

Eileen R. Martin

eileenrmartin@vt.edu
(540)231-6397
474 McBryde Hall
225 Stanger St. Blacksburg, VA 24060
<https://eileenrmartin.github.io/>

Academic Appointments	Assistant Professor , Virginia Tech, Blacksburg, VA - Department of Mathematics (primary appointment) - Program in Computational Modeling and Data Analytics	Aug. 2018 - present
	Affiliate , Lawrence Berkeley National Laboratory, Berkeley, CA - Earth and Environmental Sciences Area, Geophysics Department	Sep. 2016 - present
Education	Ph.D. Computational and Mathematical Engineering , Stanford University Dissertation: <i>Passive Imaging and Characterization of the Subsurface with Distributed Acoustic Sensing</i> Readers: Biondo Biondi (advisor), Jonathan Ajo-Franklin, George Papanicolaou	June 2018
	M.S. Geophysics , Stanford University Masters research presentation: <i>Stanford DAS Array: Ambient Noise and Earthquake Recordings</i> Committee: Biondo Biondi (advisor) and Greg Beroza	June 2017
	B.S. Dean's Scholars Honors Mathematics , University of Texas at Austin Dean's Honored Graduate, graduated with high honors Honors thesis: <i>Global Coordinate Systems: Continuously Moving Finite-Dimensional Unit Norm Tight Frames on Smooth Manifolds</i> Advisor: Daniel Freeman (advisor, now at St. Louis University)	May 2012
	B.S. Computational Physics , University of Texas at Austin Graduated with high honors	May 2012
	Luther and Alice Hamlett Junior Faculty Fellow Fellowship in Virginia Tech's Academy of Integrated Science	2019-present
Honors, Awards, Fellowships	Gene Golub Dissertation Award Top dissertation, Institute for Computational and Mathematical Engineering, Stanford	2018
	Best student poster paper at SEG Annual Meeting, co-author Awarded for Huot et al., <i>Automatic Noise Exploration in Urban Areas</i>	2017
	Schlumberger Innovation Fellowship Value \$10,000; Awarded to 1 Ph.D. student and 4 M.S. students in ICME	2016-2017
	DOE Computational Science Graduate Fellowship Value over \$300,000; Awarded to approximately 20 students selected in 2012 throughout the United States	2012-2016
	Stanford ICME Student Leadership Award	2014
	NSF Graduate Research Fellowship Program award offered	2012
	Dean's Honored Graduate Faculty vote to award to 1% of students in UT-Austin College of Natural Sciences	2012
	Barry M. Goldwater Scholarship	2011-2012

**External
Funding**

DOE DE-FE0091786

Amount: \$1,874,999 total = \$1,499,999 DOE + \$375,000 non-DOE

Fully Distributed Acoustic and Magnetic Field Monitoring via a Single Fiber Line for Optimized Production of Unconventional Resource Plays

Lead PI: G. Pickrell (Virginia Tech Materials Science and Engineering), PIs: L. Ma (Sentek Instrument LLC), E.R. Martin

Period of performance: 10/1/19-6/30/22

MAA Tensor Women and Mathematics Grant

Amount: \$6,000

SURE: Speakers and Undergraduate Research Engagement

PI: G. Matthews (Virginia Tech Math), Co-PI: E.R. Martin

Period of performance: 6/1/20-5/31/21

NSF 1937984, Engineering for Civil Infrastructure program

Amount: \$157,973

EAGER: Exploration of an Interdisciplinary Approach to Resolving a Critical Issue in Evaluating Liquefaction Hazard of Challenging Soil Sites

PI: E.R. Martin, Co-PIs: A. Yerro Colom and R. Green (both Virginia Tech Civil & Environmental Engineering)

Period of Performance: 8/1/19-7/31/20

Subcontract 4000175567, UT-Batelle, LLC for Oak Ridge National Laboratory

Amount: \$37,343

Fast Comparative Algorithms for Sensor Array Summaries

PI: E.R. Martin

Period of Performance: 11/11/19-8/1/20

MAA Tensor Women and Mathematics Grant

Amount: \$6,000

SURE: Speakers and Undergraduate Research Engagement

PI: G. Matthews (Virginia Tech Math), Co-PIs: E.R. Martin and L. Zietsman (Virginia Tech Math)

Period of performance: 6/1/19-5/31/20

DE-SC0019630, DOE Phase I STTR with Luna Innovations

Amount: \$149,997

Advanced Computational Methods Towards High-Resolution Fiber Optic Distributed Acoustic Sensing

PI: D. Rountree (Luna Innovations), Co-PI: E.R. Martin

Period of performance: 2/19/19-11/18/19

**Internal
Funding**

AIS Luther and Alice Hamlett Undergraduate Research Support

Amount: \$4,000

Spring 2019: Data compression for next-generation seismic sensor networks

Spring 2020: Footstep removal to protect resident privacy in urban seismology data

PI: E.R. Martin

Period of performance: 1/14/19-5/23/23

Seed Grant from Penn State Institute of Energy and the Environment

Amount: \$50,000 (at Penn State)

Lighting Up the Subsurface for Tomorrow's City: Initiating a Penn State DAS Array for Mapping Near-Surface Geology

PI: T. Zhu (Penn State Geosciences), Co-PIs: E.R. Martin, A. Nyblade (Penn State

Geosciences), P. Fox (Penn State Civil & Env. Engineering)
Period of performance: 3/1/19-12/31/19

Papers Under Review

N.J. Lindsey, **E.R. Martin**, *Fiber-optic Seismology*, under review.

T. Zhu, J. Shen, **E.R. Martin**, *Sensing Earth and Environment Dynamics by Telecommunication Fiber-optic Sensors: An Urban Experiment in Pennsylvania USA*, under review. Preprint available at <https://eartharxiv.org/rswb3/>. Submitted to Solid Earth, undergoing open review process at <https://se.copernicus.org/preprints/se-2020-103/>.

J.Kump, **E.R. Martin**, *Multichannel Analysis of Surface Waves Accelerated (MASWAccelerate): Software for Efficient Surface Wave Inversion Using MPI and GPUs*, under review. Preprint available at <https://arxiv.org/abs/2003.02256>.

E.R. Martin, *A Linear Algorithm for Ambient Seismic Noise Double Beamforming Without Crosscorrelations*, under review.

Preprint available at <https://vtechworks.lib.vt.edu/handle/10919/96246>.

Code available at <https://github.com/eileenrmartin/doubleBeamforming>.

Journal Articles

G. Fang, Y.E. Li, Y. Zhao, **E.R. Martin**, 2020, *Urban Near-surface Seismic Monitoring using Distributed Acoustic Sensing*, Geophysical Research Letters, 47(6), e2019GL086115.

Z.J. Spica, M. Perton, **E.R. Martin**, G.C. Beroza, B.L. Biondi, 2020, *Urban Seismic Site Characterization by Fiber-Optic Seismology*, Journal of Geophysical Research: Solid Earth, 125(3), e2019JB018656.

E.R. Martin, F. Huot, Y. Ma, R. Cieplicki, S. Cole, M. Karrenbach, B.L. Biondi, 2018, *A Seismic Shift in Scalable Acquisition Demands New Processing: Fiber-Optic Seismic Signal Retrieval in Urban Areas with Unsupervised Learning for Coherent Noise Removal*, IEEE Signal Processing Magazine, 35(2), pp. 31-40.

N.J. Lindsey, **E.R. Martin**, S. Cole, D. Dreger, S. James, B. Freifeld, B. Biondi, J. Ajo-Franklin, 2017, *Fiber-Optic Network Observations of Earthquake Wavefields*, Geophysical Research Letters, 44(23), pp. 11792-11799, (featured on cover of issue).

S. Dou, N. Lindsey, A. Wagner, T. Daley, B. Freifeld, M. Robertson, J. Peterson, C. Ulrich, **E.R. Martin**, J. Ajo-Franklin, 2017, *Distributed Acoustic Sensing for Seismic Monitoring of the Near Surface: A Traffic-Noise Interferometry Example*, Scientific Reports, 7, article 11620.

Y. Li, H. Yang, **E.R. Martin**, K.L. Ho, L. Ying, 2015, *Butterfly Factorization*, Multiscale Model. Simul., 13, pp. 714-732.

D. Freeman, R. Hotovy, **E.R. Martin**, 2014, *Moving Finite Unit Norm Tight Frames for S^n* , Illinois J. of Math, 58, pp. 311-322. (alphabetical ordering standard for this journal)

Single-round Reviewed Periodicals

S. Jakkampudi, J. Shen, W. Li, A. Dev, T. Zhu, **E.R. Martin**, 2020, *Footstep Detection in Urban Seismic Data with a Convolutional Neural Network*, accepted to The Leading Edge, scheduled for publication in Sep. 2020.

E.R. Martin, C. Castillo, S. Cole, S. Sawasdee, S. Yuan, R. Clapp, M. Karrenbach, B. Biondi, 2017, *Seismic Monitoring Leveraging Existing Telecom Infrastructure at the Stanford Distributed Acoustic Sensing Array: Active, Passive and Ambient Noise Analysis*,

The Leading Edge, 36(12), pp. 1025-1031.

Book Chapters

E.R. Martin, N.J. Lindsey, B. Biondi, J.B. Ajo-Franklin, *Introduction to Interferometry of Fiber Optic Strain Measurements* accepted to AGU book on DAS. Preprint available at <https://eartharxiv.org/sx9zt/>.

B. Biondi, S. Yuan, **E.R. Martin**, F. Huot, R.G. Clapp, *Using telecommunication fiber infrastructure for earthquake monitoring and near-surface characterization*, accepted to upcoming AGU book on DAS.

Conference Papers

F. Huot, **E.R. Martin**, Z. Spica, B. Biondi, *Distributed Acoustic Sensing (DAS) for large-scale urban monitoring and geologic hazard mitigation using preexisting telecommunication infrastructure*, 2019, SEG/EAGE Workshop on Geophysical Aspects of Smart Cities, Singapore, 10-12 Dec.

T. Zhu, **E.R. Martin**, J. Shen, *New Signals in Massive Data Acquired by Fiber Optic Seismic Monitoring Under Pennsylvania State University*, 2019, SEG/EAGE Workshop on Geophysical Aspects of Smart Cities, Singapore, 10-12 Dec., [preprint](#).

E.R. Martin, *Scalable Seismic Acquisition and Algorithms for Next-Generation Engineering Geophysics*, (invited) 2019, International Conference on Engineering Geophysics, Al Ain, United Arab Emirates, 9-12 Oct.

E.R. Martin, *A Scalable Algorithm for Cross-correlations of Compressed Ambient Seismic Noise*, 2019, 89th Ann. Internat. Mtg. SEG Expanded Abstracts. doi: [10.1190/segam2019-3216637.1](https://doi.org/10.1190/segam2019-3216637.1)

E.R. Martin, B. Biondi, *Eighteen months of near-surface monitoring with ambient noise at the Stanford Fiber Optic Seismic Observatory*, 2018, 88th Ann. Internat. Mtg. SEG Expanded Abstracts. doi: [10.1190/segam2018-2997853.1](https://doi.org/10.1190/segam2018-2997853.1)

F. Huot, **E.R. Martin**, B. Biondi, *Automated ambient-noise processing applied to fiber-optic seismic acquisitions (DAS)*, 2018, 88th Ann. Internat. Mtg. SEG Expanded Abstracts. doi: [10.1190/segam2018-2997880.1](https://doi.org/10.1190/segam2018-2997880.1)

E.R. Martin and B.L. Biondi, *Ambient noise interferometry across two-dimensional DAS arrays*, 2017, 87th Ann. Internat. Mtg. SEG Expanded Abstracts. doi: [10.1190/segam2017-17677759.1](https://doi.org/10.1190/segam2017-17677759.1)

B. Biondi, **E.R. Martin**, S. Cole, M. Karrenbach, N. Lindsey, *Earthquakes analysis using data recorded by the Stanford DAS array*, 2017, 87th Ann. Internat. Mtg. SEG Expanded Abstracts. doi: [10.1190/segam2017-17745041.1](https://doi.org/10.1190/segam2017-17745041.1)

F. Huot, Y. Ma, R. Cieplik, **E.R. Martin**, B. Biondi, *Automatic noise exploration in urban areas*, 2017, 87th Ann. Internat. Mtg. SEG Expanded Abstracts (awarded best student poster paper). doi: [10.1190/segam2017-17774369.1](https://doi.org/10.1190/segam2017-17774369.1)

J.B. Ajo-Franklin, S. Dou, N. Lindsey, T. Daley, B. Freifeld, **E.R. Martin**, C. Ulrich, T. Wood, I. Eckblaw, A. Wagner, M. Robertson, *Timelapse surface wave monitoring of permafrost thaw using distributed acoustic sensing and a permanent automated seismic source*, 2017, 87th Ann. Internat. Mtg. SEG Expanded Abstracts. doi: [10.1190/segam2017-17774027.1](https://doi.org/10.1190/segam2017-17774027.1)

E.R. Martin, B. Biondi, M. Karrenbach, S. Cole, *Ambient noise interferometry from DAS array in underground telecommunications conduits*, 2017, EAGE Annual Meeting Proceedings. doi: [10.1190/segam2017-17774027.1](https://doi.org/10.1190/segam2017-17774027.1)

E.R. Martin, B.L. Biondi, M. Karrenbach, S. Cole, *Continuous Subsurface Monitoring by Passive Seismic with Distributed Acoustic Sensors- The “Stanford Array” Experiment*, 2017, Extended Abstracts of the 1st EAGE Workshop on Practical Reservoir Monitoring. doi: [10.3997/2214-4609.201700017](https://doi.org/10.3997/2214-4609.201700017)

E.R. Martin, P. Wills, D. Hohl, J.L. Lopez, *Using machine learning to predict production at a Peace River thermal EOR site*, Proceedings of the 2017 SPE Reservoir Simulation Conference. SPE-192696-MS. doi: [10.2118/182696-MS](https://doi.org/10.2118/182696-MS)

E.R. Martin, N.J. Lindsey, S. Dou, J.B. Ajo-Franklin, A. Wagner, K. Bjella, T.M. Daley, B. Freifeld, M. Robertson, C. Ulrich, *Interferometry of a roadside DAS array in Fairbanks, AK*, 2016, 86th Ann. Internat. Mtg. SEG Expanded Abstracts. doi: [10.1190/segam2016-13963708.1](https://doi.org/10.1190/segam2016-13963708.1)

E.R. Martin, J. Ajo-Franklin, N. Lindsey, T.M. Daley, B. Freifeld, M. Robertson, C. Ulrich, S. Dou, A. Wagner, *Interferometry of ambient noise from a trenched distributed acoustic sensing array*, 2015, 85th Ann. Internat. Mtg. SEG Expanded Abstracts. doi: [10.1190/segam2015-5902207.1](https://doi.org/10.1190/segam2015-5902207.1)

J. Ajo-Franklin, N. Lindsey, T.M. Daley, B. Freifeld, **E.R. Martin**, M. Robertson, C. Ulrich, A. Wagner, *A field test of distributed acoustic sensing for ambient noise recording*, Expanded Abstracts of the 2015 SEG Ann. Internat. Mtg. doi: [10.1190/segam2015-5926936.1](https://doi.org/10.1190/segam2015-5926936.1)

Technical Reports

E.R. Martin, *Eighteen months of continuous near-surface monitoring with DAS data collected under Stanford University*, SEP 172, 2018.

F. Huot, **E.R. Martin**, B. Biondi, *Automated ambient noise processing applied to fiber optic seismic acquisition*, SEP 172, 2018.

E.R. Martin, B. Biondi, G. Fabient-Ouellet, R.G. Clapp, *Sensitivity analysis of distributed acoustic sensing arrays*, SEP 170, 2017.

E.R. Martin, B. Biondi, *Time-lapse changes in ambient noise interferometry and dispersion analysis at the Stanford DAS Array*, SEP 170, 2017.

R. Clapp, S. Farris, T. Dahlke, **E.R. Martin**, *C++11 non-linear solver*, SEP 170, 2017.

E.R. Martin, B. Biondi, S. Cole, M. Karrenbach, *Overview of the Stanford DAS Array-1 (SDASA-1)*, SEP 168, 2017.

B. Biondi, **E.R. Martin**, S. Cole, M. Karrenbach, *Earthquakes analysis using data recorded by the Stanford DAS Array*, SEP 168, 2017.

E.R. Martin, B. Biondi, *Ambient noise interferometry on two-dimensional DAS arrays*, SEP 168, 2017.

F. Huot, Y. Ma, R. Cieplicki, **E.R. Martin**, B. Biondi, *Automatic noise exploration in urban areas*, SEP 168, 2017.

E. Williams, **E.R. Martin**, *Detection and removal of coherent anthropogenic noise from passive seismic data*, SEP 165, 2016.

E.R. Martin, N. Lindsey, S. Dou, J. Ajo-Franklin, A. Wagner, K. Bjella, T. Daley, B. Freifeld, M. Robertson, C. Ulrich, *Interferometry of a roadside DAS array in Fairbanks, AK*, SEP 163, 2016.

E.R. Martin, J. Ajo-Franklin, N. Lindsey, T. Daley, B. Freifeld, M. Robertson, C. Ulrich, S. Dou, A. Wagner, *Applying interferometry to ambient seismic noise recorded by a trenched distributed acoustic sensing array*, SEP 158, 2015.

E.R. Martin, *Compression for effective memory bandwidth use in forward modeling*, SEP 152, 2014.

E.R. Martin, R. Clapp, H. Le, C. Leader, D. Nichols, *SEPVector: a C++ inversion library*, SEP 152, 2014.

M. Denolle, S. de Ridder, J. Chang, **E.R. Martin**, T. Dahlke, H. Arevalo-Lopez, Sr., S. Levin, *Scholte-wave excitation*, SEP 150, 2013.

Selected Talks

New Methods in Engineering Geophysics: Distributed Acoustic Sensing and Machine Learning, US Geological Survey Earthquake Science Center Seminar
remote, audience in Menlo Park, CA, July 2020

Urban Seismology with Fiber Optics, Institute of Geophysics seminar at University of Hamburg
remote, audience in Hamburg, Germany, June 2020

What changes when we use ambient noise recorded by fiber optics?, EGU General Assembly session: Ambient noise seismology: Topics, targets, tools & techniques (invited)
remote, original location Vienna, Austria, May 2020

New Signals in Massive Data Acquired by Fiber Optic Seismic Monitoring Under Pennsylvania State University, [SEG/EAGE Workshop on Geophysical Aspects of Smart Cities](#)
Singapore, Dec. 2019

High-throughput seismology: new sensors, new signals, new algorithms, [Women in Data Science at Stanford Earth](#) (invited)
Stanford, CA, Nov. 2019

Scalable Seismic Acquisition and Algorithms for Next-Generation Engineering Geophysics, International Conference on Engineering Geophysics (invited) Al Ain, UAE, Oct. 2019

Seismology at Unprecedented Scale, BiSEPPS Seminar at Harvard University
Cambridge, MA, May 2019

Fast Algorithms for Ultra-high-resolution Ambient Noise Interferometry, Solid Earth Brownbag Seminar at Princeton University
Princeton, NJ, May 2019

An Introduction to Seismology with Distributed Acoustic Sensing (tutorial talk)
AGU Fall Meeting, [video of material on YouTube](#) Washington, DC, Dec. 2018

Beyond cosine squared: understanding trends in passive DAS data, SEG Annual Meeting Workshop on DAS
Anaheim, CA, Oct. 2018

Pushing for Continuous, Dense, Urban Seismic Monitoring at the Stanford Fiber Optic

Seismic Observatory (plenary talk) IRIS Workshop: Foundations, Frontiers and Future Facilities for Seismology Albuquerque, NM, Jun. 2018

Scalable seismic monitoring with fiber optics beneath our feet, Heiland Lecture at Colorado School of Mines Golden, CO, Jan. 2018

Active and passive recording at the Stanford DAS Array, SEG Annual Meeting Workshop: DAS, a vision of the future? Houston, TX, 2017

DAS in existing telecommunications conduits on the Stanford campus, SPE Workshop on Distributed Fiber-Optic Sensing Denver, CO, 2017

Urban ambient noise: from dense nodes to DAS, EAGE Annual Meeting: Workshop on linking active and passive seismics Paris, France, 2017

Repurposing our Telecommunications Infrastructure for Seismology, Lawrence Livermore National Laboratory Seismology Seminar Livermore, CA, 2017

Dirt Cheap Surveys: near surface monitoring with ambient seismic noise collected by DAS, EAGE Annual Meeting: workshop on reservoir monitoring with distributed fibre-optic sensing Vienna, Austria, 2016

Near-surface monitoring using DAS + ambient noise, SEG Annual Meeting: distributed acoustic sensing workshop New Orleans, LA, 2015

Professional Service

Associate editor, *Computers & Geosciences* Nov. 2018-present

Committee member, SEG Research Committee Oct. 2018-present

Steering Committee member, NSF DAS Research Coordination Network

Co-leader of Machine Learning Working Group Feb. 2018-present

Co-leader of RCN-affiliated virtual workshop

Reviewer: *Seismological Research Letters*, *American Geophysical Union Books*, *Geophysical Journal International*, *Geophysics*, *Computers & Geosciences*, *Marine Geophysical Research*, *Journal of Computational Science*, *Journal of Environmental and Engineering Geophysics*, *Interpretation*, *Geophysics*

Co-Organizer, SEG Annual International Meeting Post-convention Workshop on DAS: Advances in Fiber Optic Sensing Over the Last Decade (to occur) Oct. 2020

Co-Lead, DAS Virtual Workshop and Tutorial (to occur) Aug. 2020

Three-afternoon [virtual workshop and tutorial](#) supported by DAS RCN and IRIS

8 speaker presentations with extensive discussion

Developed new Jupyter notebooks for hands-on coding with public DAS data

Managed Slack channel for participants to network/discuss with 10 Workshop Guides

Session co-chair, SEG/EAGE Workshop on Geophysical Aspects of Smart Cities, session on Fiber-based Distributed Acoustic Sensing Dec. 2019

Co-Organizer, SEG Annual International Meeting Post-convention Workshop on Real-time Processing for Large-Scale Streaming Seismic Data, [agenda](#) Sep. 2019

Chair, Session on ‘Distributed Acoustic Sensing: VSP, Modeling and Imaging Approaches’ at SEG Annual International Meeting Sep. 2019

Co-Organizer, Session on ‘Photonic and Noninertial Seismology’ at Seismological Society of America Annual Meeting Apr. 2019

Organizer, Session on ‘Computational Advances for Large-Scale Geophysical Data’ at SIAM CS&E Feb. 2019

Special section associate editor, *Interpretation* 2018

Special issue on ‘Distributed Acoustic Sensing and its Oil Field Potential’

Co-organizer, Stanford Computational Geosciences Seminar Jan.-Mar. 2018

	Brought in 9 speakers from outside Stanford, organized 1 hr. course EARTH 310	
	Co-chair , Session on ‘Earth Model Building Strategies and Inputs’ at SEG Annual International Meeting	Sep. 2017
	Co-organizer , SEG Data Analytics Post-Convention Workshop	Sep. 2017
	Invited early-career speakers and moderated panel on data science education	
	Student panel Stanford Aeronautics & Astronautics faculty search	Spring 2017
	President , Stanford SEG student chapter	2014-2015
Teaching	Instructor , CS Foundations for CMDA (VT, CMDA 3634)	2 sections, Spring 2020
	Instructor , CS Foundations for CMDA (VT, CMDA 3634)	Spring 2020
	Instructor , Extreme-Scale Inverse Problems (VT, MATH 5984)	Fall 2019
	Instructor , Integrated Quantitative Science I (VT, CMDA 2005)	Fall 2019
	Project Mentor , Capstone Project (VT, CMDA 4864)	Fall 2019
	Senior team project on removing footstep signals from urban seismic data	
	Instructor , CS Foundations for CMDA (VT, CMDA 3634)	Spring 2019
	Instructor , Integrated Quantitative Science I (VT, CMDA 2005)	Fall 2018
	ICME Teaching Fellow 2016-2018, status to recognize student teaching experience	
	Course assistant , Intro. to Scientific Computing (Stanford, CME 108)	Winter 2016
	Project Mentor , Projects in App. & Comp. Math (CME 181) Stanford,	Spring 2015
	Undergrad project on statistical analysis of bicycle sharing network data	
	Instructor , Introduction to Scientific Python (Stanford, CME 193)	Winter 2015
	Instructor , Short course on Python at SIAM Conference on Geosciences,	June 2015
	Project Mentor , Projects in App. & Comp. Math (CME 181) Stanford,	Winter 2014
	Undergrad project on tsunami modeling using Hawaiian bathymetry	
	STEM Tutor , Longhorn Center for Academic Excellence	Aug. 2011-May 2012
Research Advising	Masters Student Supervised	
	Joseph Kump, Mathematics M.S. student	VT, May 2019 - present
	1st Project on efficient high-resolution near-surface imaging methods	
	2nd Project on efficient trend and anomaly detection in large sensor arrays	
	Undergraduate Students Supervised	
	Tony Artis, CMDA major	VT, Spring 2020-present
	Project on change point detection on large-scale streaming data	
	Anu Trivedi, Mathematics undergraduate	VT, Fall 2019-present
	Project on fast denoising of X-ray tomography imaging	
	Srikanth Jakkampudi, Mathematics and CMDA major	VT, Fall 2019-Spring 2020
	Project on automated footstep removal in urban seismic data	
	Supported by Hamlett Undergraduate Research Program	
	Next position: Member of technical staff at Expedition Technology, Inc.	
	Sarah Morgan, Mathematics major	VT, Fall 2019-Spring 2020
	Project on sparse-basis template matching algorithm	
	Next position: M.S. student in mathematics at Virginia Tech	
	Tarun Nadipalli, CMDA undergraduate	VT, Spring 2019
	Supported by Hamlett Undergraduate Research Program	
	Project on large-scale sensor network data compression	
	Ethan Williams, Geophysics and Music undergraduate	Stanford, Summer 2016
	Co-advised with Biondo Biondi	
	Project on targeted removal of infrastructure noise in ambient seismic data	
	Next position: Ph.D. student in geophysics at Caltech	

Doctoral Committee Membership

Nhat Nguyen, Ph.D. student of Luca Massa in AOE	VT, degree in progress
Zachary Hileman, Ph.D. student of Gary Pickrell in MSE	VT, degree in progress
Kaleigh Yost, Ph.D. student of Russell Green in CEE	VT, degree in progress
Amin Baghbadorani, Ph.D. student of John Hole in Geosciences	VT, degree in progress
Taewon Cho, Ph.D. student of Julianne Chung in Mathematics	VT, degree in progress

Masters Committee Membership

ThaoVy Nguyen, M.S. student of Russell Hewett in Mathematics	VT, degree in progress
--	------------------------

Service: Outreach, DEI and Education

Faculty sponsor/organizer , 2nd Women in Data Science Blacksburg at Virginia Tech conference (converted to online event with 3 speakers)	Apr. 2020
Co-organizer , Speakers and Undergraduate Research Engagement Program to guide female undergrad math students through their first research projects, and to bring in diverse women mathematician speakers for research talks and career path discussions	Feb. 2019 - present
Panelist , Virginia Tech Assoc. for Women in Mathematics internship panel	Feb. 2020
Mentor , DOE CSGF High Performance Computing Workshop	Jul. 2019
Panelist , Early Career Panel , DOE CSGF Annual Program Review	Jul. 2019
Faculty sponsor/organizer , 1st Women in Data Science conference at VT	Feb. 2019
Mentor , Student mentoring program run by Virginia Tech chapter of American Women in Mathematics	Sep. 2018 - present
Member , CMDA Computing Curriculum Committee	Aug. 2018 - present
Member , Math Department Technology Committee	Aug. 2018 - present
Speaker , Virginia Tech Undergraduate Math Club	Apr. 2019
Volunteer , ASA DataFest at Virginia Tech	Apr. 2019
Judge , CMDA Fall Data Competition at Virginia Tech	Nov. 2018
Panelist , UT-Austin Association for Women in Mathematics career panel	Nov. 2018
Speaker , UT-Austin Undergraduate Math Club	Nov. 2018
Mentor , ICME first-year mentoring program	Sep. 2017-Jun. 2018
Mentor , Stanford Women in Math Mentoring	Oct. 2016-Jun. 2017

Skills

Preferred programming languages: C/C++ and Python
HPC tools: MPI, openMP, CUDA, TBB
Profiling tools: Tau, HPM, NVCC, Vampir
Scientific tools: MATLAB, Mathematica, COMSOL, IDL
Environment and development tools: Docker, Singularity, Doxygen, Git, Jupyter
Notebooks, Google Cloud Compute Engine, Amazon Web Services (limited experience)

Industry Experience

High Performance Computing Internship <i>Schlumberger, Menlo Park, CA</i> Mentored by A. Lichnewsky and R.G. Clapp, and supervised by C. Boneti Benchmarked, co-developed, and tested compression scheme for HPC applications	Summer 2016
Areal Monitoring Internship <i>Shell Projects & Technology, Houston, TX</i> Mentored by J. Lopez and supervised by P. Wills Applied machine learning techniques to analyze data and predict production at steam-driven bitumen field in Peace River Regularly consulted with reservoir engineer to develop useful products	Summer 2015
DOE CSGF Practicum in Weapons & Complex Integration	Summer 2014

Lawrence Livermore National Laboratory, Livermore, CA

Supervised by S. Langer

Improved memory performance of pf3D laser-plasma code by combining physics operators

Evaluated hardware compression needs

Computational Physics Internship

2010-2011

Nanohmics, Inc. Austin, TX

Project funded through U.S. Department of Defense, PI B. Zollars

Implemented unstructured adaptive mesh methods for finite element code to model
liquid erosion of coated lenses