# Ali Siahkoohi

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## Research Interests

My research tackles uncertainty quantification in complex systems arising in computational science and engineering, with a focus on building reliable, uncertainty-aware AI systems at scale, with implications for large-scale, PDE-based inverse problems.

## Academic Appointments

**University of Central Florida** — August 2025 – Present
Tenure-Track Assistant Professor — Orlando, FL, USA
Departments of Computer Science & Electrical and Computer Engineering

**Rice University** — August 2022 – July 2025
Simons Postdoctoral Fellow — Houston, TX, USA
Department of Computational Applied Mathematics & Operations Research
Jointly hosted by Maarten V. de Hoop and Richard G. Baraniuk

## Education

**Georgia Institute of Technology** — August 2022
Ph.D. in Computational Science and Engineering — Atlanta, GA, USA
Advised by Felix J. Herrmann

**University of Tehran** — March 2016
M.Sc. in Geophysics — Tehran, Iran

**Sharif University of Technology** — August 2013
B.Sc. in Electrical Engineering — Tehran, Iran

## Publications

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

### In Preparation & Under Review

P1. P. M. Mayer, L. Luzi, A. Siahkoohi, D. H. Johnson, and R. G. Baraniuk. Improving fairness and mitigating MADness in generative models. Preprint arXiv:2405.13977, 2024
[pdf] [code] [slides] [bib]

### Journal Publications

J9. A. Siahkoohi, R. Morel, R. Balestriero, 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*, 2025. In print
[pdf] [code] [slides] [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

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** June 2024
Rice University, George R. Brown School of Engineering and Computing Houston, TX, USA
[link]

## 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
  Ph.D. Student — Ph.D. advisor
- Anirudh Thatipelli [link] 2025 – Present
  Ph.D. Student — Ph.D. advisor

**Rice University** Houston, TX, USA
Department of Computational Applied Mathematics & Operations Research

- Jeffrey J. Sam [link] 2024 – 2025
  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

- CAP 4611: Algorithms for Machine Learning Fall 2025
  Instructor of Record

**Rice University** Houston, TX, USA
Department of Computational Applied Mathematics & Operations Research

- Numerical Analysis Fall 2024
  Substitute Instructor (12 lectures)
- Numerical Analysis I Fall 2022
  Substitute Instructor (18 lectures)

**Georgia Institute of Technology** Atlanta, GA, USA
School of Computational Science and Engineering

- Computational Foundations of Machine Learning — Spring 2022
  Teaching Assistant
- Imaging with Data-Driven Models — Fall 2019
  Teaching Assistant
- Numerical Analysis I — Fall 2018
  Teaching Assistant

**Sharif University of Technology** — Tehran, Iran
Department of Electrical Engineering

- Digital Signal Processing — Spring 2011
  Teaching Assistant
- Signals and Systems — Spring 2011
  Teaching Assistant
- Linear Algebra — Spring 2010
  Teaching Assistant
- Electrical Engineering: Principles and Laboratory — Fall 2009
  Teaching Assistant

# Talks

## Invited Talks

T29. **IEEE Computer Society, Chapter of San Diego** — June 2025
Mitigating biases in self-consuming generative models — Virtual oral presentation
Open Research Institute (ORI)
[video]

T28. **University of Central Florida** — April 2025
Towards reliable AI: A framework for quantification of AI uncertainty — Oral presentation
Department of Computer Science

T27. **Montana State University** — March 2025
Towards reliable AI: A framework for quantification of AI uncertainty — Oral presentation
Gianforte School of Computing

T26. **The University of California, Santa Barbara** — February 2025
Towards reliable AI: A framework for quantification of AI uncertainty — Oral presentation
Department of Mechanical Engineering

T25. **Johns Hopkins University** — January 2025
Towards reliable AI: A framework for quantification of AI uncertainty — Oral presentation
Department of Electrical and Computer Engineering

T24. **ISCL Seminar Series, Pennsylvania State University** — November 2024
Mitigating biases in self-consuming generative models — Virtual oral presentation
Interdisciplinary Scientific Computing Laboratory (Dr. Romit Maulik)
[video]

T23. **CNRS, Université Montpellier** — January 2023
Low-cost uncertainty quantification for large-scale inverse problems — 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

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 Virtual oral presentation
[video]

T6. **Society of Exploration Geophysicists International Exposition and Annual Meeting** October 2020
Weak deep priors for seismic imaging Virtual oral presentation
[video]

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 2024 – Present
  Applied Geophysics section
- **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

- 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
- International Conference on Machine Learning (ICML) 2024 – 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

## Industry Research Experience

**Google** August 2021 – December 2021
Research Intern (cf. A. Siahkoohi et al. (2022b)) San Francisco, CA, USA
Chrome Media Team

## Selected Media Coverage

**Future Faculty Fellow Ali Siahkoohi 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** February 2024
The Telegraph
[link]

**When AI Is Trained on AI-Generated Data, Strange Things Start to Happen** August 2023
Futurism
[link]

**Episode 194: Improving integration in machine learning workflows** July 2023
Seismic Soundoff Podcast, Society of Exploration Geophysicists
[link]

**Training AI With Outputs of Generative AI Is Mad** July 2023
CDOtrends

[link]

**AIs trained on AI-generated images produce glitches and blurs** July 2023
NewScientist
[link]

**Scientists make AI go crazy by feeding it AI-generated content** July 2023
TweakTown
[link]

**AI Loses Its Mind After Being Trained on AI-Generated Data** July 2023
Futurism
[link]

**Generative AI Goes 'MAD' When Trained on AI-Created Data Over Five Times** July 2023
Tom's Hardware
[link]

**Group Brings Seismic Imaging to Climate-Change Conversations and Beyond** August 2022
College of Computing News, Georgia Institute of Technology
[link]