa Heryudono.
6. [**Approved**] Proposal submitted (05/11/2009) for the creation of the Ph.D. Program In Computational Science and Engineering (CSE) at UMass Dartmouth. Sigal Gottlieb, Gary Davis, Robert Fisher, Adam Hausknecht, Alfa Heryudono, Gaurav Khanna, Saeja Kim, Steven Leon, Cheng Wang.

## Conference Presentations and Posters

Most of the recent joint-work talks are presented by students and leading collaborators.

1. R. Bellizzi (Speaker), C. Hixenbaugh, M.T. Hoffmann, and A. Heryudono. Title: Performance of Reinforcement Learning in Molecular Dynamics Simulations: A Case Study of Hydrocarbon Dynamics. International Congress and Workshop on Industrial Artificial Intelligence (IAI2023), June 14, 2023, Luleå University, Sweden.
2. S. Mukherjee (Speaker) and A. Heryudono (Faculty Advisor). Title: Command Line Tool for Exploration and Visualization of Data. UMass Dartmouth Data Science Capstone Day, May 3, 2023.
3. V. Harsh (Speaker) and A. Heryudono (Faculty Advisor). Title: Hover-and-Click BoxPlot. UMass Dartmouth Data Science Capstone Day, May 3, 2023.
4. J. Willy (Speaker) and A. Heryudono (Faculty Advisor). Title: Exploring Neural ODEs for Training a UUV Docking Stabilization System. Massachusetts Undergraduate Research Conference at UMass Amherst on April 28, 2023.
5. Q. Zhuang (Speaker), A. Heryudono, F. Zheng, Z. Zhang. Title: Radial basis function methods for integral fractional Laplacian using arbitrary radial functions, AMS Spring Central Sectional Meeting. Apr 15-16, 2023, Univ of Cincinnati, OH.
6. C. Hixenbaugh (Speaker), E. Chabot, A. Heryudono. Title: Mixed Precision Deep Reinforcement Learning for Continuous Control of Unmanned Undersea Vehicles, NAVSEA Warfare Center, September 16, 2022, Newport, RI.
7. C. Hixenbaugh (Speaker), E. Chabot, A. Heryudono. Title: Mixed Precision Deep Reinforcement Learning for Continuous Control of Unmanned Undersea Vehicles, CLEVR-AI Multi-University Research Initiative, Aug 23 - 24, 2022, Northeastern University, Boston, MA.
8. B. Johnson (Speaker) and A. Heryudono (Faculty Advisor). Title: Prototyping the UUV Docking Process with Machine Learning. UMass Dartmouth Data Science Capstone Day, May 4, 2022.
9. J. Willy (Speaker) and A. Heryudono (Faculty Advisor). Title: Six Degrees of Freedom Visualization Program. Massachusetts Undergraduate Research Conference, UMass Amherst Virtual Conference, April 22, 2022.
10. C. Hixenbaugh (Speaker), A. Heryudono, E. Chabot. Title: Mixed Precision Reinforcement Learning for Control Simulation of Unmanned Undersea Vehicles, Naval Applications of Machine Learning (NAML) 2022 virtual conference, San Diego, on March 24, 2022.
11. R. Bellizzi (Speaker), J. Galary, A. Heryudono. Title: Bearing Lubricant Corrosion Identification Through Transfer Learning. Industrial AI Conference 2021, Luleå University of Technology Sweden, Virtual Conference, October 6, 2021.
12. B. Burnett (Speaker), S. Gottlieb, Z.J. Grant, A. Heryudono. Manuscript Title: Performance Evaluation of Mixed-Precision Runge-Kutta Methods. IEEE High-Performance Extreme Computing Conference (HPEC), September 22, 2021. IEEE 2021.
13. R. Bellizzi (Speaker), J. Galary, and A. Heryudono. Title: Bearing Lubricant Defect Segmentation Using Synthetic Data. 18th International Conference on Machine Learning and Data Mining (MLDM), Hybrid virtual in-person conference. NYC, July 19, 2021.



14. I. Tominec, E. Larsson (Speaker), A. Heryudono. Title: The Least-squares RBF-FD Method. International Conference on Spectral and High-order Methods (ICOSAHOM) 2020/2021. Virtual Conference, Vienna, Austria, July 15, 2021.
15. I. Tominec (Speaker), E. Breznik, E. Larsson, A. Heryudono. Title: A High-order Unfitted RBF-FD Method for Solving Stationary PDEs. International Conference on Spectral and High-order Methods (ICOSAHOM2020/2021). Virtual Conference, Vienna, Austria, July 15, 2021.
16. J. Hou (Speaker), J. Li, and A. Heryudono. Title: Data-Driven Modeling of Multi-Parameter Mechanical Problems in Heterogeneous Media. Engineering Mechanics Institute Conference, Virtual Conference, May 26, 2021, Columbia University, NYC.
17. E. Hoq (Speaker), O. Aljarrah, J. Li, A. Heryudono, J. Bi. Title: Deep-Learning based Stress-Field Prediction of Heterogeneous Media, Virtual Conference, May 26, 2021, Columbia University, NYC.
18. B. Johnson (Speaker) and A. Heryudono. Title: Prototyping Parametric Ordinary Differential Equations with Machine Learning. Massachusetts Undergraduate Research Conference, UMass Amherst Virtual Conference, April 2021.
19. I. Tominec (Speaker), E. Breznik, E. Larsson, A. Heryudono, P-F Villard, V. Bayona, and N. Cacciani. Title: An Unfitted RBF-FD Method in a Least-Squares Setting for Elliptic PDEs on Complex Geometries, SIAM CSE March 2021, Virtual Conference, Originally scheduled in Forth Worth, Texas.
20. O. Aljarrah (Speaker), J. Li, W. Huang, A. Heryudono, and J. Bi. Title: Residual Stress Simulation in Additive Manufacturing: A Data-driven Framework. 2021 Structural Integrity of Additively Manufactured Materials Conference, Virtual Conference, UPT Romania, Feb 25-26, 2021.
21. C. Hoi (Speaker), A. Heryudono, and M. Raessi, Title: 3D Simulation of Drop Deposition on an Eye-Shaped Domain Using the VOF Method. SIAM Annual Meeting 2020, Virtual Conference, Originally scheduled in Toronto, Canada.
22. O. Aljarrah (Speaker), J. Li, W. Huang, A. Heryudono, and J. Bi. Title: Part Distortion Simulation in Additive Manufacturing: A Machine Learning Framework. 2020 EMI/PMC Conference, Virtual Conference, Originally scheduled at Columbia University, May 26-29, 2020.
23. S. Khanna (Presenter) and A. Heryudono. Poster Title: Newton's Method with Complex-Step Differentiation. 26th Massachusetts Undergraduate Research Conference, UMass Amherst, Friday, April 24, 2020. The poster was accepted, but unfortunately, the conference was canceled due to the COVID-19 pandemic.
24. I. Tominec (Speaker), E. Larsson, A. Heryudono. Title: Recent advances in the least-squares RBF-FD. DWRA 2019, Alba di Canazei (Trento, Italy), Sept 2 – 6, 2019.
25. O. Aljarrah (Speaker), J. Li, W. Huang, A. Heryudono, and J. Bi. Title: ARIMA-GMDH: A low-order integrated modeling approach for predicting and optimizing the additive manufacturing process parameters. 15th US National Congress on Computational Mechanics, Austin, Texas, Jul 28 – Aug 1, 2019.
26. J. Hou (Speaker), J. Li, A. Heryudono, W. Huang, and J. Bi. Title: Model Order Reduction for Finite Element Analysis with Geometry and Materials Variations. 15th US National Congress on Computational Mechanics, Austin, Texas, Jul 28 – Aug 1, 2019.
27. A. Heryudono (speaker). Title: A numerical collocation method for simulating 1-D PDE model of human tear film Dynamics. Center for Interdisciplinary Mathematics, Complex System (CoSy) Seminar, Uppsala University, Sweden, March 26, 2019.
28. M. Kowalewski, E. Larsson (speaker), A. Heryudono. Title: Adaptive interpolation scheme for molecular potential energy surfaces. Workshop in Mathematical Methods in Quantum Molecular Dynamics. Mathematisches Forschungsinstitut Oberwolfach, Germany. April 21–27, 2019.
29. O. Aljarrah (Presenter), J. Bi, J. Li, A. Heryudono, and W. Huang. Poster Title: Predicting the effect of 3D-printing speed on the residual stresses using GMDH-type neural network. Dassault Systemes Simulia Regional Users Meeting Conference, Johnston, RI, Nov 28, 2018.
30. J. Hou (Presenter), J. Bi, J. Li, A. Heryudono, and W. Huang. Poster Title: Data-Driven Method for Finite Element Analysis with Geometry and Materials Variations. Dassault Systemes Simulia Regional Users Meeting Conference, Johnston, RI, Nov 28, 2018.

31. J. Sousa and A. Heryudono (speaker). Title: Numerical Study of Gaussian Radial Basis Function Based Linear Multistep Methods. MS22, July 13, ICOSAHOM 2018, London, England. July 9–13, 2018.
32. F. Bernal (speaker), E. Larsson, and A. Heryudono. Title: Solving nonlinear systems of PDEs with the Partition of Unity-RBF method via the trust-region algorithm. NASCA 2018, Kalamata, Greece, July 5, 2018.
33. A. Heryudono. Title: Numerical Collocation Method for Simulating 1-D PDE Model of Human Tear Film Dynamics. Mathematics Department Seminar, UMass Lowell, December 7, 2017.
34. A. Heryudono. Title: Numerical Collocation Method for Simulating 1-D PDE Model of Human Tear Film Dynamics. Mathematics Department Seminar, WPI, September 28, 2017.
35. A. Heryudono. Title: Space-time Localized RBF Collocation Methods for PDEs, August 9, 2017, ICERM, Brown University, RI. Video of my talk is available from the link [https://icerm.brown.edu/video\\_archive/?play=1354](https://icerm.brown.edu/video_archive/?play=1354)
36. A. Heryudono (speaker), Tiffany Ferreira, and Sigal Gottlieb. Title: Polygonal Brain, Conformal Transplant, and Alzheimer’s Disease. High-Performance Computing Day, May 25, 2017, UMass Dartmouth.
37. A. Heryudono. Title: Numerical Study of Space-Time RBF for PDEs. SIAM CSE 2017, Feb 27 – Mar 3 2017, Atlanta, GA.
38. J. Sousa (Presenter), A. Heryudono, and A. Narayan Poster Title: RBF-Based Linear Multistep Methods. Frontiers in Applied and Computational Mathematics, The 60th Birthday Conference of Chi-Wang Shu, January 4 – 6, 2017, ICERM, Brown University.
39. A. Heryudono. Title: Numerical Study of Space-Time RBF for PDEs. 15th International Conference in Approximation Theory, May 22 – 25, 2016. San Antonio, Texas.
40. A. Heryudono. Title: Numerical Study of Space-Time RBF for PDEs. SIAM Annual Meeting 2016, July 11 – 15, 2016, Boston, MA.
41. Y. Chen, S. Gottlieb, A. Heryudono (Speaker), A. Narayan. Title: A Reduced Meshless Collocation Method for PDEs on Irregular Domains. ICCM 2016, August 1 – 4, 2016, Berkeley, CA.
42. L. Isherwood (Presenter), A. Heryudono, S. Gottlieb, and Z. Grant. Numerical Study of Predator and Prey Model with a Twist. HPC Day, May 2016. Leah won the fourth prize for her poster.
43. T. Ferreira (Presenter), A. Heryudono, and S. Gottlieb. From Alzheimer’s Disease to System of Reaction-Diffusion PDEs. HPC Day, May 2016.
44. L. Isherwood (Presenter), A. Heryudono, S. Gottlieb, and Z. Grant. Numerical Study of Predator and Prey Model with a Twist. UMass Dartmouth Sigma Xi, April 2016. Leah won the second prize for her poster.
45. T. Ferreira (Presenter), A. Heryudono, and S. Gottlieb. From Alzheimer’s Disease to System of Reaction-Diffusion PDEs. UMass Dartmouth Sigma Xi, April 2016. Tiffany was mentioned in the southcoast today news.
46. A. Heryudono (Speaker), Y. Chen, S. Gottlieb, A. Narayan. Winter Research Symposium Feb 2016, University of Delaware, Delaware.
47. Elisabeth Larsson (Speaker) and Alfa Heryudono. RBF-Based Partition of Unity Collocation Methods for the Numerical Solution of PDEs. March 2015, SIAM CSE 2015, Salt Lake City.
48. Y. Chen, S. Gottlieb, A. Heryudono (Speaker), and A. Narayan, A Reduced Radial Basis Function Method for Partial Differential Equations on Irregular Domains. March 2015, SIAM CSE 2015, Salt Lake City.
49. A. Heryudono. Radial basis function collocation method in block pseudospectral mode. July 2014. SIAM Annual Meeting 2014, Chicago.
50. A. Heryudono. Radial basis function based partition of unity methods for finance: Part II. June 2014. Mathematical and Numerical Modeling in Finance Conference. Mittag-Leffler Institute, Sweden.
51. A. Heryudono Radial basis function collocation method in block pseudospectral mode. June 2014. ICOSAHOM 2014, Salt Lake City, Utah.

52. A. Heryudono “Human Tear Film Dynamics”, The Power of Scientific Computing, CSCVR workshop, UMass Dartmouth, September 2013.
53. A. Heryudono “Numerical Study of Hybrid Block Pseudospectral and Radial Basis Function Method for PDE”, SIAM Annual Meeting, San Diego, 2013.
54. J. Sousa (Presenter) and A. Heryudono “RBF-Based Image Compression”, 19th Annual Sigma Xi Research Poster Exhibition, UMass Dartmouth, April 2013.
55. A. Heryudono “Schwarz-Christoffel Mapping with MATLAB”, UMass Dartmouth SIAM Student Chapter monthly meeting, UMass Dartmouth, March 2013.
56. A. Heryudono (Speaker) and E. Larsson “A partition of unity radial basis function collocation method for PDEs”, AMS Joint Math Meeting, San Diego, January 2013.
57. A. Heryudono “Radial basis function methods: living in a meshfree world”, Applied and Computational Mathematics Seminar, Dartmouth College, October 2012.
58. A. Heryudono (Speaker) and E. Larsson “A partition of unity radial basis function collocation method for PDEs”, SIAM SEAS 2012, University of Alabama at Huntsville, March 2012.
59. A. Heryudono “Radial basis function methods for collocation problems: adaptive and partition of unity schemes”, Department of Mathematics, October 2011, University of Rhode Island.
60. A. Heryudono (Speaker) and E. Larsson “Numerical study for boundary spacing effect to global accuracy of RBF collocation problems”, RBF NSF CBMS Conference, June 2011, ATMC UMass Dartmouth.
61. A. Heryudono “Implementing multiple boundary conditions for 1D Rosenau equation with resampling method”, Chebfun Summer School, June 2011, Dobbiaco summer school.
62. A. Heryudono “Using parallel MATLAB in RBF partition of unity schemes”, Parallel Scientific Computing and Programming Colloquium, October 2010, Uppsala University.
63. A. Heryudono “Radial basis function methods for interpolation and collocation problems: adaptive and partition of unity schemes”, Scientific Computing seminar, September 2010, Uppsala University.
64. A. Heryudono (Speaker) and S. Kim “2D radial basis function interpolation on irregular geometry through conformal transplantation”, 2010 SIAM Annual Meeting, July 2010, Pittsburgh.
65. A. Heryudono “RBF interpolation on irregular geometry through conformal transplantation”, 13th International Conference in Approximation Theory, March 2010, San Antonio, Texas.
66. G. Davis and A. Heryudono “Random walks without backtracking on a torus”, 16th Sigma Xi Poster Exhibition, April 2010, UMass Dartmouth.
67. A. Heryudono, “Adaptive local radial basis function methods for the interpolation and collocation problems”, ENUMATH, July 2009 at Uppsala University in Sweden.
68. A. Heryudono, “Adaptive local radial basis function methods for the interpolation and collocation problems,” ICOSAHOM, June 2009 in Norway.
69. A. Heryudono, “Adaptive local radial basis function methods for the interpolation and collocation problems”, SIAM-SEAS, April 2009 at the University of South Carolina.
70. A. Heryudono, “Adaptive radial basis function methods for the numerical solutions of PDEs”, Department of Mathematics, University of Massachusetts at Dartmouth, March 2008.
71. A. Heryudono (Speaker), R.J. Braun, T.A. Driscoll, L.P. Cook, K. Maki and P.E. King-Smith, “Single-equation models for the tear film in a blink cycle with realistic lid motion”, 60th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Salt Lake City, November 2007.
72. A. Heryudono (Speaker), R.J. Braun, T.A. Driscoll, L.P. Cook, K. Maki and P.E. King-Smith, “Numerical computations for the tear film equations in a blink cycle with spectral collocation methods”, Applied mathematics seminar, George Mason University, October 2007.
73. A. Heryudono (Presenter), R.J. Braun, T.A. Driscoll, L.P. Cook, and P.E. King-Smith “Poster session: Numerical simulation of tear film in a blink cycle using spectral collocation methods”, Frontiers in Applied and Computational Mathematics 2007, New Jersey Institute of Technology, May 2007.

74. Alfa Heryudono (Speaker) and Tobin A. Driscoll, “Adaptive radial basis function methods for interpolation and collocation problems”, Graduate student seminar, University of Delaware, May 2007.
75. Alfa Heryudono (Speaker) and Tobin A. Driscoll, “Adaptive radial basis function methods with residual subsampling technique for interpolation and collocation problems”, SIAM Annual Meeting, Boston, July 2006.
76. A. Heryudono (Speaker), P. Chen, J. Nam, J. Ramirez, and N. Williams, “Sparse aperture radar imaging”, IMA Mathematical Modeling in Industry IX, University of Minnesota, August 2005.
77. Alfa Heryudono (Speaker) and Tobin A. Driscoll, “The use of RBF techniques in solving space-time PDEs”, American Mathematical Society sectional meeting poster session, University of Delaware, April 2005.
78. Alfa Heryudono, “Fun with QR algorithm. Do you trust MATLAB to find eigenvalues of a matrix?”, Graduate student seminar, University of Delaware, December 2003.
79. Alfa R.H. Heryudono (Speaker) and Rosari Saleh, “The use of Metropolis algorithm to compute dc electrical conductivity in disordered material at low temperature”, Indonesian Physics Symposium, April 2000.

## Workshops

1. Mathematical Association of America-NREUP workshop, UMassD, June 12 - July 28, 2023.
2. UMassD Data Science Capstone Day, May 3, 2023.
3. Massachusetts Undergraduate Research Conference, April 28, 2023, Virtual Conference, UMass Amherst.
4. CSCDR Poster Expo, UMass Dartmouth, March 23, 2023.
5. HPC Day, UMass Lowell, Sept 9, 2022.
6. Julia Conference 2022, July 27 - 29, 2022, Virtual Conference.
7. Uppsala University scientific computing thesis defense day (Igor Tominec). May 31, 2022. Virtual conference.
8. 2022 Spring semester Northeast Cyberteam Monthly meetings, Virtual. Organized by Julie Ma.
9. UMassD Data Science Capstone Day, May 4, 2022.
10. Massachusetts Undergraduate Research Conference, April 22, 2022, Virtual Conference, UMass Amherst.
11. Naval Applications of Machine Learning (NAML) 2022 Virtual Conference, San Diego, on March 22-24, 2022.
12. David Gottlieb’s memorial lecture, Nov 15, 2021, Noon, Brown University, Virtual talk.
13. Frontiers in Quantum Computing, Oct 18-20, 2021, URI, Virtual Conference.
14. 2021 IEEE High-Performance Extreme Computing Conference, Sept 20-24, 2021, Virtual Conference.
15. Julia Conference 2021, July 28-30, 2021, Virtual Conference.
16. ICOSAHOM 2021, July 12-16, 2021, Virtual Conference.
17. John Butcher’s ICERM virtual lecture, May 12, 2021. Brown University.
18. SIAM Computational Science and Engineering, Virtual Conference, March 1-5, 2021. Forth Worth, Texas.
19. Massachusetts Undergraduate Research Conference, April 23, 2021, Virtual Conference, UMass Amherst.
20. SIAM Annual Meeting 2020, Virtual Conference (due to the COVID-19 pandemic), July 6-17, 2020, Toronto, Canada.
21. Julia Conference 2021, July 28-30, 2021, Virtual Conference (due to the COVID-19 pandemic).

22. International Conference on Spectral and High-order Methods, July 12-16, 2021, Virtual Conference (due to the COVID-19 pandemic).
23. Workshop on Mathematical Machine Learning and Applications, Dec 14-16, 2020, Penn State University Virtual Conference (due to the COVID-19 pandemic)
24. Julia Conference 2020, July 29-31, 2020, Virtual Conference (due to the COVID-19 pandemic).
25. SIAM Annual Meeting 2020, Virtual Conference (due to the COVID-19 pandemic), July 6-17, 2020, Toronto, Canada.
26. 26th Massachusetts Undergraduate Research Conference, April 24, 2020. It was canceled due to the COVID-19 pandemic, but the abstract was accepted.
27. Numerical Methods and New Perspectives for Extended Liquid Crystalline Systems, ICERM Brown, Dec 9–13, 2019.
28. CBMS Conference: Fitting Smooth Functions to Data. August 5-9, 2019. Mathematics Department, the University of Texas at Austin.
29. 22nd Eastern Gravity Meeting, May 31 – Jun 1, 2019, UMass Dartmouth.
30. High-Performance Computing Day, May 21, 2019, UMass Lowell.
31. Uppsala teknisk databehandling (TDB) Seminar March-April 2019.
32. Dassault Systèmes, Simulia East Regional User Meeting Conference, Johnston, RI, Nov 28–29, 2018.
33. Advances in PDEs: Theory, Computation and Application to CFD, ICERM Brown, Aug 20–24, 2018.
34. International Conference of High-Order Methods (ICOSAHOM), London, England. July 9–13, 2018.
35. High-Performance Computing Day, May 18, 2018, Northeastern University.
36. Fast Algorithms for Generating Static and Dynamically Changing Point Configurations, March 12-16, 2018, ICERM Brown.
37. Industrial Problems in Radar and Seismic Reconstruction, Sept 11-13, 2017. ICERM Brown.
38. Localized Kernel-Based Meshless Methods for PDEs, August 7-11, 2017. ICERM Brown.
39. Modern Advances in Computational and Applied Mathematics. A workshop in honor of the birthdays of Charles L. Epstein and Leslie Greengard. June 9-10, 2017, Yale University.
40. High-Performance Computing Day, May 25, 2017, UMass Dartmouth.
41. SIAM Computational Science and Engineering, Feb 27 – Mar 3, 2017, Atlanta, GA.
42. Frontiers in Applied and Computational Mathematics, The 60th Birthday Conference of Chi-Wang Shu, January 4–6, 2017, ICERM, Brown University.
43. 7th International Conference on Computational Methods, August 1–4, 2016, Berkeley, CA.
44. Society of Industrial and Applied Mathematics Annual Meeting, July 11-15, 2016, Boston, MA.
45. 15th International Conference in Approximation Theory, May 22–25, 2016, San Antonio, TX.
46. HPC Day 2016, May 2016, UMass Dartmouth.
47. Winter Research Symposium, February 2016, University of Delaware.
48. Finite Element Circus, October 2015. UMass Dartmouth.
49. HPEC Conference, September 2015. Waltham, Massachusetts.
50. New Directions in Numerical Computation, August 2015. Oxford, England. I was an on-line participant due to unsuccessful (denied) visa application to the UK.
51. Julia Conference, June 2015. MIT, Massachusetts.
52. SIAM CSE 2015, March 2015, Salt Lake City.
53. UMass HPC Day, November 14, 2014, ATMC.
54. The Inaugural David Gottlieb Memorial Lecture, October 20, 2014, Brown University.

55. ICOSAHOM 2014, June 2014, Salt Lake City.
56. SIAM Annual Meeting 2014, June 2014, Chicago.
57. Mathematical and Numerical Modeling in Finance, Institut Mittag-Leffler, Sweden, June 2014.
58. The Power of Scientific Computing Workshop, September 2013, UMass Dartmouth.
59. Northeastern Section of the Mathematical Association of America, MAA, November 2012, Bridgewater State University.
60. MGHPCC Seed Fund Workshop, Sept 2012, Boston University.
61. Faculty mentor for UMass Dartmouth summer CSUMS workshop [2009,2012,2013] (3 times).  
<http://compmath.wordpress.com/about/%E2%88%9E-courses/workshopsm09/>  
<http://compmath.wordpress.com/about/%E2%88%9E-courses/workshopsm12/>  
<http://compmath.wordpress.com/about/%E2%88%9E-courses/workshopsm13/>
62. 18th Undergraduate Research Conference, April 2012, UMass Amherst.
63. NSF-CBMS: Radial Basis Functions: Mathematical Developments and Applications, June 2011, UMass Dartmouth.
64. Approximation Theory, Spectral Methods, and Chebfun, June 2011, Dobbiaco, Italy.
65. Current Challenges in Climate Modeling, May 2011, Uppsala, Sweden.
66. Workshop on GPU-Enabled Numerical Libraries, May 2011, University of Basel, Switzerland.
67. International workshop in multiscale methods, December 2010, Darmstadt, Germany.
68. Flashes on research in scientific computing, November 2010, Uppsala University, Sweden.
69. Mini-workshop in PDE: theory, applications, and numerics, November 2010, KTH Stockholm, Sweden.
70. 2010 Meta-Modelling Day, October 2010, Uppsala University, Sweden.
71. International Conference on 80th Birthday of H.O Kreiss, September 2010, KTH Stockholm, Sweden.
72. 2010 Multicore day, September 2010, Kista, Sweden.
73. 20th PDC High-Performance Computing Anniversary, August 2010, Tammsvik, Sweden.
74. New England Numerical Analysis Day Conference, May 2010, WPI.
75. 16th Undergraduate Research Conference, April 2010, UMass Amherst.
76. International Conference on Advances in Scientific Computing, December 2009, Brown University.
77. Fifth MIT Conference, June 2009.
78. 15th Undergraduate Research Conference, May 2009, UMass Amherst.
79. Mathematical Problems in Industry (MPI), June 2007, University of Delaware.
80. Graduate student workshop: Mathematical Modeling in Industry IX, August 2005, IMA University of Minnesota.
81. Mathematical Problems in Industry (MPI), June 2004, University of Delaware.

### **Students supervised/co-supervised for research projects**

1. Sudhanshu Mukherjee (MS in Data Science, ongoing). Research topic: Prepub: Command Line Tool for Exploration and Visualization of Data. Sudhanshu is doing an internship with Camping World company in Summer 2023. He presented his DSC550 project on May 3, 2023.
2. John Willy (BS in Computer Science, ongoing). Research topic: Learning computational and visualization tools for simulations of underwater vehicles. John is funded by MUST-II/ONR research grant.
3. Daniel McCord Murray (BS in Data Science and Mathematics - Applied Statistics, ongoing). Research topic: Exploring mathematics for deep learning. McCord is funded by MUST-II/ONR research grant.

4. Ricardo Kabila (Engineering and Applied Science Ph.D., ongoing, student of Zheng Chen, co-advised). Research topic: Learning and exploring computational techniques and mathematics for geosciences. Ricardo is funded by MUST-II/ONR research grant.
5. Ben Burnett (Engineering and Applied Science Ph.D., ongoing, student of Sigal Gottlieb, co-advised). Research topic: Study on energy-efficient algorithms and computational tools for measuring energy efficiency on a computing cluster. The topic is part of the MUST-II/ONR research grant. I am also a member of his proposal defense committees.
6. Cory Hoi (Engineering and Applied Science Ph.D., ongoing, student of Mehdi Raessi, co-advised). Research Topic: VOF method for eye drop simulation. I am also a member of his proposal defense committees.
7. Gustavo Franco-Reynoso (Engineering and Applied Science Ph.D., ongoing, student of Zheng Chen, co-advised). Research Topic: Computational strategy for predicting parametric ODEs.
8. Daniel Roskuski (MS in Mechanical Engineering, ongoing, student of Jun Li). Research topic: Predicting FEA Results Using 3D-CNN for Use With Topological Optimization.
9. Brian Cornet (MS in Data Science, Ongoing, co-advised with Scott Field). Research topic: Learning dynamical systems with GPU-enabled scientific machine learning. Brian's research is supported by NorthEast Cyberteam.
10. Rebecca Rodrigues (BS in Applied and Computational Mathematics, student of Scott Field, graduated). Mathematical and Computational Consulting research topic: Gravitational-Wave Signals Propagations Over Large Distances. Rebecca is a student of Scott Field, and she is partially funded by MUST-II. She continued pursuing her Ph.D. at RIT starting in Fall 2023.
11. Vinil Harsh (MS in Data Science). Research topic: Hover-and-Click BoxPlot. He presented his DSC550 project on May 2023.
12. Brianna Johnson (BS-MS in Data Science, graduated). Research topic: Prototyping parametric ODEs with machine learning. The topic is part of the MUST-II/ONR research grant. Brianna worked at Naval Undersea Warfare Center after graduation.
13. Christopher Hixenbaugh (Engineering and Applied Science Ph.D., graduated). Thesis title: A Model-Free Deep Reinforcement Learning Approach to UUV Control with Mixed Numerical Precision. The topic is part of the MUST-II/ONR research grant. Chris was a part-time graduate student employed full-time at NUWC, which funded his study. Chris continued working full-time at Naval Undersea Warfare Center after graduation.
14. Richard Bellizzi (Engineering and Applied Science Ph.D., graduated, co-advised with Yanlai Chen). Thesis title: Computational Strategies for Advancing the Lubricant Industry. Richard was a part-time graduate student. He was employed full-time at NYE/Fuchs Lubricants, which funded his study. Richard continued working full-time at Nye/Fuchs Lubricants after graduation.
15. Alec Yonika (Engineering and Applied Science, Ph.D., graduated, co-advised with Gaurav Khanna). Thesis title: Computational Strategies and Techniques for Time-dependent Problems in Loop Quantum Cosmology. Alec was a part-time graduate student and was employed full-time at Mikel, Inc, which funded his study. The topic is part of the MUST-II/ONR research grant. Alec worked full-time at BAE Systems, Inc after graduation.
16. Osama Aljarrah (Industrial and System Engineering Ph.D., graduated, student of Wenzhen Huang, co-advised). Research topics: Group Method Data Handling, Algorithms for 3D printing. I served on the committee of his proposal and thesis defense. Osama was partially funded by the Jordan Government, Math Dept, and COE. After graduation, Osama worked as a tenure-track assistant professor at YSU, Ohio.
17. Jie Hou (MS in Mechanical Engineering, graduated, student of Jun Li). Research topic: Data-Driven Modeling of Multi-Parameter Mechanical Problems in Heterogeneous Media. I served on the committee of his MS thesis defense.
18. Enjamamul Hoq (MS in Mechanical Engineering, graduated, student of Jun Li, co-advised). Research topic: Deep-Learning Based Stress Field Prediction of Heterogeneous Materials. I served on the committee of his MS thesis defense. Enjamamul continued pursuing his Ph.D. at SUNY Buffalo.
19. Joseph Oliver (BS in Mathematics, graduated). Mathematical and Computational Consulting research topic: An Exploration of Machine Learning and its Mathematical Applications on Modular Arithmetic. Joe graduated in Spring 2022. He worked as a software engineer at General Dynamics Mission Systems in Dedham, MA.

20. Yeri Park (BS in Mathematics, graduated). Mathematical and Computational Consulting research topic: Mathematical Model Analysis on the Presence of the North Atlantic Right Whales (*Eubalaena Glacialis*) in Southern New England. Yeri graduated in Fall 2021.
21. Richard Raithel (MS in Data Science 21). Data Science Capstone Research topic: Development and Implementation of R&D Database at Nye Lubricants. Richard continued working full-time at Nye/Fuchs Lubricants after graduation.
22. Jacob Sousa (BS in Computational Mathematics 14, Engineering and Applied Science Ph.D. - LOA). During his undergraduate year, I supervised him on the CSUMS research topic and honors final project: RBF-based image compression. Graduate research topic: High-order Space-Time Collocation Method for the Numerical Solutions of Time-Dependent Partial Differential Equations. Jacob passed his Ph.D. proposal defense.
23. Tiffany Ferreira (BS in Mathematics-Physics 14, Engineering and Applied Science Ph.D. - LOA). CSUMS Research topic: Numerical experiments on percolation clusters and random walks. Tiffany continued her study as an EAS Ph.D. student working with me, Cheng Wang, and Sigal Gottlieb. Graduate research topic: High-order and Geometrically Flexible Numerical Collocation Method for System of Coupled Time-dependent Partial Differential Equations. Tiffany passed her Ph.D. proposal defense. She is currently working full-time at Vineyard Wind.
24. Edward McClain (BS Physics-Computational Mathematics 14, student of Gaurav Khanna, Engineering and Applied Science Ph.D. - LOA, student of Scott Field). During his undergraduate year, I supervised him on a CSUMS project with the research topic: Pseudospectral methods for 1D Teukolsky Equation. I served on the committee of his Ph.D. proposal defense.
25. Sarah Khanna (BS in Applied Mathematics 20, UMass Amherst). Summer 2019 research topic: Chebyshev Approximations of Analytic Functions and Newton's Method with Complex Step Differentiation. Summer 2020 research topic: Numerical experiment of LU algorithms with random pivoting. She was funded by the Massachusetts Space Grant Summer Fellowship program (\$4500) at UMass Dartmouth. Sarah worked at McLaughlin Research Corp after graduation.
26. Ali Termos (BS in Mathematics 19). Co-advised with Jinhee Lee from Hongik University. Research Topic: Newton's Method and Pseudospectral Collocation Method for 1D Eigenvalue Problem. Ali was funded with a stipend by Math Dept. Ali worked at Murata Electronics North America after graduation.
27. Salim Laaguel (BS in Mathematics 19). Co-advised with Jinhee Lee from Hongik University. Research Topic: Pseudospectral Collocation Method for 1D Eigenvalue Problem. Salim worked at SEACORP after graduation.
28. Leah Isherwood (Engineering and Applied Science Ph.D. 19, student of Sigal Gottlieb, co-advised). Graduate research topic: Strong Stability Preserving Integrating Factor Runge-Kutta Methods. I also served as one of her proposal defense and thesis defense committees and dissertation co-advisor.
29. Zachary Grant (BS in Computational Mathematics 13, Engineering and Applied Science Ph.D. 18, student of Sigal Gottlieb). CSUMS undergraduate research topic: Fourier spectral methods, pseudospectral, and RBF methods. I also served as one of his proposal defense and Ph.D. thesis committees.
30. Makia Powell (Engineering and Applied Science - LOA). Research topic: High Precision Arithmetic, Approximate Computation. Makia's study has been on hold due to her job priority at NUWC.
31. Shakti Bhattarai (Engineering and Applied Science 19, thesis consultation, student of Vanni Bucci). Research topic: Microbiome Data Mining. I also served as one of his proposal defense and Ph.D. thesis committees.
32. Jacob Silva (MS in EE 18, student of Paul Gendron). Research topic: Waveforms for Computationally Efficient Channel Response Estimation. I also served on one of his MS thesis committees.
33. Derek Marshall (BS in Mathematics 18, student of Scott Field). Research topic: Utilizing Transcription Factors and Feature Reduction Methods to Determine Drug Response in Cancer Cells. I served as one of the committee members of his honors thesis.
34. Connor Kenyon (BS in Physics 18, student of Gaurav Khanna). Research topic: Benchmarking Low-Cost Many-Core Processors for Scientific Computing in Physics. I also served on one of his undergraduate research project committees.



35. Sidafa Conde (BS in Computational Mathematics 12, Engineering and Applied Science Ph.D. 17). CSUMS undergraduate research topic: Fourier spectral methods, pseudospectral, and RBF methods. Sidafa continued his study as an EAS Ph.D. student working with Sigal Gottlieb and me. Graduate research topic: On the Development of Higher Order Strong Stability Preserving Time Evolution Method of PDE. I also served as one of his proposal defense and thesis defense committees and dissertation co-advisor.
36. Mohammad Ahmad (Ph.D. in Electrical Engineering 17, thesis consultation, student of Dayalan Kasilingam). Research topic: Fast Multipole Method for Analyzing Electromagnetic Scattering from Large Objects. I also served as one of his oral Ph.D. Comprehensive Exam and Ph.D. thesis committees.
37. Tamunoala Charles-Ogan (MS in Electrical Engineering 16, thesis consultation, student of Paul Gendron). Research topic: A Risk Analysis Framework for a Magnetic Anomaly Detector System. I also served on one of her thesis defense committees.
38. Benjamin Smith (MS in Mechanical Engineering 15, co-advised with Raymond Laoulache). Research topic: Pseudospectral collocation method for Navier-Stokes equation on an annulus domain. I also served on one of his thesis defense committees. Ben continued working at Aurora Flight Sciences Corp after graduation.
39. Pengfei Li (BS in Mechanical Engineering 15, student of Raymond Laoulache). Research topic: Simulation with OpenFOAM. Pengfei was accepted to join the REU workshop at Brandeis.
40. Derek KIELTY (Visiting undergraduate student from Georgia Tech, co-advised with Akil Narayan). Summer 2014 project research topic: Complex analysis and conformal mapping.
41. Brennan Dugas (MS in Electrical Engineering 14, thesis consultation, student of Dayalan Kasilingam). Research discussion for the linear algebra portion in his thesis: orthogonal time-frequency modulation for wireless communication systems. I also served on one of his thesis defense committees.
42. Keith Resendes (BS in Mathematics 13, co-advised with Gary Davis). CSUMS Research topic: Obesity in the US 2004-2009. Keith worked at OMNI after graduation.
43. Muhammad Shams (BS in Computational Mathematics 13). CSUMS undergraduate research topic: 1D adaptive RBF methods for interpolation problems on a periodic domain. Muhammad worked as a research associate at the Boston Museum of Science after graduation.
44. Ali Safdari-Vaighani (Visiting Ph.D. student in scientific computing 2011, Uppsala University). Research topic: RBF methods in soliton simulations. (Ali is now one of my research collaborators).
45. Sadan Ekdemir and Xunxun Wu (Masters' students in scientific computing, Uppsala University, 2011). Research topic: Digital halftoning with parallel MATLAB. (Sadan and Xunxun were students of Maya Neytcheva at Uppsala).
46. Daniel Higgs (BS in Computational Mathematics 08 and Masters' student in biomedical engineering 09-10, UMass Dartmouth). Research topic: RBF methods for PDEs and their applications. He moved to WPI in 2010.
47. Ann Kimball (undergraduate student in mathematics). 2009 CSUMS undergraduate research topic: 3 topics: music notes to colors, digital halftoning, and Poisson equation.

## Professional Memberships and Activities

1. Society for Industrial and Applied Mathematics (SIAM).
2. Sigma Xi 2020-2021, The Scientific Research Honor Society.
3. Invited reviewer and completed review for peer-review journal and proceeding:
  - Advances in Computational Mathematics.
  - Applied Mathematical Modelling.
  - Applied Numerical Mathematics.
  - Applied Mathematics And Computation.
  - Applied Mathematics Letters.
  - BIT.
  - Bulletin of the Malaysian Mathematical Sciences Society.

- Computing in Science and Engineering.
  - Computer and Fluids.
  - Computers and Mathematics with Applications.
  - Communications on Applied Mathematics and Computation.
  - Communications in Nonlinear Science and Numerical Simulation.
  - Computational and Applied Mathematics.
  - Dolomites Research Notes on Approximation.
  - Engineering with Computers.
  - Electronic Transactions on Numerical Analysis.
  - Engineering Analysis with Boundary Elements.
  - GeoScientific Model Development.
  - International Journal of Computer Mathematics.
  - International Journal of Applied Nonlinear Science.
  - IEEE-CSE2012 Conference Proceedings.
  - IEEE Transactions on Signal Processing.
  - IEEE Transactions on Plasma Science.
  - International Journal for Numerical Methods in Fluids.
  - Journal of Open Research Software.
  - Journal of Computational Mathematics.
  - Journal of Scientific Computing.
  - Journal of Engineering Mathematics.
  - Journal of Computational Physics.
  - Journal of Applied Mathematics and Computing.
  - Journal of Computational and Applied Mathematics.
  - Mathematics and Computation.
  - Neural Networks.
  - Numerical Algorithms.
  - Numerical methods for PDEs.
  - NoDyCon2021 (Nonlinear Dynamics Conference) Proceedings.
  - Scientific Reports.
  - SIAM Journal of Scientific Computing.
  - SIAM Journal of Numerical Analysis.
  - Vietnam Journal of Mathematics.
4. One of the Mathematical and Association of America (MAA) - NREUP “Mixed model implicit and IMEX Runge-Kutta methods ” organizers, advisors, and lecturers at UMass Dartmouth, June 12 - July 28, 2023.
  5. Invited by Alessandra De Rossi from the University of Torino to be one of the associate editors of a new journal: Journal of Approximation Software (JAS), hosted by the University of Torino. The journal is scheduled to be created in late 2023 or the beginning of 2024.
  6. Invited by John Buck from the RSI committee on April 8, 2022, to review 2 UMass Dartmouth Internal University Fellows Proposals. Reviews were submitted on April 20, 2022.
  7. Invited by Peter Ubertaccio (Dean of CAS) and Craig Kelley (Associate Provost) of Stonehill College to serve as an external reviewer for the tenure promotion of a faculty member at the Department of Mathematics, Stonehill College, MA. The review was completed on August 4, 2021.
  8. Invited as an external reviewer for Joginder Singh’s Ph.D. thesis entitled “Robust Domain Decomposition Methods for Singularly Perturbed Parabolic Problems”, Department of Mathematical Sciences, Indian Institute of Technology (IIT) Varanasi. The thesis review was completed in the Fall of 2019.
  9. Invited by Kathleen Koch from the University of Wisconsin Milwaukee as an external reviewer to review a proposal for the seed funding of their Research Growth Initiative Program. The proposal review was completed in Spring 2016.
  10. Invited reviewer of a new book proposal review: Chemotaxis Model for Alzheimer’s Disease by Bill Schiesser (World Scientific Publishing). The book review was completed in Summer 2016.

11. Invited reviewer of chapter 3 (review completed) in Calculus (1st edition) textbook by Soo T. Tan.
12. One of mini-symposium “Creating a dynamic undergraduate research environment in scientific computing” organizers at SIAM CSE 2013 in Boston with Saeja Kim, Adam Hausknecht, and Gary Davis. [http://meetings.siam.org/sess/dsp\\_programsess.cfm?SESSIONCODE=15442](http://meetings.siam.org/sess/dsp_programsess.cfm?SESSIONCODE=15442)
13. One of the conference “RBFs: Mathematical Developments and Applications” organizers at NSF-CBMS 2011 at ATMC UMass Dartmouth. <http://cscvr.umassd.edu/events/rbfcbms2011/index.html>
14. One of mini-symposium “High-order methods for PDEs” organizers at SIAM Annual Meeting 2010 in Pittsburgh with Sigal Gottlieb, Cheng Wang, and Saeja Kim. [http://meetings.siam.org/sess/dsp\\_programsess.cfm?SESSIONCODE=10011](http://meetings.siam.org/sess/dsp_programsess.cfm?SESSIONCODE=10011)
15. One of mini-symposium “Recent advances in RBF methods” organizers at ICOSAHOM 2009 in Norway with Jae-Hun Jung.
16. Establish and serve as faculty advisor for SIAM Student Chapter at UMass Dartmouth.
17. Graduate student mathematics seminar organizer, University of Delaware Spring 2006.
18. Department of mathematical sciences graduate student representative, University of Delaware 2005.

## Awards

- Provost and Dean travel award \$1500: 2018 – UMass Dartmouth.
- Provost travel award \$500: 2010, 2012, 2014 – UMass Dartmouth
- Dean travel award: \$400 (2012), \$600 (2013) – UMass Dartmouth.
- Marie Curie FP7 visiting fellow: 2010 – 2012 – Uppsala University.
- Travel award \$300: 2007 – Frontiers in Applied and Computational Math, NJIT.
- Graduate UNIDEL Fellowship: 2005 – University of Delaware.
- Nominated for best instructor: 2005 – University of Delaware.
- R.N. Pendergrass award \$500: 2002 – Southern Illinois University Edwardsville.

## Research Codes

- MATLAB files for 3D RBF-PUM for Convection-Diffusion equation paper. [http://www.math.umassd.edu/~aheryudono/mfiles/rbfpu\\_convdiff3D.zip](http://www.math.umassd.edu/~aheryudono/mfiles/rbfpu_convdiff3D.zip)
- MATLAB files for 2D RBF interpolation with conformal transplantation (published in the paper).
- MATLAB files for Schwarz-Christoffel mapping for doubly-connected region. <https://github.com/tobydriscoll/sc-toolbox/tree/feature/doubly-connected>
- MATLAB files of Adaptive RBF (available through MATLAB file exchange). <http://www.mathworks.com/matlabcentral/fileexchange/authors/23817>
- MATLAB files RBFPUMTool. RBF partition of unity toolbox (ver 0.1).

## Research Consultations

I have provided small research consultations via e-mails about MATLAB codes Schwarz-Christoffel mapping for doubly-connected region to the following individuals:

- Hossein Eskandari [2017], Ph.D. Student, Shahed University.
- Brian Chung [2015], Researcher from a Taiwanese company TECO.
- Evan Wayton [2013]. RF Engineer at Anaren Microwave NY.
- Matthew Magill [2012]. Ph.D. student in electrical engineering (University of Illinois Urbana-Champaign).
- Kamel Boughrara [2009]. Researcher at Ecole Nationale Polytechnique (LRE-ENP), Algeria.

## University Services

[Fall 2014 - Spring 2023, Post tenure]

- **Service to the Department**

1. Member of the department curriculum committee (and curriculum approver). Fall 2018 (with Sigal Gottlieb and Adam Hausknecht), Fall 2019, Spring 2020.
2. Wrote an invitation letter and worked on all the paperwork to bring Prof. Jinhee Lee from Hongik University as a 1-year visiting scholar at Math Dept in 2018. I also hosted him for 1 year and had a weekly meeting with him.
3. Participating math faculty in on-campus events:
  - (a) Admitted Student Day, April 15, 2023.
  - (b) Math Circle day, Nov 9, 2022.
  - (c) Provost candidates' Q/A sessions (2/4 sessions), April 2022.
  - (d) MassTech virtual workshop session, March 18, 2021.
  - (e) Math/DSC virtual academic session, Oct 29, 2020.
  - (f) @Math Symposium: Nov 13, 2017. Oct 30, 2018. Oct 2, 2019.
  - (g) Mathematics freshmen orientation, Jun 20, 2019.
  - (h) AfterMath Alumni event program: Nov 10, 2016. Apr 11, 2018.
  - (i) UMass Dartmouth Open House: Nov 8, 2015. Mar 5, 2016. Nov 6, 2016. Apr 8, 2017.
  - (j) Experience UMD event, March 29, 2015.
  - (k) First-year students late orientation, August 27, 2014.
4. Participating math faculty in off-campus/outreach events:
  - (a) Visit Global Public Charter School (high-school teacher: Tracy Clive) in New Bedford promoting Math Dept and MC2, May 31, 2017, and June 14, 2017 (with Ben Gilbarg from Big Picture Anthems, Gary Davis, Adam Hausknecht, and Sidafa Conde).
  - (b) Attend the "STEAM the street" event in New Bedford on May 17, 2017 (with Gary Davis, Adam Hausknecht, and graduate student Sidafa Conde).
  - (c) Visit ORR High-School in Mattapoisett promoting Math Dept, October 2015 (organized by Gary Davis and Jill Peters). I spent time editing promotional videos and talking with the students. Two students came to attend the UMD Open House in March 2016.
5. Participating math faculty in other related service meetings, AQAD visits, and training sessions.
  - (a) AQAD Data Science Steering Committee and external reviewer meeting, March 30, 2022.
  - (b) UMassNet Meeting, Jan 13, 2020.
  - (c) CSCVR Research Day meeting, May 2, 2017.
  - (d) AQAD review, April 18, 2017.
  - (e) Student behavior meeting with UMass Dartmouth psychologist, February 2016.
  - (f) HPC Meeting, May 10, 2016
  - (g) T-4 Training for Math Dept Website, July 2015.
  - (h) iSEB building discussion, June 2015.
  - (i) UMass President's office big data initiative meeting, September 30, 2014.
6. Submit math course assessment
  - (a) Spring 2023: CAS Annual Assessment Collection to S. Jenkins and J. Bonilla on Jan 12, 2023. The report is created using MS Team Platform that the department can access.
  - (b) Fall 2019 - Spring 2020: MTH440 and DSC301 to math assessment coordinators (Dana Fine, Biyong Luo, Sara Dalton).
  - (c) Fall 2017 - Spring 2018: MTH440, MTH473, MTH474, MTH472 to math assessment coordinators (Gary Davis and Adriano Marzullo).
7. Serve in the tenure track math search and screen committee
  - (a) Hiring of Zheng Chen, January 2018.
  - (b) Hiring of Scott Field, March 2016.
8. Serve in the math dept assessment team:

- (a) Fall 2022 until now (with B. Luo, S. Dalton, and C. Wang). Math Dept Assessment team coordinator.
  - (b) Fall 2016 and Spring 2017 (with D. Fine and S. Dalton). My job is related to the WebAssign online Calculus sequence tests.
  - (c) Fall 2014 and Spring 2015 (with D. Fine and A. Narayan). My job is related to the WebAssign online Calculus sequence tests.
9. Participate in the development and proposal of the following courses:
    - (a) MTH463-563 (Mathematical Modeling) (US 5A).
    - (b) MTH440-540 (Mathematical and Computational Consulting) (US 5B).
    - (c) MTH476 (becomes MTH420) High-Performance Scientific Computing.
  10. Serve as a faculty advisor for the Charlton Student Entrepreneur & Startup Club, November 14, 2016. Invited by Elisandra Pereira.
  11. Help in moving CSCVR server to Euler server with ssh capability and managing it, 2016.
  12. Participating in math faculty for student reading group seminar with Yanlai Chen, Bo Dong, and Akil Narayan. Spring 2015, Fall 2015, Spring 2016.
  13. Present a short talk (invited by Lou Goodman) entitled: Mathematical and Computational Consulting at the UMass Dartmouth Research Retreat Event. January 16, 2015.

• **Service to the College (CAS/COE)**

1. MATLAB, Mathematica, Python, and Julia software administrator for the UMass Dartmouth rapid prototyping server 1 for teaching and rapid prototyping server 2 for research. This includes installing software and answering questions from students. This machine is used mainly by researchers and students from CAS and COE. 2016 - Now.
2. Serve in CAS Science Academic Council (with Adam Hausknecht). Spring 2018, Spring 2020.
3. Wrote and graded Ph.D. qualifying exams (EAS501 portions) for Engineering/EAS students. 2015-2016 (2 students), 2016-2017 (2 students), 2019-2020 (2 students), 2020-2021 (1 student).
4. Help in requesting and creating an independent virtual server for data science CAS.  
<http://datascience.umassd.edu/>
5. Serve (with Adam Hausknecht) in replacing and moving all department iMacs computers in Room Larts 218 with the new ones, August 2015.
6. Parallel MATLAB administrator for the UMass Dartmouth Computer Cluster. This machine is used mainly by researchers and students from CAS and COE. The cluster has been decommissioned. 2014-2015.

• **Service to the University**

1. Serve in the university research committee (RSI) (Spring 2022, interim membership).
2. Serve in the Faculty Senate. Spring 2019 - Spring 2022.
3. Serve on the University Library Committee. Spring 2016 - Now.
4. Serve as Faculty Service Learning Fellow (Fall 2016, Spring 2017, Fall 2017, Spring 2018). Approved by Matt Roy. The Mathematical and Computational Consulting Course MTH440 was approved as a service learning course. I attended all the meetings, including the speed dating faculty service-learning workshop on Nov 17, 2017.
5. Serve as a reviewer for university-wide funding proposals.
  - (a) OUR Research winter grants 2020 (1 proposal). Invited by David Manke.
  - (b) PIRE 2017 (3 proposals). Invited by Mary Hensel.
  - (c) UMassD Multidisciplinary SEED proposals 2015 (3 proposals). Invited by Lou Goodman.
6. Participating math faculty in
  - (a) University doctoral commencement, May 11, 2023.
  - (b) University commencement: May 16, 2015. June 11, 2021. May 6, 2022.
  - (c) University convocation, September 2, 2014.

[Fall 2008 - Summer 2014, Pre tenure]

- **Service to the Department**

1. One of the core members of CSUMS faculty [2009–2013].
2. Team member of
  - (a) UMass Dartmouth Math Dept. Challenge Goals.
  - (b) UMass Dartmouth Math Dept. Academic Quality Assessment and Development (AQAD).
  - (c) UMass Dartmouth Ph.D. program in computational science proposal.  
<http://bit.ly/1cRdGC4>
3. Math Dept. representative in the UMass Dartmouth Biomedical Engineering Ph.D. committee [2009–2010]. <http://bit.ly/1hbuRUu>
4. Serve in the search and screen committee.
  - (a) Hiring of Yanlai Chen. Tenure-track assistant professor in mathematics.
  - (b) Hiring of James Soden and Karen Siegemund. Full-time lecturer (FTL) in mathematics.
5. Hosted a visiting researcher from IIT Bhubaneswar, Venkata Satya Sekhar Tatavrti, in the Summer of 2013. The visiting researcher was provided an office at the Department of Mathematics. The Summer term visit was organized by Amit Tandon.
6. UMass Dartmouth Scientific Computing website administrator [2009 - 2012].  
<http://cscvr.umassd.edu/> (used to be [umassdcomputing.org](http://umassdcomputing.org)).
7. CSUMS website administrator [2009 - 2012]. <http://compmath.wordpress.com/>
8. UMass Dartmouth HPC Admin for MATLAB Distributed Computing Cluster.
9. Dept. of Mathematics website admin [2008–2010]. <http://www.umassd.edu/cas/math/>
10. Participating faculty, UMass Dartmouth Dept. of Mathematics open house [2009,2012–2013].
11. Faculty participant to assess students in differential equation course (organized by Budinsky and Hausknecht) [Spring 2013].
12. Faculty participant to assess student learning outcomes (MTH212, MTH213, MTH463) (organized by Davis) [Spring 2012].
13. Five minute presentation at
  - (a) CSCVR retreat, May 9, 2013.
  - (b) ARM company visit at UMassD, May 28, 2013.

- **Service to the College (CAS)**

1. ConnectMath Representative [Fall 2011].

- **Service to the University**

1. UMass Dartmouth Barry Goldwater faculty representative [2012].
2. Assistant Director, Office of Undergraduate Research (OUR) [2012–S2013].
3. One of UMass Dartmouth 3-minute undergraduate research competition organizers [2012–S2013].

## Related Experience

1. **Research Assistant (Fall 2006 - Summer 2008)**

In collaboration with Dr. Richard Braun and Dr. Tobin Driscoll and with support from NSF Grant #DMS-0616483, I am working on the implementation of spectral methods and adaptive RBF methods to solve a fourth-order nonlinear equation arising as a model of the blink cycle process in human eyes.

2. **Programmer (Summer 2006)**

During the summer of 2006 at the Department of Psychology, University of Delaware, under the supervision of Dr. Helene Intraub, and Dr. Christopher Dickinson and with support from NIMH Grant “Anticipatory Processing in Spatial Cognition” #R01-MH054688-07, I wrote codes in C using Simple DirectMedia Layer libraries for the boundary extension experiment to test human visual perception.

3. **Research Assistant (Summer 2003)**

During my summer research in 2003 at the University of Delaware, under the supervision of Dr. Tobin Driscoll, I translated more than 3000 lines of Fortran codes of doubly-connected Schwarz-Christoffel mapping to MATLAB.

4. **Teaching Assistant and Instructor**

While pursuing my master's degree at Southern Illinois University Edwardsville, and my Ph.D. degree at the University of Delaware, I have taught several undergraduate-level courses ranging from finite mathematics to calculus and differential equations both as a teaching assistant for 5 semesters and as a full instructor for 3 winter sessions. I received positive feedback from my students. In 2005, the Faculty Senate Committee on Student and Faculty Honors of the University of Delaware nominated me for an Excellence in Teaching award.

**Courses taught at University Delaware**

(a) MATH243: Analytic Geometry and Calculus III.

(b) MATH241: Analytic Geometry and Calculus I.

5. **Special Skills**

Knowledge of programming languages: MATLAB, C/C++, FORTRAN, Julia, MAPLE and MATHEMATICA; Linux operating system and related scientific applications; and professional typesetting package L<sup>A</sup>T<sub>E</sub>X.