curriculum vitae

(as of July 18, 2026)

julianne chung

Department of Mathematics
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Citizenship: USA

Research interests

numerical analysis & scientific computing, inverse problems & uncertainty quantification, computational image processing, numerical linear algebra, optimization, data science

Academic Position

2022 – present Associate Professor, Department of Mathematics, Emory University

2019 – 2022 Associate Professor, Department of Mathematics, Computational Modeling and Data Analytics (CMDA) Division, Academy of Data Science, Virginia Tech (VT)

2013 – 2019 Assistant Professor, Department of Mathematics, CMDA, VT

2011 – 2012 Assistant Professor, Department of Mathematics, University of Texas at Arlington

2009 – 2011 National Science Foundation (NSF) Postdoctoral Researcher, Department of Computer Science, University of Maryland at College Park, Mentor: Dianne O'Leary

Education

2004 – 2009 Ph.D. in Computational Mathematics at Emory University, Atlanta, GA
Dissertation: *Numerical Approaches for Large-Scale Ill-Posed Inverse Problems*
Advisor: James Nagy

2000 – 2004 Bachelor of Arts with Highest Honors at Emory University, Atlanta, GA
Major: Mathematics Minor: Dance and Movement Studies
Thesis: *Filtering Methods for Image Restoration*, Advisor: James Nagy

Funded research projects

[G9] Title: *Randomized algorithms for dynamic and hierarchical Bayesian inverse problems*
Source of Support: *NSF DMS-2411197 (Collaborative Research)*
Award Amount: *$170,000*
List of PIs: *Julianne Chung, Arvind Saibaba (North Carolina State University)*
Support Period: *08/1/2024–07/31/2027*

[G8] Title: *Computationally efficient algorithms for detecting anomalous atmospheric emissions*
Source of Support: *NSF DMS-2026841 (Collaborative Research: ATD)*
Award Amount: *$160,794*
List of PIs: *Julianne Chung, Arvind Saibaba (North Carolina State University), Scot Miller (Johns Hopkins University)*
Support Period: *08/15/2020–07/31/2024*

[G7] Title: *SAMSI Graduate Research Assistant Position*
Source of Support: *NSF*
List of PIs: *Julianne Chung*
Support Period: *09/01/2020–08/31/2021*

[G6] Title: *Computational Methods for Large-scale Inversion and Uncertainty Quantification*
Source of Support: *Alexander von Humboldt Foundation*
List of PIs: *Julianne Chung*
Support Period: *07/01/2019–08/30/2020*

[G5] Title: *CAREER: Integrated Approaches for Fast and Accurate Large-scale Inversion*
Source of Support: *NSF DMS-1654175*
Award Amount: *$402,796*
List of PIs: *Julianne Chung*
Support Period: *09/01/2017–08/30/2022*

[G4] Title: *Stochastic Approximations for the Solution and Uncertainty Analysis of Data-Intensive Inverse Problems*
Source of Support: *NSF DMS-1723005 (Collaborative Research: CDS&E-MSS)*
Award Amount: *$210,000 at Virginia Tech, $400,000 total*
List of PIs: *Matthias Chung (VT), Julianne Chung, Youssef Marzouk (MIT), Luis Tenorio (Colorado School of Mines)*
Support Period: *09/01/2017–08/31/2020 (extension to 2022)*

[G3] Title: *Real-time and Improved Image Reconstruction under Uncertainty*
Source of Support: *Simons Foundation Collaboration Grant for Mathematicians*
Award Amount: *$42,000 awarded but declined as required in light of [G4] and [G5]*
List of PIs: *Julianne Chung*
Support Period: *09/01/2017–08/31/2022*

[G2] Title: *Mathematical Approaches for Tomosynthesis Image Reconstruction*
Source of Support: *NSF Mathematical Sciences Postdoctoral Research Fellowship*
Award Amount: *$135,000*
List of PIs: *Julianne Chung*
Support Period: *07/01/2009–06/30/2011*

[G1] Title: *Computational Science Graduate Fellowship (CSGF)*
Source of Support: *Department of Energy*
List of PIs: *Julianne Chung*
Support Period: *07/01/2006–06/30/2009*

Other funded projects

[F3] Title: *Stochastic and Randomized Algorithms in Scientific Computing: Foundations and Applications*
Source of Support: *ICERM Semester Program Spring 2026*
List of PIs: *Harbir Antil (George Mason University), Julianne Chung (Emory University), Petros Drineas (Purdue University), Youssef Marzouk (MIT), Agnieszka Miedlar (Virginia Tech), and Arvind K. Saibaba (North Carolina State University)*

[F2] Title: *MORE: Mathematics - Opportunities in Research and Education*
Source of Support: *NSF and NSA*
List of PIs: *Gretchen Matthews (VT), Nicole Bannister (Clemson), Lauren Childs (VT), Julianne Chung, Elena Dimitrova (Clemson), and Lea Jenkins (Clemson)*

[F1] Title: *Phase I I/UCRC Virginia Tech: Center for Advanced Subsurface Earth Resource Models (CASERM), in collaboration with the Colorado School of Mines*
Source of Support: *NSF*
List of PIs: *Matthias Chung, John Chermak, John Hole, Erik Westman (VT)*
Note: *My role in this grant proposal is as senior personnel.*

Awards & recognitions

2025-2027 Elected Chair of the Society for Industrial and Applied Mathematics (SIAM) Activity Group on Computational Science and Engineering

2023-present SIAM Review (SIREV) Research Spotlights Section Associate Editor

2020-present SIAM Journal on Matrix Analysis and Applications (SIMAX) Associate Editor

2017-2022 NSF Faculty Early Career Development (CAREER) Award

2019-2020 Alexander von Humboldt Stiftung/Foundation Award - Fellowship for Experienced Researchers

2021-2023 SIAM Diversity Advisory Committee Member

2019-2023 SIAM representative on the Joint Committee on Women in the Mathematical Sciences

2016-2017 Elected Secretary of the Society for Industrial and Applied Mathematics (SIAM) Activity Group on Imaging Science

2010 Department of Energy (DOE) Frederick A. Howes Scholar in Computational Science

Publications

All publications (except abstracts) are hyperlinked.
(My students are marked with asterisks and my postdoctoral fellows are marked with daggers. Other students and postdoctoral fellows are marked with a plus sign.)

Submitted work

[J49] Elle Buser*, Julianne Chung, Hugo Díaz^{+}, and Arvind K. Saibaba. "A Majorization-Minimization with Monte Carlo Approach for Hyperparameter Estimation." Submitted, (2026). arXiv: 2605.13620

[J47] Julianne Chung and Silvia Gazzola. "Randomized Krylov Methods for Inverse Problems." Submitted, (2025). arXiv: 2508.20269

[J45] Elle Buser* and Julianne Chung. "Efficient sampling approaches based on generalized Golub-Kahan methods for large-scale hierarchical Bayesian inverse problems." Submitted, (2025). arXiv: 2502.03281

Journal papers (accepted)

[J48] Emma Hart*, Bas Peters, Julianne Chung, and Matthias Chung. "Latent Space Inference via Paired Autoencoders." Accepted to, *Journal of Mathematical Imaging and Vision* (2026). arXiv: 2601.11397

[J46] Julianne Chung and Yiran Wang. "Reconstruction of the Observable Universe from the Integrated Sachs-Wolfe Effect." Accepted to *SIAM Journal of Applied Mathematics* (2025). arXiv: 2507.01399

[J44] Malena Sabaté-Landman†, Ariana Brown+, Julianne Chung, and James Nagy. "Randomized and Inner-product Free Krylov Methods for Large-scale Inverse Problems." *Numerical Algorithms*, 100 (2025), 1965–1985. https://doi.org/10.1007/s11075-025-02167-w

[J43] Emma Hart*, Julianne Chung, and Matthias Chung. "A Paired Autoencoder Framework for Inverse Problems via Bayes Risk Minimization." *SIAM Journal on Scientific Computing*, 48 (2026), C385–C414. https://doi.org/10.1137/25M1726935

[J42] Julianne Chung, Scot M. Miller, Malena Sabaté-Landman†, and Arvind K. Saibaba. "Efficient hyperparameter estimation in Bayesian inverse problems using sample average approximation." *Philosophical Transactions A*, 383:20240046 (2025). https://doi.org/10.1098/rsta.2024.0046

[J41] Yutong (Audrey) Bu*. "Inexact Generalized Golub-Kahan Methods for Large-Scale Bayesian Inverse Problems." *SIAM Undergraduate Research Online*, 18 (2025). Project Advisor: Julianne Chung, https://doi.org/10.1137/24S1710498

[J40] Ariana Brown+, Julianne Chung, James Nagy, and Malena Sabaté-Landman†. "Inner Product Free Krylov Methods for Large-Scale Inverse Problems." *SIAM Journal on Scientific Computing*, (2025). https://doi.org/10.1137/24M1672699

[J39] Matthias Chung, Emma Hart*, Julianne Chung, Bas Peters, Eldad Haber. "Paired Autoencoders for Likelihood-free estimation in Inverse Problems." *Machine Learning: Science and Technology*, 5 (2024), 045055. https://doi.org/10.1088/2632-2153/ad95dd

[J38] Malena Sabaté-Landman†, Julianne Chung, Jiahua Jiang†, Scot M. Miller, and Arvind K. Saibaba. "A Joint Reconstruction and Model Selection Approach for Large Scale Linear Inverse Modeling (msHyBR v2)." *Geoscientific Model Development*, 17(23), 8853-8872, (2024). https://doi.org/10.5194/gmd-17-8853-2024

[J37] Julianne Chung, Lucas Onisk†, and Yiran Wang. "Iterative Reconstruction Methods for Cosmological X-ray Tomography." *SIAM Journal on Imaging Sciences*, 18:3 (2025), 1653-1680. https://doi.org/10.1137/24M1656724

[J36] Khalil Hall-Hooper+, Arvind Saibaba, Julianne Chung, and Scot Miller. "Efficient iterative methods for hyperparameter estimation in large-scale linear inverse problems." *Advances in Computational Mathematics*, 50 (2024), 118. https://doi.org/10.1007/s10444-024-10208-6

[J35] Malena Sabate-Landman† and Julianne Chung. "Flexible Krylov Methods for Group Sparsity Regularization." *Physica Scripta*, 99 (2024), 125006. https://doi.org/10.1088/1402-4896/ad88af

[J34] Babak Maboudi Afkham+, Julianne Chung, and Matthias Chung. "Goal-oriented Uncertainty Quantification for Inverse Problems via Variational Encoder-Decoder Networks." *Inverse Problems*, 40 (2024) 075010. https://doi.org/10.1088/1361-6420/ad5373.

[J33] Julianne Chung and Silvia Gazzola. "Computational methods for large-scale inverse problems: A survey on hybrid projection methods." *SIAM Review*, 66 (2024), No 2, pp 205-284. https://doi.org/10.1137/21M1441420

[J32] Julianne Chung, Jiahua Jiang†, Scot M. Miller, and Arvind K. Saibaba. "Hybrid projection methods for solution decomposition in large-scale Bayesian inverse problems." *SIAM Journal on Scientific Computing*, (2023), S97-S119. https://doi.org/10.1137/22M1502197

[J31] Taewon Cho*, Julianne Chung, Scot M. Miller, and Arvind K. Saibaba. "Computationally efficient methods for large-scale atmospheric inverse modeling." *Geoscientific Model Development*, 15 (2022), 5547-5565. https://doi.org/10.5194/gmd-2021-393

[J30] Julianne Chung, Matthias Chung, Silvia Gazzola, and Mirjeta Pasha+. "Efficient Learning Methods for Large-scale Optimal Inversion Design." *Numerical Algebra, Control and Optimization*. 14 (2024), 137-159. https://doi.org/10.3934/naco.2022036

[J29] Elizabeth Newman+, Julianne Chung, Matthias Chung, and Lars Ruthotto. "slimTrain - a Stochastic Approximation Method for Training Separable Deep Neural Networks." *SIAM Journal on Scientific Computing.*, 44 (2022), A2322-A2348. https://doi.org/10.1137/21M1452512

[J28] Babak Maboudi Afkham+, Julianne Chung, and Matthias Chung. "Learning Regularization Parameters of Inverse Problems via Deep Neural Networks." *Inverse Problems.* 37 (2021), 105017.

[J27] Taewon Cho*, Hodjat Pendar*, and Julianne Chung. "Computational tools for inversion and uncertainty estimation in respirometry." *PLoS ONE.* 16 (2021), e0251926.

[J26] Jiahua Jiang†, Julianne Chung, and Eric de Sturler. "Hybrid Projection Methods with Recycling for Inverse Problems." *SIAM Journal on Scientific Computing.* 43 (2021), S146-S172. https://doi.org/10.1137/20M1349515

[J25] Taewon Cho*, Julianne Chung, and Jiahua Jiang†. "Hybrid Projection Methods for Large-scale Inverse Problems with Mixed Gaussian Priors." *Inverse Problems.* 37 (2021), 044002.

[J24] Julianne Chung, Matthias Chung, J. Tanner Slagel*, and Luis Tenorio. "Sampled Limited Memory Methods for Massive Linear Inverse Problems." *Inverse Problems.* 36 (2020), 054001.

[J23] Arvind Saibaba, Julianne Chung, and Katrina Petroske+. "Efficient Krylov subspace methods for uncertainty quantification in large Bayesian linear inverse problems." *Numerical Linear Algebra with Applications.* 27 (2020).

[J22] J. Tanner Slagel*, Julianne Chung, Matthias Chung, David Kozak+, and Luis Tenorio. "Sampled Tikhonov Regularization for Large Linear Inverse Problems." *Inverse Problems.* 35 (2019), 114008.

[J21] Julianne Chung and Silvia Gazzola. "Flexible Krylov Methods for ℓ_p-regularization." *SIAM Journal on Scientific Computing.* 41 (2019), S149-S171.

[J20] Lars Ruthotto, Julianne Chung, and Matthias Chung. "Optimal Experimental Design for Inverse Problems with State Constraints." *SIAM Journal on Scientific Computing.* 40 (2018), B1080-B1100.

[J19] Julianne Chung, Arvind Saibaba, Matthew Brown*, and Erik Westman. "Efficient generalized Golub-Kahan based methods for dynamic inverse problems." *Inverse Problems.* 34 (2018) 024005.

[J18] Julianne Chung and Matthias Chung. "Optimal Regularized Inverse Matrices for Inverse Problems." *SIAM Journal on Matrix Analysis and Applications.* 38 (2017), 458-477.

[J17] Julianne Chung and Linh Nguyen. "Motion Estimation and Correction in Photoacoustic Tomographic Reconstruction." *SIAM Journal on Imaging Science.*, 10 (2017), 216-242.

[J16] Julianne Chung and Arvind Saibaba. "Generalized Hybrid Iterative Methods for Large-scale Bayesian Inverse Problems." *SIAM Journal on Scientific Computing.* 39 (2017), S24-S46.

[J15] Julianne Chung and Malena Español. "Learning Regularization Parameters for General-Form Tikhonov." *Inverse Problems*, 33 (2017), 074004.

[J14] Hodjat Pendar*, John Socha, and Julianne Chung. "Recovering signals in physiological systems with large datasets." *Biology Open.* 5 (2016), 1163-1174.

[J13] Julianne Chung and Lars Ruthotto. "Computational Methods for Image Reconstruction." *NMR in Biomedicine.* Special Issue: MRI Phase Contrast and Quantitative Susceptibility Mapping, 30 (2016).

[J12] Julianne Chung and Katrina Palmer. "A Hybrid LSMR Algorithm for Large-Scale Tikhonov Regularization." *SIAM Journal on Scientific Computing.* 37 (2015), S562-S580.

[J11] Julianne Chung, Misha Kilmer, and Dianne O'Leary. "A Framework for Regularization via Operator Approximation." *SIAM Journal on Scientific Computing.* 37 (2015), B332-B359.

[J10] Julianne Chung, Matthias Chung, and Dianne O'Leary. "Optimal Regularized Low Rank Inverse Approximation." *Linear Algebra and its Applications.* 468 (2015), 260-269.

[J9] Julianne Chung and Matthias Chung. "An Efficient Approach for Computing Optimal Low-Rank Regularized Inverse Matrices." *Inverse Problems.* 30 (2014), 114009.

[J8] Julianne Chung, Matthias Chung, and Dianne O'Leary. "Optimal Filters from Calibration Data for Image Deconvolution with Data Acquisition Error." *Journal of Mathematical Imaging and Vision.* 44 (2012), 366-374.

[J7] Julianne Chung, Glenn Easley, and Dianne O'Leary. "Windowed Spectral Regularization of Inverse Problems." *SIAM Journal on Scientific Computing.* 33 (2011), 3175-3200.

[J6] Julianne Chung, Matthias Chung, and Dianne O'Leary. "Designing Optimal Spectral Filters for Inverse Problems." *SIAM Journal on Scientific Computing.* 33 (2011), 3132-3152.

[J5] Julianne Chung, James Nagy, and Ioannis Sechopoulos. "Numerical Algorithms for Polyenergetic Digital Breast Tomosynthesis Reconstruction." *SIAM Journal on Imaging Sciences.* 3 (2010), 133-152.

[J4] Julianne Chung and James Nagy. "An Efficient Iterative Approach for Large-Scale Separable Nonlinear Inverse Problems." *SIAM Journal on Scientific Computing.* 31 (2010), 4654-4674.

[J3] Julianne Chung, Philip Sternberg, and Chao Yang. "High Performance Three-Dimensional Image Reconstruction for Molecular Structure Determination." *The International Journal of High Performance Computing Applications.* 24 (2010), 117-135.

[J2] Julianne Chung, James Nagy, and Dianne P. O'Leary. "A Weighted-GCV Method for Lanczos-Hybrid Regularization." *Electronic Transactions on Numerical Analysis.* 28 (2008), 149-167.

[J1] Julianne Chung, Eldad Haber, and James Nagy. "Numerical Methods for Coupled Super-Resolution." *Inverse Problems.* 22 (2006), 1261-1272.

- Reports, book chapters, and magazine articles

[M3] Karen E. Willcox (The University of Texas at Austin), Chair, Derek Bingham (Simon Fraser University), Caroline Chung (MD Anderson Cancer Center), Julianne Chung (Emory University) Carolina Cruz-Neira (University of Central Florida), Conrad J. Grant (Johns Hopkins University Applied Physics Laboratory), James L. Kinter (George Mason University), Ruby Leung (Pacific Northwest National Laboratory), Pariz Moin (Stanford University), Lucila Ohno-Machado (Yale University), Colin J. Parris (GE Vernova Digital), Irene Qualters (Los Alamos National Laboratory), Ines Thiele (University of Galway), Conrad Tucker (Carnegie Mellon University), Rebecca Willett (The University of Chicago), Xinyue Ye (Texas A&M University). "Foundational Research Gaps and Future Directions for Digital Twins." National Academy of Sciences Consensus Study Report, 2023.

[M2] Julianne Chung. "From research to education: A reflection on the importance of community." IEEE Computing in Science & Engineering, vol. 23, no. 6, pp. 25-33, (2021), doi: 10.1109/MCSE.2021.3119432

[M1] Julianne Chung, Sarah Knepper^{+}, and James Nagy. "Large-Scale Inverse Problems in Imaging." Chapter 2 in Otmar Scherzer (ed.) *Handbook of Mathematical Methods in Imaging,* Springer (2011), 43-86.

- Proceedings papers

[P4] Julianne Chung, Matthias Chung, and J. Tanner Slagel*. "Iterative Sampled Methods for Massive and Separable Nonlinear Inverse Problems." In: Lellmann J., Burger M., Modersitzki J. (eds) *Scale Space and Variational Methods in Computer Vision. SSVM 2019.* Lecture Notes in Computer Science, vol 11603. Springer, Cham (2019).

[P3] Julianne Chung and Matthias Chung. "Computing Optimal Low-Rank Matrix Approximations for Image Processing." *IEEE Proceedings of the Asilomar Conference on Signals, Systems, and Computers.* November 3-6, 2013, Pacific Grove, CA, USA.

[P2] Julianne Chung and James Nagy. "Nonlinear Least Squares and Super Resolution." *The Journal of Physics Conference Series.* 124 (2008), 012019.

[P1] R. Barnard, V. Pauca, T. Torgersen, R. Plemmons, S. Prasad, J. van der Gracht, J. Nagy, J. Chung, G. Behrmann, S. Matthews, and M. Mirotznik. "High-Resolution Iris Image Reconstruction from Low-Resolution Imagery." *Proceedings of the SPIE, Advanced Signal Processing Algorithms, Architectures, and Implementations XVI*, Vol. 6313, pp. D1-D13, San Diego, CA, August 2006.

- Technical reports and abstracts

[O3] Julianne Chung, Matthias Chung, J. Tanner Slagel*, and Luis Tenorio. "Stochastic Newton and Quasi-Newton Methods for Large Linear Least-Squares Problems." arXiv:1702.07367

[O2] Y. Tian, Y. Zhou, J. Chung, M. Chung, and J. Ning. A Bayesian approach to linear inverse problems in seismic tomography. *Proceedings of the AGU Fall Meeting*, 2014.

- Winning essays

[O1] Julianne Chung. "Making Blurry Images a Thing of the Past." *Compose: the DOE CSGF Annual Essay Contest Journal* (2006).

- Scientific software

[S12] Codes to accompany paper on SAA hyperparameter selection [J42]: https://doi.org/10.5281/zenodo.14954836

[S11] Codes to accompany paper on msHyBR [J38]: https://doi.org/10.5281/zenodo.11622130

[S10] Codes to accompany paper on empirical Bayes [J36]: https://github.com/Inverse-Modeling/EB_genGK

[S9] Codes to accompany GMD paper on atmospheric inverse modeling [J31]: https://doi.org/10.5281/zenodo.5772660

[S8] Codes to accompany survey paper on hybrid projection methods [J33]: https://github.com/juliannechung/surveyhybridprojection

[S7] Codes to accompany paper on respirometry reconstruction [J27]: https://github.com/juliannechung/respirometry

[S6] Codes to accompany paper on hybrid projection methods with recycling [J26]: https://github.com/juliannechung/HyBRrecycle

[S5] Generalized hybrid methods with UQ
Codes to accompany [J16]: https://github.com/juliannechung/genHyBR
Codes to accompany [J23]: https://github.com/juliannechung/uq_krylov

[S4] HyBR (Hybrid Bidiagonalization Regularization) is a stable and efficient MATLAB implementation to perform robust reconstruction using a Golub-Kahan based algorithm for solving large scale ill-posed inverse problems.

[S3] Codes to accompany paper on computing optimal regularized inverse matrices (ORIMs) and ORIM updates [J18]: https://github.com/juliannechung/ORIM.git

[S2] Codes to accompany paper on Quantitative Susceptibility Mapping Reconstruction [J13]: https://github.com/lruthotto/QSMReconstruction.m

[S1] Codes accompanying paper on cryo-EM reconstruction for transmission electron microscopy molecular structure determination [J3], included in Single Particle Analysis for Resolution Extension (SPARX): http://sparx-em.org/sparxwiki/

Theses

[T2] Julianne Chung. "Numerical Approaches for Large-Scale Ill-Posed Inverse Problems." Ph.D. Dissertation, Department of Mathematics and Computer Science, Emory University, May 2009.

[T1] Julianne Chung. "Filtering Methods for Image Restoration." Honors Thesis, Department of Mathematics and Computer Science, Emory University, May 2004.

Presentations, invited talks & lectures

Invited talks

July 2026 SIAM Annual Meeting, Cleveland, Ohio

July 2026 Foundations of Computational Mathematics Inverse Problems Workshop, Vienna, Austria

June 2026 Workshop on Randomized Numerical Linear Algebra, EPFL, Lausane, Switzerland

May 2026 27th Conference of the International Linear Algebra Society, Blacksburg, VA
SIAG/LA 2026 invited speaker

November 2025	The International Workshop on Structured Matrix and Image Processing, Shanghai, China ***Invited plenary speaker***
July 2025	DRUMS directed REU in Math and Statistics at North Carolina State University
June 2025	The 26th Conference of the International Linear Algebra Society (ILAS), Kaohsiung, Taiwan
May 2025	ICERM Uncertainty Quantification for Mathematical Biology, Providence, RI
March 2025	Scientific Computing around Louisiana (SCALA), New Orleans, LA ***Invited plenary speaker***
March 2025	SIAM Conference on Computational Science and Engineering, Fort Worth, TX
February 2025	Georgia Scientific Computing Symposium, Atlanta, GA ***Invited plenary speaker***
October 2024	SIAM Conference on Mathematics of Data Science, Atlanta, GA
August 2024	University of Wisconsin-Madison, Madison, WI
June 2024	SIAM Conference on Imaging Science, Atlanta, GA
May 2024	SIAM Conference on Applied Linear Algebra, Paris, France
April 2024	Copper Mountain Conference on Iterative Methods, Copper Mountain, CO
March 2024	Argonne National Laboratory, Lemont, IL
December 2023	Mathematical Opportunities in Digital Twins Workshop, Arlington, VA ***Invited plenary speaker***
October 2023	Clemson University Computational Mathematics Seminar, Clemson, SC
October 2023	NSF ATD Workshop, Fairfax, VA
October 2023	Association for Women in Mathematics Research Symposium, Atlanta, GA
September 2023	Applied Inverse Problems Conference, Göttingen, Germany
April 2023	University of Utah Applied Math Seminar and SIAM Student Chapter, Salt Lake City, UT
March 2023	AMS Spring Southeastern Sectional Meeting, Atlanta, GA
February 2023	SIAM Conference on Computational Science and Engineering, Amsterdam, The Netherlands
September 2022	SIAM Conference on Mathematics of Data Science, San Diego, CA
September 2022	Applied and Computational Math (ACM) seminar at Georgia Tech, Atlanta, GA
September 2022	Korea Advanced Institute of Science and Technology (KAIST) Seminar, South Korea
July 2022	CIMPA Summer School on Mathematical Methods in Data Analysis, Albania
June 2022	Householder Symposium, Italy ***Invited plenary speaker***
April 2022	SIAM Conference on Uncertainty Quantification, Atlanta, GA
March 2022	AMS Spring Southeastern Sectional Meeting, Charlottesville, VA (cancelled due to COVID-19)
March 2022	SIAM Conference on Imaging Science (online)
March 2022	Computational Uncertainty Quantification for Inverse Problems Seminar, DTU, Lyngby, Denmark
May 2021	SIAM Conference on Applied Linear Algebra (online) ***Invited plenary speaker***

March 2021	SIAM Conference on Computational Science and Engineering (online)
March 2021	AWM 50th Anniversary Research Days (online)
February 2021	Eastern Washington Math Club (online)
February 2021	Kansas State University Applied Math Seminar (online)
September 2020	SAMSI Postdoc Seminar (online)
August 2020	The Statistical and Applied Mathematical Sciences Institute (SAMSI) Program on Numerical Analysis in Data Science Opening Workshop (online)
July 2020	SIAM Conference on Imaging Science, Toronto, Canada (cancelled due to COVID-19)
June 2020	Householder Symposium (postponed to 2022 due to COVID-19)
March 2020	Numerical Analysis Seminar, University of Bath, UK (cancelled due to COVID-19)
February 2020	AG Modellierung, Numerik, Differentialgleichungen Colloquium, TU Berlin, Berlin, Germany
January 2020	SFB 1294 Data Assimilation Seminar, University of Potsdam, Potsdam, Germany
March 2020	SIAM UQ Conference, Garching, Germany (cancelled due to COVID-19)
October 2019	Scientific Computing Seminar, DTU, Lyngby, Denmark
March 2019	Department of Mathematics Colloquium, Auburn University, Auburn, AL
January 2019	Oberwolfach Workshop on Tomographic Inverse Problems: Theory and Applications, Oberwolfach, Germany ***Received NSF Travel Grant***
October 2018	Second International Conference on Mathematics of Data Science, Norfolk, VA
June 2018	SIAM Conference on Imaging Science, Bologna, Italy
May 2018	Inverse Problems: Modeling and Simulation, Malta
May 2018	7th International Conference on Computational Harmonic Analysis, Nashville, TN
April 2018	David Walsh Arts & Science Invited Speaker, Clarkson University, Potsdam, NY
March 2018	42nd SIAM Southeastern Atlantic Sectional (SEAS) Conference, Chapel Hill, NC ***Invited plenary speaker***
January 2018	Conference on Mathematical Image Analysis (MIA), Berlin, Germany ***Invited plenary speaker***
November 2017	Isaac Newton Institute Workshop on Generative Models, Parameter Learning and Sparsity, Cambridge, UK ***Invited plenary speaker***
July 2017	Mathematical Congress of the Americas, Montreal, Canada ***Received American Mathematical Society Travel Grant***
June 2017	Householder Symposium XX, Blacksburg, VA
February 2017	SIAM Conference on Computational Science and Engineering, Atlanta, GA
January 2017	SAMSI Workshop on Statistical Inverse Problems, Raleigh, NC
July 2016	20th Conference of the International Linear Algebra Society, Leuven, Belgium ***Received Association for Women in Mathematics Travel Grant***
May 2016	SIAM Conference on Imaging Science, Albuquerque, NM
May 2016	SAMSI CCNS Transition Workshop, Research Triangle Park, NC

March 2016	Copper Mountain Conference on Iterative Methods, Copper Mountain, CO
October 2015	SIAM Conference on Applied Linear Algebra, Atlanta, GA
June 2015	IMA New Directions Short Course: Introduction to Uncertainty Quantification, Minneapolis, MN, ***Invited Guest Lecturer***
April 2015	AWM Research Symposium, College Park, MD
April 2015	Wake Forest Computer Science and Mathematics Colloquium, Winston-Salem, NC
March 2015	SIAM Conference on Computational Science and Engineering, Salt Lake City, UT
September 2014	Cornell University Center for Applied Mathematics Seminar, Ithaca, NY
September 2014	University of Alabama at Birmingham Mathematics Colloquium, Birmingham, AL
July 2014	SIAM Annual Meeting, Chicago, IL
June 2014	Householder Symposium XIX, Spa, Belgium
May 2014	SIAM Conference on Imaging Science, Hong Kong
April 2014	Copper Mountain Conference on Iterative Methods, Copper Mountain, CO
April 2014	SIAM Conference on Uncertainty Quantification, Savannah, GA
February 2014	Women in Math Lecture, University of Akron, Akron, OH
January 2014	Linear Algebra and Optimization Seminar, Stanford University, Stanford, CA
January 2014	DTU Compute Scientific Computing Seminar, Technical University of Denmark, Kgs. Lyngby, Denmark
November 2013	Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA
July 2013	2nd Workshop on MRI Phase Contrast and Quantitative Susceptibility Mapping (QSM), Ithaca, NY
February 2013	SIAM Conference on Computational Science and Engineering, Boston, MA
May 2012	SIAM Conference on Imaging Science, Philadelphia, PA
April 2012	Baylor University, Mathematics Colloquium, Waco, TX
December 2011	Southern Methodist University, Mathematics Colloquium, Dallas, TX
October 2011	University of British Columbia, Workshop on Computational Aspects in Medical Imaging, Vancouver, Canada
October 2011	Texas A&M University, Workshop on Inverse Problems, College Station, TX
August 2011	Michigan State University, Second Midwest Conference on Mathematical Methods for Images and Surfaces, East Lansing, MI
July 2011	International Congress on Industrial and Applied Mathematics, Vancouver, British Columbia, Canada ***Received SIAM Postdoctoral Travel Grant***
June 2011	Householder Symposium XVIII, Tahoe City, CA
May 2011	Universität zu Lübeck, Graduate School for Computing in Medicine and Life Sciences Colloquium, Lübeck, Germany
May 2011	Weill Cornell Medical College, Department of Biomedical Imaging Seminar, Manhattan, NY
March 2011	SIAM Conference on Computational Science and Engineering, Reno, NV

March 2011 National Institutes of Health, National Institute of Biomedical Imaging and Bioengineering Seminar, Bethesda, MD

November 2010 University of Texas at Austin, Institute for Computational Engineering and Sciences Seminar, Austin, TX

September 2010 Texas State University, Discrete Math Seminar, San Marcos, TX

September 2010 Virginia Tech, Mathematics Colloquium, Blacksburg, VA

September 2010 University of Maryland, Baltimore County, Applied Math Colloquium, Baltimore, MD

July 2010 SIAM Annual Meeting/Conference on Life Sciences, Pittsburgh, PA
Received Association for Women in Mathematics Travel Grant

June 2010 Department of Energy Computational Science Graduate Fellowship Annual Conference, Washington, DC
Received 2010 Fredrick Howes Scholar Award

May 2010 Joint Research Conference on Statistics in Quality, Industry, and Technology, Gaithersburg, MD

April 2010 SIAM Conference on Imaging Science, Chicago, IL
Received SIAM Postdoctoral Travel Grant

March 2010 AMS Southeast Atlantic Sectional Meeting, Lexington, KY

October 2009 SIAM Conference on Applied Linear Algebra, Monterey Bay, CA

September 2009 National Institute of Standards and Technology (NIST), Mathematical and Computational Sciences Division Seminar Series, Gaithersburg, MD

July 2009 Conference on Applied Inverse Problems, Vienna, Austria
Received US Office of Naval Research Travel Grant

July 2009 Department of Energy Computational Science Graduate Fellowship Annual Conference, Washington, DC

May 2009 Tomosynthesis Imaging Symposium 2009: Frontiers in Research and Clinical Applications, Durham, NC

March 2009 SIAM Conference on Computational Science and Engineering, Miami, FL
BGCE Student Paper Prize Competition Finalist

July 2009 SIAM Annual 2008/ SIAM Conference on Imaging Science, San Diego, CA

April 2008 Copper Mountain Conference on Iterative Methods, Copper Mountain, CO

March 2008 SIAM Conference on Parallel Processing, Atlanta, GA

August 2007 University of California at Berkeley Matrix Computations Seminar, Berkeley, CA

July 2007 ICIAM Conference, Zurich, Switzerland
Received SIAM Student Travel Grant

- Contributed talks and posters

June 2025 Householder Symposium, Ithaca, NY

November 2020 NSF Algorithms for Threat Detection (ATD) Workshop

December 2018 SHI Sustainable Research Pathways (SRP) Workshop, Department of Energy Lawrence Berkeley National Laboratory

August 2016 SAMSI Opening Workshop on Optimization, Raleigh, NC

June 2011 IMA Workshop on Large Scale Inverse Problems and Uncertainty Quantification, Minneapolis, MN

July 2010 Conference on Numerical Linear Algebra: Perturbation, Performance, and Portability. A Conference in Celebration of G.W. Stewart's 70th Birthday, Austin, TX

February 2009 Georgia Scientific Computing Symposium, Atlanta, GA

June 2008 DOE CSGF Annual Conference, Washington, DC

March 2008 Emerson Center Lecture Symposium: Scientific Computing and Fast Algorithms
Received Best Poster Award

November 2007 Supercomputing 2007 Conference, Reno, NV

June 2007 DOE CSGF Annual Conference, Washington, DC

September 2005 III International Summer School on Numerical Linear Algebra in Image Deblurring, Monopoli, Italy

Programs

August 2025 Research Collaborations in Randomized Numerical Linear Algebra (RNLA), Institute for Pure and Applied Mathematics (IPAM) at UCLA

December 2021 Banff International Research Station (BIRS), Women in Inverse Problems (online)

March 2019 ICERM Workshop on Computational Imaging, Providence, RI

December 2018 Sustainable Research Pathways (SRP) Workshop, Department of Energy Lawrence Berkeley National Laboratory

June 2015 IMA New Directions Short Course: Introduction to Uncertainty Quantification, Minneapolis, MN

June 2008 American Mathematical Society Mathematics Research Communities, Snowbird, UT
Conference Theme: Scientific Computing and Advanced Computation

- Week-long professional development program for peridoctoral researchers
- Served as head PI (for a team of 7) to answer a mock grant proposal for a project on image processing, fluid dynamics, and uncertainty quantification

July 2007 57th Meeting of Nobel Laureates, Lindau, Germany

- A globally recognized forum for interactions between Nobel Laureates (from physiology and medicine) and young researchers

Summer 2007 Lawrence Berkeley National Laboratory Research Internship, Berkeley, CA

- Developed large-scale reconstruction algorithms and implemented massively parallel data distribution scheme for cryo-electron microscopy reconstruction on state-of-the-art supercomputers

September 2005 III International Summer School on Numerical Linear Algebra in Image Deblurring, Monopoli, Italy

August 2005 Mathematical Modeling in Industry: A Workshop for Graduate Students, University of Minnesota Institute for Mathematics and its Applications (IMA), Minneapolis, MN

Professional service and community activities

Memberships

SIAM	Society for Industrial and Applied Mathematics AG: Computational Science and Engineering, Imaging Science, Linear Algebra, Uncertainty Quantification
AMS	American Mathematical Society
AWM	Association for Women in Mathematics

Editor

2023-present	Associate editor for *SIAM Review* Research Spotlights Section
2020-present	Associate editor for *SIAM Journal on Matrix Analysis and its Applications*
2018	Guest editor for *Sampling Theory in Signal and Image Processing: Special Issue on Harmonic Analysis and Inverse Problems*

Referee for

American Mathematical Monthly, Applied Mathematics and Computation, Applied Numerical Mathematics, BIT Numerical Mathematics, Bioinformatics, BioMedical Engineering OnLine, Communications in Nonlinear Science and Numerical Simulation, Computational Statistics, IEEE Conference on Decision and Control, IEEE Transactions on Computational Imaging, IEEE Transactions on Image Processing, IEEE Transactions on Medical Imaging, IMA Journal of Numerical Analysis, International Journal of Computer Mathematics, Inverse Problems, Inverse Problems and Imaging, Inverse Problems in Science and Engineering, Journal of Chemometrics, Journal of Computational and Applied Mathematics, Journal of Electronic Imaging, Journal of Global Optimization, Journal of Integral Equations and Applications, Journal of the Optical Society of America A, Journal of Scientific Computing, Linear Algebra and its Applications, Mathematics and Computers in Simulation, Numerical Algorithms, Numerical Linear Algebra with Applications, Pattern Recognition, SIAM Books, SIAM Journal on Matrix Analysis and Applications, SIAM Journal on Numerical Analysis, SIAM Journal on Scientific Computing, Signal, Image and Video Processing

Conference Organization

2026	Organizing Committee for Institute for Computational and Experimental Research in Mathematics (ICERM) Semester program on Stochastic and Randomized Algorithms in Scientific Computing: Foundations and Applications (Jan 20 - Apr 24, 2026)
March 2026	ICERM Workshop on Bayesian Inverse Problems and Uncertainty Quantification
May 2024	Scientific Committee for 2024 SIAM Conference on Linear Algebra
May 2024	Scientific Committee for 2024 SIAM Conference on Image Processing
April 2022	Scientific Committee for 2022 SIAM Conference on Uncertainty Quantification, Atlanta, GA
August 2020	SAMSI Numerical Analysis for Data Science Opening Workshop
October 2020, 2021	STRIVE for MORE (Success Through Rewarding and Inclusive Virtual Experience for Mathematics – Opportunities in Research and Education) Conference
October 2019, 2022, 2023	MORE: Mathematics - Opportunities in Research and Education, Blacksburg, VA and Clemson, SC
June 2018	Scientific Committee for 2018 SIAM Conference on Imaging Science, Bologna, Italy
June 2017	Householder Symposium Local Organizing Committee, Blacksburg, VA

May 29-June 2, 2012 — Mathematical Methods of Computed Tomography, Arlington, TX
- Selected as a 2012 National Science Foundation - Conference Board of the Mathematical Sciences Conference

April 21, 2012 — Sonia Kovalevsky Math Day for 6th-8th grade girls at the University of Texas at Arlington, Arlington, TX

May 8, 2008 — Sonia Kovalevsky High School Math Day at Emory University, Atlanta, GA
- Recruited local high school students, convinced local businesses to support the event with donations and discounts, and ran a session on "Image Processing and Graphics"

Minisymposia and Speaker Organization

November 2026 — 2026 SIAM Conference on Mathematics of Data Science
Minisymposia: *Randomized Numerical Linear Algebra for Big Data Problems*

July 2025 — International Linear Algebra Society (ILAS)
Numerical Linear Algebra Methods for Inverse Problems and Data Assimilation

May 2024 — 2024 SIAM Conference on Linear Algebra
Minisymposia: *Iterative methods for inverse problems and uncertainty quantification*

September 2023 — Association for Women in Mathematics Research Symposium, Atlanta, GA
Minisymposia: *Special Session on Computational Inverse Problems and Uncertainty Quantification*

April 2018 — Received funds to host Dr. Joseph for the Women & Minority Artist and Scholars Lecture Series (grant in collaboration with Drs. Matthews and Johnson)

May 2021 — 2021 SIAM Conference on Linear Algebra
Minisymposia: *Advances in Iterative Regularization Methods for Inverse Problems*

August 2019 — Conference on Modern Challenges in Imaging: In the Footsteps of Allan MacLeod Cormack, Tufts University, Boston, MA
Minisymposia: *Recent Advances in Algorithms and Software for Tomographic Reconstruction*

July 2019 — ICIAM, Valencia, Spain
Minisymposium: *Computationally efficient methods for large-scale inverse problems in imaging applications*

June 2018 — SIAM Conference on Imaging Science, Bologna, Italy
Minisymposium: *Krylov Methods in Imaging: Inverse Problems, Data Assimilation, and Uncertainty Quantification*

July 2017 — Mathematical Congress of the Americas 2017, Montreal, Canada
Special Session: *Computational inverse problems: from multiscale modeling to uncertainty quantification*

May 2016 — SIAM Conference on Imaging Science, Albuquerque, NM
Minisymposium: *Recent Advances in Hybrid Iterative Methods for Imaging Problems*

October 2015 — SIAM Conference on Applied Linear Algebra, Atlanta, GA
Minisymposia: *Recent Advances in Numerical Linear Algebra for Inverse Problems* and *A Celebration in Honor of Dianne P. O'Leary on the Occasion of her Retirement*

May 2015 — Applied Inverse Problems Conference, Helsinki, Finland
Minisymposium: *Efficient Methods for Large-Scale Inverse Problems in Imaging*

July 2014 — 2014 SIAM Annual Meeting, Chicago, IL
Minisymposium: *Computational Methods for Inverse Problems in Imaging*
Sponsored by SIAG Applied Linear Algebra

May 2014 — SIAM Conference on Imaging Science, Hong Kong
Minisymposium: *Advances in Numerical Linear Algebra for Imaging*

February 2013 — SIAM Conference on Computational Science and Engineering, Boston, MA
Minisymposium: *Advances in Computer Algorithms for Imaging Science*

June 2012 — SIAM Conference on Applied Linear Algebra, Valencia, Spain
Minisymposium: *Numerical Linear Algebra and Optimization in Imaging Applications*

May 2012 — SIAM Conference on Imaging Science, Philadelphia, PA
Minisymposium: *Inverse Problems and Statistical Learning in Imaging Applications*

July 2010 — SIAM Annual Meeting, Pittsburgh, PA
Minisymposium: *Optimization for Nonlinear Inverse Problems*

March 2009 — SIAM Conference on Computational Science and Engineering, Miami, FL
Minisymposium: *Inverse Problems in Industrial Applications*

- ## Invited Panel

October 2022 — TUMS (Trinity University Mathematical Society)

November 2020, 2021, 2022 — MIT Office of Graduate Education Path to the Professorship Program

May 2017 — Girls to STEM-MD, Jefferson Center, Roanoke, VA

July 2010 — The Future of Numerical Linear Algebra panel at the Conference on Numerical Linear Algebra: Perturbation, Performance, and Portability

April 2010 — Women in Math career panel at the University of Maryland

April 2009 — Association for Women in Math career panel at Emory University

March 2009 — Miami Dade College Tools for Success (TFS) Program career panel

TFS (funded by NSF) aims to increase the number of under-represented students completing undergraduate degrees in science, technology, engineering, and math

- ## Community

2025 — Serve on the Householder Committee for the Householder Symposium on Numerical Linear Algebra

2020 — Served as a program leader for SAMSI Program on Numerical Analysis in Data Science.

2019 — Served on the prize committee for the 2020 SIAM SIAG/IS Early Career Prize and the Best Paper Prize

2018 — Developed and ran an activity for high schools students at the VT Math Xperience 2018. Activities included puzzles and games based on the mathematics of tomographic reconstruction and experimenting with MATLAB codes for image processing.

2018 — Elected Vice-President of the Department of Energy Computational Science Graduate Fellowship Alumni Association

2016-2017 — Elected Secretary of the Society for Industrial and Applied Mathematics Activity Group on Imaging Science

2014-2017 — Selected to serve on the SIAM Career Opportunities Committee

2015-present — Association for Women in Mathematics VT Student Chapter, Faculty Mentor

2016, 2018 Developed activity for science girls summer camp (3rd to 5th grade girls) at the Science Museum of Western Virginia

2014 Association for Women in Mathematics Workshop for Graduate Students and Recent PhDs at SIAM Annual Meeting 2014
- I serve as a mentor for two women who are recent PhDs and served as a judge during the poster session.

2011 The University of Texas Louis Stokes Alliance for Minority Participation
- I served as a poster judge at the 2011 Summer Research Academy (SRA) conference

2009-2025 Department of Energy Computational Science Graduate Fellowship
- I serve on the selection committee.
- I serve on the screening committee for new applicants and the alumni committee.
- I served as a poster judge at the 2011 and 2023 DOE CSGF annual program reviews

2009-2011 Women in Math group at the University of Maryland at College Park

2009-2011 Association for Women in Computing at the University of Maryland at College Park

2009-2011 Computer, Mathematical, and Natural Sciences Postdoctoral Association at the University of Maryland at College Park

2007-2009 Association for Women in Mathematics (AWM), Student Chapter at Emory University
2008 Co-president, 2007 Vice-president

- Established a mentorship program for first year graduate students
- Invited and organized lunches with prominent female speakers to increase the presence and interaction of women scientists with Emory's graduate students

March 2009 Invited scribe for "Forward Looking Panel" at SIAM Conference on Computational Science and Engineering

Teaching and Mentoring

At Emory University

Math 221 Linear Algebra, *Fall 2024*

Math 315 Numerical Analysis, *Spring 2024*

Math 347 Nonlinear Optimization, *Fall 2026*

Math 385 Mathematical Foundations of Data Science, *Spring 2023, Fall 2024, Fall 2025*

Math 515 Numerical Analysis, *Fall 2023*

Math 561 Matrix Analysis, *Fall 2022, Spring 2025, Fall 2026*

NSF CAREER Academy, *Summer 2023*
NSF CAREER Academy is a 10-week Professional Development series to support faculty at Emory University applying to the National Science Foundation (NSF) Faculty Early Career Development Program (CAREER) Award. The series met weekly, and a group of four of us facilitated both in-person and virtual learning. We used a learning management system (Canvas), which included the overall schedule, faculty-provided sample proposals, and resources. The goal was to provide faculty with structured guidance on preparing each proposal section and to encourage faculty to systematically draft the sections of their proposal before the deadline. We also provided iterative feedback and individual consultations to faculty as they submitted proposal sections.

Math 112, Calculus II, *Spring 2007,Fall 2006*

Teaching Assistant Training and Teaching Opportunity Program, *2005*

- At Virginia Tech

Math 5524 Matrix Theory, *Spring 2022*

Math/CS 5486 Numerical Analysis and Software II, *Spring 2018*

Math 2405H, Mathematics in a Computational Context, *Fall 2020, 2018, 2017, 2016, 2015*

CMDA(Computational Modeling and Data Analytics) 3606
Mathematical Modeling: Methods and Tools II, *Fall 2021 (2 sections), Spring 2021, Fall 2018, Spring 2017, 2016, 2015*

Computational Modeling and Data Analytics (CMDA) is a new major developed in 2012 and established in 2016 at Virginia Tech in the intersection of Mathematics, Statistics, and Computer Science with an emphasis on real world applications. I am a founding member of this degree program. I am involved in designing the major, developing courses, and recruiting students to the program. I developed new courses, including CMDA 3606, which is an interdisciplinary mathematical modeling class, and I co-developed the introductory quantitative sciences sequence CMDA 2005/2006.

Math 4445, Numerical Analysis, *Fall 2013*

Math 2224, Multivariable Calculus, *Fall 2013*

Math 3054, Programming and Mathematical Problem Solving, *Spring 2013*

- At University of Texas at Arlington

Math 3330, Introduction to Matrices and Linear Algebra, *Spring 2012*

Math 1426, Calculus I, *Fall 2011*

Postdoctoral research fellows

2023-2026 Luke Onisk, Mathematics, Emory University
Dr. Onisk received his PhD at Kent State University. Currently, he is a postdoc at Argonne National Laboratory.

2023-2024 Malena Sabaté-Landman, Mathematics, Emory University
Dr. Sabaté-Landman received her PhD at the University of Bath. Currently, she is a faculty in the Math Department at the University of Warwick (UK).

2018-2020 Jiahua Jiang, Mathematics, VT
Dr. Jiang received her PhD in Computational Science and Engineering at the University of Massachusetts Dartmouth. Dr. Jiang was a tenure-track Assistant Professor in the School of Information Science and Technology at Shanghai Tech University. Currently, Dr. Jiang is an Assistant Professor in the School of Mathematics at the University of Birmingham (UK).

Supervised students

Ph.D. students

2023-present Ansley Bentley, Mathematics, Emory University

2022-present Elle Buser, Mathematics, Emory University

2022-present Emma Hart, Mathematics, Emory University
Department of Energy Computational Science Graduate Fellow

2015-2021 Taewon Cho, Mathematics, VT
Thesis: *Computational Advancements for Solving Large-scale Inverse Problems.*
Current position: Data scientists at Samsung Research, South Korea

2014-2019 Tanner Slagel, Mathematics, VT, co-advised with Matthias Chung
Thesis: *Row-Action Methods for Massive Inverse Problems.*
Current position: Staff scientist at NASA Langley

Masters students

2021-2023 Ashlyn McDonald, Thesis: *Learning Hyperparameters for Inverse Problems by Deep Neural Networks (DNNs).* Mathematics, VT

2016-2020 Hodjat Pendar, Thesis: *Recovering signals in physiological systems with large datasets.* Mathematics, VT

2015-2017 Taewon Cho, Thesis: *Numerical Methods for Separable Nonlinear Inverse Problems with Constraint and Low Rank.* Mathematics, VT

2013-2015 Matthew Brown, Thesis: *On the Use of Arnoldi and Golub-Kahan Bases to Solve Non-symmetric Ill-posed Inverse Problems.* Mathematics, VT

2014-2015 Joseph Tanner Slagel, Thesis: *The Sherman Morrison Iteration.* Mathematics, VT, co-advised with Matthias Chung

2013-2015 Maha Elouni, Project: *Efficient Minimization of ℓ_1-regularization for Image Reconstructions.* Mathematics, VT

Undergraduate research & theses

2025-present Srijon Sarkar, Mathematics, Emory University

2023-2025 Yutong (Audrey) Bu, Mathematics, Emory University
Thesis: "Inexact generalized Golub-Kahan methods for large-scale inverse problems"
Received highest honors

2024-2025 Christopher Wang, Mathematics, Emory University
Thesis: "Pixels, Priors, and Precision: Bayesian approaches to image reconstruction"
Received highest honors

2023 Riley Chen (Emory University), Mason Lu (Murray State University), Matilda Slosser (Smith College), Aneesh Srinivas (University of California, Berkeley)
REU 2023: Investigating Impacts of Environmental and Socioeconomic Data
Mentors: Julianne Chung, Matthias Chung

2022 Eva Whaley, *High-performance iterative methods for atmospheric inverse modeling.* CMDA, VT
Recipient of CMDA Undergraduate Research Grant

2021 Raga Murali, *Computational Methods for Large-Scale Inverse Problems in Atmospheric Applications.* Mathematics, VT
Recipient of the VT Department of Mathematics Traditional Option Outstanding Senior Award

2019 Michael Wills and Damon Shaw, *Optimum Slithering and Digging of Elongate Organisms in Granular Media.* Mathematics, VT

2018-2019 Aimee Maurais, Honors Thesis: *Computational Tools for Bayesian Inverse Problems with Python Implementations.* Math and CMDA, VT
Recipient of the VT College of Science Outstanding Senior Award

2018-2019 Anuradha Trivedi, *Hybrid Krylov Methods.* Mathematics, VT
Recipient of the VT Department of Mathematics Applied Computational Mathematics Option Outstanding Senior Award

2017-2018 Oliver Stratton, *Randomized Algorithms for Large-Scale Inversion.* CMDA, VT
Recipient of a Hamlett Undergraduate Research Scholarship

2016-2017 Parisa Samareh, *Accelerating Thermoacoustic Tomography.* Mathematics and CMDA, VT
Recipient of the VT College of Science Undergraduate Research Award

2017 Jonathan Ross, Mathematics, VT

2015 Zheng Wang, *Theory and Computational Methods for ℓ_1-Regularization.* CMDA, VT

2013-2014 Tuan Nguyen, Honors Thesis: *Learning Approach for Computing Regularization Parameters Selection in Tikhonov Regularization.* BS with Honors in Math, VT

Spring 2012 Uditha Perera, University of Texas at Arlington

Fall 2011 Dianna Nguyen, University of Texas at Arlington

- Committee Member

2025 Brown, Ariana (Department of Mathematics)

2024 Cai, Wenxuan (Department of Mathematics)

2024 Masterson, Scott (Department of Mathematics)

2024 Chen, Riley (Department of Mathematics)

2022 Saniel, Katherine (Department of Mathematics)

2021 Grim-McNalley, Arielle (Department of Mathematics)

2020 Dong, Yun (Department of Electrical Engineering)

2019 Winter, William (Department of Mathematics)

2019 Kaperick, Bryan (Department of Mathematics)

2019 Abdulaziz, Alorf (Department of Electrical Engineering)

2019 Guo, Zhen (Department of Geosciences)

2016 Freeman, Felicia (Department of Mathematics)

2016 Bastani, Kaveh (Department of Industrial and Systems Engineering)

2015 Krueger, Justin (Department of Mathematics)