

Ali Siahkoohi

Assistant Professor
Department of Computer Science
University of Central Florida

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Last updated: February 26, 2026

Research Interests

My research focuses on uncertainty quantification in complex systems that arise in computational science and engineering, with an emphasis on deep generative modeling. By integrating deep learning and scientific computing, my group develops scalable sampling techniques for high-dimensional distributions. This work enables Bayesian inference in large-scale PDE-based inverse problems (e.g., seismic and medical imaging) and provides a principled framework for building reliable, uncertainty-aware AI models for real-world applications.

Academic Appointments

University of Central Florida
Tenure-Track Assistant Professor
Department of Computer Science

August 2025 – Present
Orlando, FL, USA

Rice University
Simons Postdoctoral Fellow
Department of Computational Applied Mathematics & Operations Research
Jointly hosted by Maarten V. de Hoop and Richard G. Baraniuk

August 2022 – July 2025
Houston, TX, USA

Education

Georgia Institute of Technology
Ph.D. in Computational Science and Engineering
Advised by Felix J. Herrmann

August 2022
Atlanta, GA, USA

University of Tehran
M.Sc. in Geophysics

March 2016
Tehran, Iran

Sharif University of Technology
B.Sc. in Electrical Engineering

August 2013
Tehran, Iran

Publications

Google Scholar profile: <https://scholar.google.com/citations?user=sxRMqYIAAAAJ&h>

In Preparation & Under Review

- P1. A. Siahkoohi and H. Oh. Conditional neural control variates for variance reduction in Bayesian inverse problems. Preprint arXiv:2602.21357, 2026
[pdf] [code] [poster] [bib]

Journal Publications

- J9. A. Siahkoohi, R. Morel, R. Balestrieri, E. Allys, G. Sainton, T. Kawamura, and M. V. de Hoop. Multi-scale clustering and source separation of InSight mission seismic data. *IEEE Transactions on Geoscience and Remote Sensing*, 2026. In print
[pdf] [code] [slides] [link] [bib]
- J8. R. Orozco, A. Siahkoohi, M. Louboutin, and F. J. Herrmann. ASPIRE: Iterative amortized posterior inference for Bayesian inverse problems. *Inverse Problems*, 41(4):045001, 2025

- [pdf] [code] [link] [bib]
- J7. R. Orozco, P. Witte, M. Louboutin, [A. Siahkoohi](#), G. Rizzuti, B. Peters, and F. J. Herrmann. InvertibleNetworks.jl: A Julia package for scalable normalizing flows. *Journal of Open Source Software*, 9(99):6554, 2024
[pdf] [code] [link] [bib]
- J6. L. Luzi, P. M. Mayer, J. Casco-Rodriguez, [A. Siahkoohi](#), and R. G. Baraniuk. Boomerang: Local sampling on image manifolds using diffusion models. *Transactions on Machine Learning Research*, 2024a
[pdf] [code] [link] [bib]
- J5. M. Louboutin, Z. Yin, R. Orozco, T. J. Grady II, [A. Siahkoohi](#), G. Rizzuti, P. A. Witte, O. Møyner, G. J. Gorman, and F. J. Herrmann. Learned multiphysics inversion with differentiable programming and machine learning. *The Leading Edge*, 42(7):474–486, 2023
[pdf] [link] [bib] [\[featured in Seismic Soundoff\]](#) [\[journal's most downloaded paper in '23\]](#)
- J4. Y. Zhang, Z. Yin, O. López, [A. Siahkoohi](#), M. Louboutin, R. Kumar, and F. J. Herrmann. Optimized time-lapse acquisition design via spectral gap ratio minimization. *Geophysics*, 88(4):A19–A23, 2023a
[pdf] [link] [bib]
- J3. [A. Siahkoohi](#), G. Rizzuti, R. Orozco, and F. J. Herrmann. Reliable amortized variational inference with physics-based latent distribution correction. *Geophysics*, 88(3):R297–R322, 2023a
[pdf] [slides] [code] [link] [bib] [\[featured in Geophysics Bright Spots\]](#)
- J2. [A. Siahkoohi](#), G. Rizzuti, and F. J. Herrmann. Deep Bayesian inference for seismic imaging with tasks. *Geophysics*, 87(5):S281–S302, 2022a
[pdf] [code] [link] [bib]
- J1. [A. Siahkoohi](#), M. Louboutin, and F. J. Herrmann. The importance of transfer learning in seismic modeling and imaging. *Geophysics*, 84(6):A47–A52, 2019a
[pdf] [code] [link] [bib]

Peer-Reviewed Conference Proceedings

- C32. S. Alemohammad, J. Casco-Rodriguez, L. Luzi, A. I. Humayun, H. Babaei, D. LeJeune, [A. Siahkoohi](#), and R. G. Baraniuk. Self-consuming generative models go MAD. In *The Twelfth International Conference on Learning Representations*, 2024
[pdf] [extended pdf] [poster] [link] [bib] [\[featured in the news 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\]](#)
- C31. L. Luzi, D. LeJeune, [A. Siahkoohi](#), S. Alemohammad, V. Saragadam, H. Babaei, N. Liu, Z. Wang, and R. G. Baraniuk. Titan: Bringing the deep image prior to implicit representations. In *IEEE International Conference on Acoustics, Speech and Signal Processing*, pages 6165–6169, 2024b
[pdf] [code] [link] [bib]
- C30. L. Baldassari, [A. Siahkoohi](#), J. Garnier, K. Sølna, and M. V. de Hoop. Conditional score-based diffusion models for Bayesian inference in infinite dimensions. In *Advances in Neural Information Processing Systems*, volume 36, pages 24262–24290, 2023
[pdf] [slides] [poster] [code] [link] [bib] [\[featured as a Spotlight presentation\]](#)
- C29. [A. Siahkoohi](#), R. Morel, M. V. de Hoop, E. Allys, G. Sainton, and T. Kawamura. Unearthing InSights into Mars: Unsupervised source separation with limited data. In *Proceedings of the 40th International Conference on Machine Learning*, volume 202, pages 31754–31772, 2023b
[pdf] [slides] [poster] [code] [link] [bib]
- C28. R. Orozco, M. Louboutin, [A. Siahkoohi](#), G. Rizzuti, T. van Leeuwen, and F. J. Herrmann. Amortized normalizing flows for transcranial ultrasound with uncertainty quantification. In *Medical Imaging with Deep Learning*, volume 227, pages 332–349, 2023a
[pdf] [link] [bib]
- C27. R. Orozco, [A. Siahkoohi](#), M. Louboutin, and F. J. Herrmann. Refining amortized posterior approximations using gradient-based summary statistics. In *5th Symposium on Advances in Approximate*

Bayesian Inference, 2023b

[pdf] [link] [bib]

- C26. R. Orozco, [A. Siahkoohi](#), G. Rizzuti, T. van Leeuwen, and F. J. Herrmann. Adjoint operators enable fast and amortized machine learning based Bayesian uncertainty quantification. In *Medical Imaging 2023: Image Processing*, volume 12464, page 124641L, 2023c
[pdf] [link] [bib]
- C25. Y. Zhang, Z. Yin, O. Lopez, [A. Siahkoohi](#), M. Louboutin, and F. J. Herrmann. 3D seismic survey design by maximizing the spectral gap. In *Third International Meeting for Applied Geoscience & Energy*, 2023b
[pdf] [poster] [bib]
- C24. [A. Siahkoohi](#), M. Chinen, T. Denton, W. B. Kleijn, and J. Skoglund. Ultra-low-bitrate speech coding with pretrained Transformers. In *Proceedings of Interspeech*, pages 4421–4425, 2022b
[pdf] [link] [bib]
- C23. [A. Siahkoohi](#), M. Louboutin, and F. J. Herrmann. Velocity continuation with Fourier neural operators for accelerated uncertainty quantification. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 1765–1769, 2022c
[pdf] [slides] [code] [link] [bib]
- C22. M. Louboutin, P. Witte, [A. Siahkoohi](#), G. Rizzuti, Z. Yin, R. Orozco, and F. J. Herrmann. Accelerating innovation with software abstractions for scalable computational geophysics. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 1482–1486, 2022
[pdf] [slides] [link] [bib]
- C21. Z. Yin, [A. Siahkoohi](#), M. Louboutin, and F. J. Herrmann. Learned coupled inversion for carbon sequestration monitoring and forecasting with Fourier neural operators. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 467–472, 2022
[pdf] [slides] [code] [link] [bib] [student oral paper honorable mention]
- C20. Y. Zhang, M. Louboutin, [A. Siahkoohi](#), Z. Yin, R. Kumar, and F. J. Herrmann. A simulation-free seismic survey design by maximizing the spectral gap. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 15–20, 2022
[pdf] [slides] [code] [link] [bib]
- C19. [A. Siahkoohi](#), R. Orozco, G. Rizzuti, and F. J. Herrmann. Wave-equation based inversion with amortized variational Bayesian inference. In *EAGE Deep learning for seismic processing: Investigating the foundations workshop*, 2022d
[pdf] [slides] [code] [link] [bib]
- C18. R. Orozco, [A. Siahkoohi](#), G. Rizzuti, T. van Leeuwen, and F. J. Herrmann. Photoacoustic imaging with conditional priors from normalizing flows. In *NeurIPS Workshop on Deep Learning and Inverse Problems*, 2021
[pdf] [poster] [link] [bib]
- C17. [A. Siahkoohi](#), G. Rizzuti, M. Louboutin, P. Witte, and F. J. Herrmann. Preconditioned training of normalizing flows for variational inference in inverse problems. In *3rd Symposium on Advances in Approximate Bayesian Inference*, 2021
[pdf] [slides] [code] [link] [bib]
- C16. [A. Siahkoohi](#) and F. J. Herrmann. Learning by example: Fast reliability-aware seismic imaging with normalizing flows. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 1580–1585, 2021
[pdf] [slides] [code] [link] [bib]
- C15. R. Kumar, M. Kotsi, [A. Siahkoohi](#), and A. Malcolm. Enabling uncertainty quantification for seismic data preprocessing using normalizing flows (NF)—An interpolation example. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 1515–1519, 2021
[pdf] [code] [link] [bib]

- C14. G. Rizzuti, [A. Siahkoohi](#), P. A. Witte, and F. J. Herrmann. Parameterizing uncertainty by deep invertible networks, an application to reservoir characterization. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 1541–1545, 2020
[pdf] [slides] [code] [link] [bib]
- C13. M. Zhang, [A. Siahkoohi](#), and F. J. Herrmann. Transfer learning in large-scale ocean bottom seismic wavefield reconstruction. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 1666–1670, 2020
[pdf] [slides] [code] [link] [bib]
- C12. [A. Siahkoohi](#), G. Rizzuti, and F. J. Herrmann. Weak deep priors for seismic imaging. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 2998–3002, 2020a
[pdf] [slides] [code] [link] [bib]
- C11. [A. Siahkoohi](#), G. Rizzuti, and F. J. Herrmann. Uncertainty quantification in imaging and automatic horizon tracking—A Bayesian deep-prior based approach. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 1636–1640, 2020b
[pdf] [slides] [code] [link] [bib]
- C10. [A. Siahkoohi](#), G. Rizzuti, and F. J. Herrmann. A deep-learning based Bayesian approach to seismic imaging and uncertainty quantification. In *European Association of Geoscientists & Engineers Conference and Exhibition Extended Abstracts*, 2020c
[pdf] [slides] [code] [link] [bib]
- C9. F. J. Herrmann, [A. Siahkoohi](#), and G. Rizzuti. Learned imaging with constraints and uncertainty quantification. In *NeurIPS Deep Inverse Workshop*, 2019
[pdf] [slides] [poster] [link] [bib]
- C8. [A. Siahkoohi](#), R. Kumar, and F. J. Herrmann. Deep-learning based ocean bottom seismic wavefield recovery. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 2232–2237, 2019b
[pdf] [code] [slides] [link] [bib]
- C7. [A. Siahkoohi](#), D. J. Verschuur, and F. J. Herrmann. Surface-related multiple elimination with deep learning. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 4629–4634, 2019c
[pdf] [slides] [link] [bib]
- C6. G. Rizzuti, [A. Siahkoohi](#), and F. J. Herrmann. Learned iterative solvers for the Helmholtz equation. In *European Association of Geoscientists & Engineers Conference and Exhibition Extended Abstracts*, 2019
[pdf] [slides] [link] [bib]
- C5. [A. Siahkoohi](#), M. Louboutin, R. Kumar, and F. J. Herrmann. Deep convolutional neural networks in prestack seismic—two exploratory examples. In *Society of Exploration Geophysicists Technical Program Expanded Abstracts*, pages 2196–2200, 2018a
[pdf] [poster] [link] [bib]
- C4. [A. Siahkoohi](#), R. Kumar, and F. J. Herrmann. Seismic data reconstruction with generative adversarial networks. In *European Association of Geoscientists & Engineers Conference and Exhibition Extended Abstracts*, 2018b
[pdf] [slides] [link] [bib]
- C3. [A. Siahkoohi](#) and A. Gholami. Sparsity promoting least squares migration for laterally inhomogeneous media. In *7th EAGE Saint Petersburg International Conference and Exhibition*, 2016
[pdf] [link] [bib]
- C2. M. S. Ebrahimi, M. H. Daraei, J. Rezaei, and [A. Siahkoohi](#). A novel utilization of wireless sensor networks as data acquisition system in smart grids. In *Materials Science and Information Technology*, volume 433-440, pages 6725–6730, 2012
[pdf] [link] [bib]

- C1. A. Najafi, [A. Siahkoohi](#), and M. B. Shamsollahi. A content-based digital image watermarking algorithm robust against JPEG compression. In *IEEE International Symposium on Signal Processing and Information Technology*, pages 432–437, 2011
[pdf] [link] [bib]

Theses

- T1. [A. Siahkoohi](#). *Deep generative models for solving geophysical inverse problems*. PhD thesis, **Georgia Institute of Technology**, 2022
[pdf] [slides] [link] [bib]

Technical Reports

- R5. P. M. Mayer, L. Luzi, [A. Siahkoohi](#), D. H. Johnson, and R. G. Baraniuk. Improving fairness and mitigating MADness in generative models. Technical Report arXiv:2405.13977, Rice University, 2024
[pdf] [code] [slides] [bib]
- R4. L. Baldassari, [A. Siahkoohi](#), J. Garnier, K. Sølna, and M. V. de Hoop. Taming score-based diffusion priors for infinite-dimensional nonlinear inverse problems. Technical Report arXiv:2405.15676, Rice University, 2024
[pdf] [bib]
- R3. M. Louboutin, [A. Siahkoohi](#), R. Wang, and F. J. Herrmann. Low-memory stochastic backpropagation with multi-channel randomized trace estimation. Technical Report arXiv:2106.06998, Georgia Institute of Technology, 2021
[pdf] [code] [link] [bib]
- R2. [A. Siahkoohi](#), G. Rizzuti, P. A. Witte, and F. J. Herrmann. Faster uncertainty quantification for inverse problems with conditional normalizing flows. Technical Report arXiv:2007.07985, Georgia Institute of Technology, 2020d [pdf] [link] [bib]
- R1. [A. Siahkoohi](#), M. Louboutin, and F. J. Herrmann. Neural network augmented wave-equation simulation. Technical Report arXiv:1910.00925, Georgia Institute of Technology, 2019d
[pdf] [code] [link] [bib]

Awards

Future Faculty Fellows Award

Rice University, George R. Brown School of Engineering and Computing
[link]

June 2024
Houston, TX, USA

Selected Research Proposal Experience

Scientific ML-supported subsurface characterization in physical function spaces

Awarded, 2024

- Funding Source: Occidental Petroleum Corporation, PI: Maarten V. de Hoop
- **Contributions:** Developed ideas and contributed to writing for two of the four research thrusts entitled “Score diffusion, nonlinear operators, and uncertainty quantification in function spaces” and “Unsupervised, factorial data decomposition and hidden signals: Reservoir characterization below salt, denoising, and monitoring”

Learning and forecasting complex fault dynamics – Predictability of earthquakes

Not funded, 2024

- Funding Source: National Science Foundation, PI: Maarten V. de Hoop
- **Contributions:** Developed ideas and contributed to writing for one of the four research thrusts entitled “Structure in data, clustering, lattice theory, and diffusion models”

Exploring the local geometry of deep networks

Awarded, 2023

- ▶ Funding Source: Office of Naval Research (DURIP), PI: Richard G. Baraniuk
- ▶ **Contributions:** Developed ideas and wrote research objectives for one of the three research thrusts entitled “The geometry of deep probabilistic models”

A deep-learning framework for stable, interpretable, and uncertainty-quantified hybrid modeling of multi-scale complex systems

Not funded, 2023

- ▶ Funding Source: Department of Energy, PI: Pedram Hassanzadeh
- ▶ **Contributions:** Coordinated efforts within Richard G. Baraniuk’s group (a co-PI) to develop and write research objectives for one of the four research thrusts entitled “Spline operator-based analysis of Deep neural networks”

Topological deep learning, causal inference, and data-driven forecasting for subsurface multiscale multiphysics systems

Awarded, 2022

- ▶ Funding Source: Department of Energy, PI: Maarten V. de Hoop
- ▶ **Contributions:** Led the effort to write the annual progress report

Mentoring Experience

University of Central Florida

Orlando, FL, USA

Departments of Computer Science & Electrical and Computer Engineering

- ▶ Davide Sabeddu [\[link\]](#) 2025 – Present
ECE Ph.D. Student — Ph.D. advisor
- ▶ Anirudh Thatipelli [\[link\]](#) 2025 – Present
CS Ph.D. Student — Ph.D. advisor

Rice University

Houston, TX, USA

Department of Computational Applied Mathematics & Operations Research

- ▶ Jeffrey J. Sam [\[link\]](#) 2024 – present
M.Sc. Student — Advised on the design and implementation of experiments for a project in preparation for submission
- ▶ Paul M. Mayer [\[link\]](#) 2022 – 2025
Ph.D. Student — Advised on the development of methods and software for two projects and co-authored two papers (Luzi et al., 2024a; Mayer et al., 2024)

Georgia Institute of Technology

Atlanta, GA, USA

School of Computational Science and Engineering

- ▶ Rafael Orozco [\[link\]](#) 2020 – 2022
Ph.D. Student — Advised on the development of methods and software for main Ph.D. thesis and co-authored four papers (Orozco et al., 2021, 2023b,c, 2025)
- ▶ Mi Zhang [\[link\]](#) 2019 – 2020
Visiting Ph.D. Student (China University of Petroleum-Beijing) — Advised on the development of methods and software for a project and co-authored a paper (Zhang et al., 2020)

Teaching Experience

University of Central Florida

Orlando, FL, USA

Department of Computer Science

- ▶ Sampling Methods for Uncertainty Quantification [\[link\]](#) Spring 2026
Instructor of Record
- ▶ Algorithms for Machine Learning [\[link\]](#) Fall 2025
Instructor of Record

Rice University

Houston, TX, USA

Department of Computational Applied Mathematics & Operations Research

▶ Numerical Analysis Substitute Instructor (12 lectures)	Fall 2024
▶ Numerical Analysis I Substitute Instructor (18 lectures)	Fall 2022
Georgia Institute of Technology School of Computational Science and Engineering	Atlanta, GA, USA
▶ Computational Foundations of Machine Learning Teaching Assistant	Spring 2022
▶ Imaging with Data-Driven Models Teaching Assistant	Fall 2019
▶ Numerical Analysis I Teaching Assistant	Fall 2018
Sharif University of Technology Department of Electrical Engineering	Tehran, Iran
▶ Digital Signal Processing Teaching Assistant	Spring 2011
▶ Signals and Systems Teaching Assistant	Spring 2011
▶ Linear Algebra Teaching Assistant	Spring 2010
▶ Electrical Engineering: Principles and Laboratory Teaching Assistant	Fall 2009

Talks

Invited Talks

T29. IEEE Computer Society, Chapter of San Diego Mitigating biases in self-consuming generative models Open Research Institute (ORI) [video]	June 2025 Virtual oral presentation
T28. University of Central Florida Towards reliable AI: A framework for quantification of AI uncertainty Department of Computer Science	April 2025 Oral presentation
T27. Montana State University Towards reliable AI: A framework for quantification of AI uncertainty Gianforte School of Computing	March 2025 Oral presentation
T26. The University of California, Santa Barbara Towards reliable AI: A framework for quantification of AI uncertainty Department of Mechanical Engineering	February 2025 Oral presentation
T25. Johns Hopkins University Towards reliable AI: A framework for quantification of AI uncertainty Department of Electrical and Computer Engineering	January 2025 Oral presentation
T24. ISCL Seminar Series, Pennsylvania State University Mitigating biases in self-consuming generative models Interdisciplinary Scientific Computing Laboratory (Dr. Romit Maulik) [video]	November 2024 Virtual oral presentation
T23. CNRS, Université Montpellier Low-cost uncertainty quantification for large-scale inverse problems	January 2023 Virtual oral presentation

RhEoVOLUTION Group (Dr. Andréa Tommasi)

- T22. **Workshop on Subsurface Uncertainty Description and Estimation** August 2022
 Reliable amortized variational inference with conditional normalizing flows via physics-based latent distribution correction Oral presentation
 International Meeting for Applied Geoscience & Energy
- T21. **Intelligent illumination of the Earth Workshop** June 2021
 Fast and reliability-aware seismic imaging with conditional normalizing flows Virtual oral presentation
 King Abdullah University of Science and Technology
- T20. **Advances in Seismic Imaging and Inversion Mini-symposium** October 2020
 Unsupervised data-guided uncertainty analysis in imaging and horizon tracking Virtual oral presentation
 The 3rd Annual Meeting of the SIAM Texas–Louisiana Section

Contributed Talks

- T20. **UCF Spring AI Research Day, UCF Institute of Artificial Intelligence** February 2026
 Multi-scale clustering and source separation of InSight mission seismic data Oral presentation
- T19. **Geo-Mathematical Imaging Group Partners Meeting, Rice University** November 2024
 Improving fairness and mitigating MADness in generative models Oral presentation
- T18. **International Conference on Machine Learning** July 2023
 Unearthing InSights into Mars: Unsupervised source separation with limited data Poster presentation
- T17. **Symposium on Advances in Approximate Bayesian Inference** July 2023
 Refining amortized posterior approximations using gradient-based summary statistics Poster presentation
- T16. **Geo-Mathematical Imaging Group Partners Meeting, Rice University** May 2023
 Martian time-series unraveled: A multi-scale nested approach with factorial variational autoencoders Oral presentation
- T15. **Geo-Mathematical Imaging Group Partners Meeting, Rice University** May 2023
 Unearthing InSights into Mars: Unsupervised source separation with limited data Oral presentation
- T14. **International Meeting for Applied Geoscience & Energy** August 2022
 Velocity continuation with Fourier neural operators for accelerated uncertainty quantification Oral presentation
- T13. **Chrome Media Team, Google** December 2021
 Low-bitrate speech coding with Transformers Virtual oral presentation
- T12. **ML4SEISMIC Partners Meeting, Georgia Institute of Technology** November 2021
 Multifidelity conditional normalizing flows for physics-guided Bayesian inference Virtual oral presentation
- T11. **ML4SEISMIC Partners Meeting, Georgia Institute of Technology** November 2021
 Uncertainty quantification in imaging and automatic horizon tracking—A Bayesian deep-prior based approach Virtual oral presentation
- T10. **Society of Exploration Geophysicists International Exposition and Annual Meeting** September 2021
 Learning by example: Fast reliability-aware seismic imaging with normalizing flows Virtual oral presentation
 [video]
- T9. **Symposium on Advances in Approximate Bayesian Inference** January 2021
 Preconditioned training of normalizing flows for variational inference in inverse problems Prerecorded short oral presentation
 [video]

T8. European Association of Geoscientists & Engineers Annual Conference & Exhibition	December 2020	A deep-learning based Bayesian approach to seismic imaging and uncertainty quantification	Virtual oral presentation
T7. Society of Exploration Geophysicists International Exposition and Annual Meeting	October 2020	Uncertainty quantification in imaging and automatic horizon tracking—A Bayesian deep-prior based approach [video]	Virtual oral presentation
T6. Society of Exploration Geophysicists International Exposition and Annual Meeting	October 2020	Weak deep priors for seismic imaging [video]	Virtual oral presentation
T5. Society of Exploration Geophysicists Student Chapter, Georgia Tech	February 2020	A deep-learning based Bayesian approach to seismic imaging and uncertainty quantification	Oral presentation
T4. HotCSE Seminar, CSE Department, Georgia Institute of Technology	November 2019	Learned imaging with constraints and uncertainty quantification	Oral presentation
T3. Society of Exploration Geophysicists International Exposition & Annual Meeting	September 2019	Deep-learning based ocean bottom seismic wavefield recovery	Oral presentation
T2. Society of Exploration Geophysicists International Exposition & Annual Meeting	September 2019	Surface-related multiple elimination with deep learning	Oral presentation
T1. Society of Exploration Geophysicists International Exposition & Annual Meeting	October 2018	Deep convolutional neural networks in prestack seismic—two exploratory examples	Poster presentation

Professional Service

Editorial Service

- ▶ **Acta Geophysica**, Associate Editor
Applied Geophysics section 2024 – Present
- ▶ **Journal of Mathematics**, Guest Editor 2023 – 2024
Special issue on Applied Mathematics in Inverse Problems and Uncertainty Quantification

Conference Organization

- ▶ **International Meeting for Applied Geoscience & Energy**, Session Chair 2022

Technical Program Committee Member and Reviewer

- ▶ Symposium on Probabilistic Machine Learning (ProbML) 2026
- ▶ International Conference on Machine Learning (ICML) 2024 – 2026
- ▶ International Conference on Learning Representations (ICLR) 2024 – 2026
- ▶ Annual AAAI Conference on Artificial Intelligence 2025 – 2026
- ▶ Structured Probabilistic Inference & Generative Modeling 2023 – 2025
- ▶ Frontiers in Probabilistic Inference: Sampling Meets Learning 2025
- ▶ Neural Information Processing Systems (NeurIPS) 2023 – 2025
- ▶ Artificial Intelligence and Statistics Conference (AISTATS) 2024 – 2025
- ▶ Advances in Approximate Bayesian Inference (AABI) 2023 – 2024
- ▶ Structured Probabilistic Inference & Generative Modeling (ICML workshop) 2023 – 2024
- ▶ International Speech Communication Association (Interspeech) 2023
- ▶ Deep Generative Models for Health (NeurIPS workshop) 2023

- ▶ International Meeting for Applied Geoscience & Energy

2023

Journal Reviewer

- ▶ Transactions on Machine Learning Research
- ▶ IEEE Transactions on Computational Imaging
- ▶ IEEE Transactions on Neural Networks and Learning Systems
- ▶ IEEE Geoscience and Remote Sensing Letters
- ▶ IEEE Transactions on Geoscience and Remote Sensing
- ▶ Notices of the American Mathematical Society (AMS)
- ▶ Remote Sensing
- ▶ Journal of Geophysical Research – Solid Earth
- ▶ Geophysical Prospecting
- ▶ Geophysics
- ▶ Geosciences
- ▶ Entropy
- ▶ Journal of Medical Imaging

Industry Research Experience

Google

Research Intern (cf. [A. Siahkoochi et al. \(2022b\)](#))
Chrome Media Team

August 2021 – December 2021
San Francisco, CA, USA

Selected Media Coverage

Future Faculty Fellow Ali Siahkoochi joins University of Central Florida as assistant professor June 2025
Rice University Engineering News
[\[link\]](#)

AI's Mad Loops February 2025
Rice Magazine
[\[link\]](#)

AI Appears to Be Slowly Killing Itself August 2024
Futurism
[\[link\]](#)

When A.I.'s Output Is a Threat to A.I. Itself August 2024
The New York Times
[\[link\]](#)

Breaking MAD: Generative AI could break the internet July 2024
Rice News, Rice University
[\[link\]](#)

'Cesspool of AI crap' or smash hit? LinkedIn's AI-powered collaborative articles offer a sobering peek at the future of content April 2024
Fortune
[\[link\]](#)

AI's 'mad cow disease' problem tramples into earnings season April 2024
Yahoo!finance
[\[link\]](#)

'Mad' AI risks destroying the Information Age The Telegraph [link]	February 2024
When AI Is Trained on AI-Generated Data, Strange Things Start to Happen Futurism [link]	August 2023
Episode 194: Improving integration in machine learning workflows Seismic Soundoff Podcast, Society of Exploration Geophysicists [link]	July 2023
Training AI With Outputs of Generative AI Is Mad CDOtrends [link]	July 2023
AI's trained on AI-generated images produce glitches and blurs NewScientist [link]	July 2023
Scientists make AI go crazy by feeding it AI-generated content TweakTown [link]	July 2023
AI Loses Its Mind After Being Trained on AI-Generated Data Futurism [link]	July 2023
Generative AI Goes 'MAD' When Trained on AI-Created Data Over Five Times Tom's Hardware [link]	July 2023
Group Brings Seismic Imaging to Climate-Change Conversations and Beyond College of Computing News, Georgia Institute of Technology [link]	August 2022