Eileen R. Martin
she/her

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Academic Appointments	**Research Assistant Professor**, Colorado School of Mines, Golden, CO	
	- Department of Geophysics	Jun. 2021 - present
	- Incoming Assistant Professor in Geophysics and AMS	beginning Jan. 2022
	Assistant Professor, Virginia Tech, Blacksburg, VA	Aug. 2018 - present
	- Department of Mathematics (primary appointment)	
	- Program in Computational Modeling and Data Analytics	
	- Department of Geosciences (affiliate faculty since Dec. 2019)	
	Affiliate, Lawrence Berkeley National Laboratory, Berkeley, CA	2016-2020
	- Earth and Environmental Sciences Area, Geophysics Department	

Education

Ph.D. Computational and Mathematical Engineering,   **Stanford University**
Dissertation: June 2018
Passive Imaging and Characterization of the Subsurface with Distributed Acoustic Sensing
Readers: Biondo Biondi (advisor), Jonathan Ajo-Franklin, George Papanicolaou

M.S. Geophysics   **Stanford University**
Masters research presentation: June 2017
Stanford DAS Array: Ambient Noise and Earthquake Recordings
Committee: Biondo Biondi (advisor) and Greg Beroza

B.S. Dean's Scholars Honors Mathematics,   **University of Texas at Austin**
Dean's Honored Graduate, graduated with high honors   May 2012
Honors thesis: *Global Coordinate Systems: Continuously Moving Finite-Dimensional Unit Norm Tight Frames on Smooth Manifolds*
Advisor: Daniel Freeman (advisor)

B.S. Computational Physics   **University of Texas at Austin**
Graduated with high honors   May 2012

Honors, Awards, Fellowships	**Luther and Alice Hamlett Junior Faculty Fellow**	2019-present
	Fellowship in Virginia Tech's Academy of Integrated Science	
	Gene Golub Dissertation Award	2018
	Top dissertation, Institute for Computational and Mathematical Engineering, Stanford	
	Best student poster paper at SEG Annual Meeting, co-author	2017
	Awarded for Huot et al., *Automatic Noise Exploration in Urban Areas*	
	Schlumberger Innovation Fellowship	2016-2017
	DOE Computational Science Graduate Fellowship	2012-2016
	Stanford ICME Student Leadership Award	2014
	NSF Graduate Research Fellowship Program award offered	2012
	Dean's Honored Graduate, UT-Austin College of Natural Sciences	2012
	Barry M. Goldwater Scholarship	2011-2012

External Funding   **NSF 2046387, Office of Advanced Cyberinfrastructure**

Amount: $398,024 awarded to date ($509,722 total intended)
CAREER: Scalable Computational Seismology for All
PI: E.R. Martin
Period of Performance: 7/1/21 - 6/30/26

Subcontract 3437-AFR-2S+, Luna Innovations, Inc.
Amount to Virginia Tech: $100,000
Swift and QUiet Airfield Assessment Device (SQUAAD), Phase II
PI: R. Green (Virginia Tech, Civil & Environmental Engineering), Co-PI: E.R. Martin
Period of Performance: 3/1/21-2/1/22

NSF 2034366, Signals in the Soil Program
Amount to Virginia Tech: $216,167
SitS: Collaborative Research: Understand and Forecast Long-term Variations of In-situ Geophysical and Geomechanical Characteristics of Degrading Permafrost in the Arctic
PI: M. Xiao (Penn State, Civil & Environmental Engineering), Co-PIs: E.R. Martin, D. Nicolsky (University of Alaska Fairbanks, Geophysical Institute), T. Zhu (Penn State, Geosciences), A. Jensen (University of Alaska Fairbanks, Anthropology)
Period of performance: 1/1/21-12/31/23

DOE DE-FE0091786, Office of Fossil Energy
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: 6/1/21-5/31/22

Subcontract 4000175567, UT-Batelle, LLC for Oak Ridge National Laboratory
Amount: $94,985
Fast Comparative Algorithms for Sensor Array Summaries
PI: E.R. Martin
Period of Performance: 11/11/19-8/15/21

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: 8/1/19-7/31/22

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 to Virginia Tech: $51,433
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

Luther and Alice Hamlett Undergraduate Research Support, AIS
Total amount: $6,000
Spring 2019: Data compression for next-generation seismic sensor networks
Spring 2020: Footstep removal to protect resident privacy in urban seismology data
Summer 2021: Compression and Data Product Streams in Permafrost Thaw Monitoring
PI: E.R. Martin
Period of performance: 1/14/19-6/30/25

Luther and Alice Hamlett Junior Faculty Fellowship, AIS
Amount varies annually depending on investment fund returns.
Period of performance: 8/19 - 7/22

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

Publications Under Review

1. W. Trainor-Guitton, **E.R. Martin**, V. Rodríguez Tribaldos, N. Taverna, V. Dumont, 2021, *Distributed Sensing and Machine Learning Hone Seismic Listening*, under review.

2. K.M. Yost, J. Cooper, R.A. Green, **E.R. Martin**, A. Yerro, 2021, *Correcting measured CPT q_c for multiple thin layer effects*, under review.

3. Z. Hileman, D. Homa, **E.R. Martin**, G. Pickrell, A. Wang, 2021, *Development of a Fully Distributed Multi-Material Magnetic Sensing Optical Fiber for Distributed Acoustic Sensing Applications*, under review.

4. K.M. Yost, A. Yerro, R.A. Green, **E.R. Martin**, 2021, *Harnessing Numerical Tools to Study the Limitations of CPTs for Characterizing Complex Soil Stratgraphies for Liquefaction Assessment*, under review.

Journal Articles

1. K. Yost, A. Yerro, R.A. Green, **E.R. Martin**, J. Cooper, 2021, *MPM Modeling of Cone Penetrometer Testing for Multiple Thin-Layer Effects in Complex Soil Stratigraphy*, accepted to Journal of Geotechnical and Geoenvironmental Engineering.

2. J. Cooper, **E.R. Martin**, K.M. Yost, A. Yerro, R.A. Green, 2021, *Robust identification and characterization of thin soil layers in cone penetration data by piecewise layer optimization*, Computers and Geotechnics, 141, article no. 104404.
   Code link , preprint link

3. J. Kump, **E.R. Martin**, 2021, *Multichannel Analysis of Surface Waves Accelerated (MASWAccelerated): Software for Efficient Surface Wave Inversion Using MPI and GPUs*, Computers & Geosciences, 156, article no. 104903.
   Code link , preprint link

4. K.M. Yost, R.A. Green, S. Upadhyaya, B.W. Maurer, A. Yerro-Colom, **E.R. Martin**, J. Cooper, 2021, *Assessment of the Efficacies of Correction Procedures for Multiple Thin*

Layer Effects on Cone Penetration Tests, Soil Dynamics and Earthquake Engineering, 144, 106677.

5. N.J. Lindsey, **E.R. Martin**, 2021, *Fiber-optic Seismology*, Annual Review of Earth and Planetary Sciences, 49, pp. 309-336.
   Preprint link

6. T. Zhu, J. Shen, **E.R. Martin**, 2021, *Sensing Earth and Environment Dynamics by Telecommunication Fiber-optic Sensors: An Urban Experiment in Pennsylvania USA*, Solid Earth, 12(1), pp. 219-235.
   Data link

7. **E.R. Martin**, 2021, *A Linear Algorithm for Ambient Seismic Noise Double Beamforming Without Explicit Crosscorrelations*, Geophysics, 86(1), pp. IJF-V89.
   Code link , preprint link

8. 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.

9. 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.

10. **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 Unsupervized Learning for Coherent Noise Removal*, IEEE Signal Processing Magazine, **35**(2), pp. 31-40.
    Code link

11. 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.
    Code link

12. 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.

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

14. 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.

Professional Periodicals

1. A. Titov, A. Girard, **E.R. Martin**, 2021, *Research Committee Update: Working with – and for – early-career researchers*, The Leading Edge, 40(6), pp. 464-464.

2. 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*, The Leading Edge, 39(9), pp. 654-660.

3. **E.R. Martin**, 2020, *Research Committee Update: Shining a Light on Cities with Seismic Data*, The Leading Edge, 39(6), pp. 437-437.

4. **E.R. Martin**, C. Castillo, S. Cole, S. Sawasdee, S. Yuan, R. Clapp, M. Karrenbach, B. Biondi, 2017, *Seismic Monitoring Leveraging Existing Telecomm Infrastructure at the Stanford Distributed Acoustic Sensing Array: Active, Passive and Ambient Noise Analysis*, The Leading Edge, 36(12), pp. 1025-1031.

Book Chapters

1. **E.R. Martin**, N.J. Lindsey, B. Biondi, J.B. Ajo-Franklin. "Introduction to Interferometry of Fiber Optic Strain Measurements." *Distributed Acoustic Sensing in Geophysics: Methods and Applications*, edited by Y. Li, M. Karrenbach, J.B. Ajo-Franklin, American Geophysical Union Geophysical Monograph Series, 2021, pages to be set at release in Nov. 2021. Preprint available at https://eartharxiv.org/sx9zt/.

2. B. Biondi, S. Yuan, **E.R. Martin**, F. Huot, R.G. Clapp. "Using telecommunication fiber infrastructure for earthquake monitoring and near-surface characterization." *Distributed Acoustic Sensing in Geophysics: Methods and Applications*, edited by Y. Li, M. Karrenbach, J.B. Ajo-Franklin, American Geophysical Union Geophysical Monograph Series, 2021, pages to be set at release in Nov. 2021.

Conference Papers

1. **E.R. Martin**, J. Kump, S. Morgan, T. Zhu, *Analyzing Massive, Passive DAS Data in Wavelet-compressed Form*, 2021, SEG — AGU Advances in Distributed Sensing for Geophysics Workshop, online, 8-9 Feb.

2. 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.

3. 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.

4. **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.

5. **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

6. **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

7. 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

8. **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

9. 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

10. F. Huot, Y. Ma, R. Cieplicki, **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

11. 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

12. **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

13. **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

14. **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

15. **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

16. **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

17. 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

Technical Reports

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

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

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

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

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

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

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

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

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

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

11. **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.

12. **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.

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

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

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

Invited Talks	*(Upcoming)* Conference on Data Analysis (invited) Santa Fe, NM, Apr. 2022
	(Upcoming) Numerical Analysis and Scientific Computing Seminar
	NYU Courant, remote, Nov. 2021
	DAS Workshop - Infrastructure & Imaging - NHERI@UTexas
	Baton Rouge, LA and virtual, Oct. 2021
	Southern California Earthquake Center Annual Meeting (plenary) remote, Sep. 2021
	GAGE/SAGE Community Science Workshop (plenary) remote, Aug. 2021
	Caltech Seismological Lab Seminar Caltech, remote, Apr. 2021
	IRIS Board of Directors Meeting remote, Feb. 2021
	Heiland Lecture Colorado School of Mines, remote, Feb. 2021
	AGU Fall Meeting session on Observation of Rotation, Strain and Translation in Seismology - Applications, Instrumentation and Theory (invited), remote, Dec. 2020
	Scientific Computing and Numerics Seminar Cornell University, remote, Nov. 2020
	Applied Geophysics Research Seminar ExxonMobil, remote, Aug. 2020
	Mathematics and Computer Science Division Seminar
	Argonne National Lab, remote, Jul. 2020
	Earthquake Science Center Seminar US Geological Survey, remote, Jul. 2020
	Institute of Geophysics Seminar University of Hamburg, remote, Jun. 2020
	EGU General Assembly session on Ambient noise seismology: Topics, targets, tools & techniques (invited) remote, May 2020
	Women in Data Science at Stanford Earth (invited) Stanford University, Nov. 2019
	International Conference on Engineering Geophysics (invited) Al Ain, UAE, Oct. 2019
	BiSEPPS Seminar Harvard University, Cambridge, MA, May 2019
	Solid Earth Brownbag Seminar Princeton University, Princeton, NJ, May 2019
	IRIS Workshop: Foundations, Frontiers and Future Facilities for Seismology (plenary)
	Albuquerque, NM, Jun. 2018
	Heiland Lecture Colorado School of Mines, Golden, CO, Jan. 2018
	Seismology Seminar Lawrence Livermore National Lab, Livermore, CA, 2017
Tutorial Talks	*Surface DAS and Environmental Applications*, SEG/AAPG IMAGE Special Session, An Introduction to DAS: Using Fiber Optics for Geoscience Applications
	Denver, CO and virtual, Sep. 2021
	Distributed Acoustic Sensing, Remote Online Sessions for Emerging Seismologists, video of lecture on YouTube remote global audience, Jul. 2021
	Why we love arrays for data science, Women in Data Science Worldwide Workshops, video of lecture on YouTube remote global audience, Mar. 2021
	An Introduction to Seismology with Distributed Acoustic Sensing, AGU Fall Meeting, video of same material recorded for YouTube Washington, DC, Dec. 2018
Research Advising	**Graduate Student Theses Supervised**
	Ahmad Tourei, Geosciences Ph.D. student VT, Sep. 2021 - present
	co-advised with J.A. Hole
	Hafiz Issah, Mathematics M.S. student VT, Aug. 2021 - present

Sarah Morgan, Mathematics M.S. student   VT, Aug. 2020 - present
Julius Grimm, Applied Geophysics M.S. (thesis link) IDEA League, graduated Aug. 2021
    co-advised with P. Paitz, P. Edme, A. Fichtner, F. Walter
Joseph Kump, Mathematics M.S. (thesis link)   VT, graduated May 2021

Undergraduate Student Researchers Supervised
Samantha Paulus, CMDA and Nanoscience major   VT, Spring 2021-present
Firaol Woldemariam, CMDA major   VT, Spring 2021-present
Tony Artis, CMDA major   VT, Spring 2020-present
Anu Trivedi, Mathematics major   VT, Fall 2019-Spring 2021
Srikanth Jakkampudi, Mathematics and CMDA major   VT, Fall 2019-Spring 2020
Sarah Morgan, Mathematics major   VT, Fall 2019-Spring 2020
Tarun Nadipalli, CMDA major   VT, Spring 2019
Ethan Williams (coadvised, B. Biondi) Geophysics & Music major, Stanford, Summer 2016

Graduate Thesis Committee Member
Derrick Chambers, Ph.D. with J. Shragge, Geophysics   CSM, degree in progress
Joseph Mjehovich, M.S. with G. Jin, Geophysics   CSM, degree in progress
Junzhu Shen, Ph.D. with T. Zhu, Geosciences   Penn State, degree in progress
Nhat Nguyen, Ph.D. with L. Massa, AOE   VT, degree in progress
Zachary Hileman, Ph.D. with G. Pickrell, MSE   VT, degree in progress
Kaleigh Yost, Ph.D. with R. Green, CEE   VT, degree in progress
Amin Baghbadorani, Ph.D. with J. Hole, Geosciences   VT, degree in progress
ThaoVy Nguyen, M.S. with R. Hewett, Mathematics   VT, degree awarded May 2021
Taewon Cho, Ph.D. with J. Chung, Mathematics   VT, degree awarded May 2021

Teaching	**Instructor**, BEPUR: Broadening Engagement and Participation in Undergraduate Research (VT, MATH 2984) Fall 2021

Instructor, BEPUR: Broadening Engagement and Participation in Undergraduate
    Research (VT, MATH 2984)   Fall 2021
Project Mentor, Capstone Project (VT, CMDA 4864)   Fall 2021
    Senior team project on optimal detection of targets in GPR data
Instructor, BEPUR: Broadening Engagement and Participation in Undergraduate
    Research (VT, MATH 2984)   Spring 2021
Instructor, CS Foundations for CMDA (VT, CMDA 3634)   2 sections, Fall 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 (Stanford, CME 181)   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 (Stanford, CME 181)   Winter 2014
    Undergrad project on tsunami modeling using Hawaiian bathymetry
STEM Tutor, Longhorn Center for Academic Excellence   Aug. 2011-May 2012
    UT-Austin Division of Diversity and Community Engagement
    Tutored students in introductory math, statistics, physics, and chemistry courses
    Documented tutoring and workshops for grant application materials

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

Guest Editor, IEEE CiSE: DOE Computational Science Graduate Fellowship Research
Showcase   Jun. 2021-present

Member, SEG JEDI Committee   Apr. 2021-present

Committee member, SEG Research Committee   Oct. 2018-present

Advisor, Undergraduate Mathematics Majors, Traditional Option   Aug. 2020 - present

Member, CMDA Computing Curriculum Committee   Aug. 2018 - present

Steering Committee Member, NSF DAS Research Coordination Network
Co-leader of Machine Learning Working Group   Feb. 2020-present
Co-leader of RCN-affiliated virtual workshops

Co-organizer, Speakers and Undergraduate Research Engagement   Feb. 2019 - present
Program to guide female undergrad math students through first research projects, and
bring diverse women mathematicians for research talks and career path discussions

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, PASC Conference, Geophysical
Research Letters, Bulletin of the Seismological Society of America, SEG Annual
Meeting Technical Program, The Leading Edge*

Co-convener, AGU Fall Meeting session "Observing Wave Field Gradients in Seismology-
Applications, Instrumentation and Theory"   to occur Dec. 2021

Co-organizer, SEG Post-convention workshop "Distributed Fiber-Optic Sensing in
Applied Geophysics"   Oct. 2021

Co-organizer, GAGE/SAGE Short course "Distributed Acoustic Sensing: Scientific
Frontiers and Community Needs"   Aug. 2021

Member, Virginia Tech Math Dept. Colloquium Committee   Aug. 2020 - Jul. 2021

Instructor, Remote Online Sessions for Emerging Seismologists (ROSES) lesson on
Distributed Acoustic Sensing   July 2021

Panelist, AGU EPSP Connects: Surface processes applications of environmental
seismology and distributed acoustic sensing (DAS) Q&A   May 2021

Member, SEG Equity in Process Task Force   Aug. 2020-Apr. 2021

Faculty sponsor/organizer, 3rd Women in Data Science Blacksburg at Virginia
Tech conference   April 2021

Panelist, Virginia Tech Assoc. for Women in Computing research panel   Mar. 2021

Member, DOE CSGF Screening Committee   2020, 2021

Session Co-Chair, AGU Fall Meeting session on Data Science and Machine Learning for
Natural Hazard Sciences   Dec. 2020

Panelist, discussion on women in geosciences for Diversity and Inclusion in Geoscience
course at University of Wyoming   Oct. 2020

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

Speaker, UT-Austin Dean's Scholars Honors Program Friday Lunch Talk   Sep. 2020

Co-Lead, DAS Virtual Workshop and Tutorial   Aug. 2020
Three-afternoon virtual workshop and tutorial supported by DAS RCN and IRIS;
8 speaker presentations with extensive discussion, and 150-250 participants/day;
Developed new Jupyter notebooks for hands-on coding with public DAS data;
Managed Slack channel for participants to network/discuss with 10 Workshop Guides.

Member, Virginia Tech Math Dept. Technology Committee   Aug. 2018 - Aug. 2020

Judge, Virginia Tech Socially Determined COVID-19 Social Data Project   Apr. 2020

Faculty sponsor/organizer, 2nd Women in Data Science   Apr. 2020
Blacksburg at Virginia Tech conference (converted to online event with 3 speakers)

Panelist, Virginia Tech Assoc. for Women in Mathematics internship panel   Feb. 2020

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

Mentor, DOE CSGF High Performance Computing Workshop   Jul. 2019

Panelist, Early Career Panel, DOE CSGF Annual Program Review   Jul. 2019

Mentor, Student mentoring program run by Virginia Tech   Sep. 2018 - May 2019
    chapter of American Women in Mathematics

Co-Organizer, Session on 'Photonic and Nonintertial Seismology' at Seismological
    Society of America Annual Meeting   Apr. 2019

Speaker, Virginia Tech Undergraduate Math Club   Apr. 2019

Volunteer, ASA DataFest at Virginia Tech   Apr. 2019

Faculty sponsor/organizer, 1st Women in Data Science conference at VT   Feb. 2019

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

Special section associate editor, *Interpretation*   2018
    Special issue on 'Distributed Acoustic Sensing and its Oil Field Potential'

Mentor, ICME first-year mentoring program   Sep. 2017-Jun. 2018

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

Mentor, Stanford Women in Math Mentoring   Oct. 2016-Jun. 2017

President, Stanford SEG student chapter   2014-2015

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

Industry Experience

High Performance Computing Internship   Summer 2016
Schlumberger, Menlo Park, CA
Mentored by A. Lichnewsky and R.G. Clapp, and supervised by C. Boneti
Benchmarked, co-developed, and tested compression scheme for HPC applications

Areal Monitoring Internship   Summer 2015
Shell Projects & Technology, Houston, TX
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

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