Ali Siahkoohi

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Education

Georgia Institute of Technology — Atlanta, GA, USA
Doctor of Philosophy in Computational Science and Engineering; — *Sep. 2016 – Aug. 2021* (expected)
Advisor: Felix J. Herrmann – GPA: 4.00/4.00

University of Tehran — Tehran, Iran
Master of Science in Geophysics; — *Sep. 2013 – Mar. 2016*
Advisor: Ali Gholami – GPA: 3.88/4.00 (Ranked 1st)

Sharif University of Technology — Tehran, Iran
Bachelor of Science in Electrical Engineering; — *Sep. 2008 – Aug. 2013*
GPA: 3.77/4.00 (Related courses)

Research Interests

Machine Learning, Inverse Problems, Uncertainty Quantification, Signal Processing

Programming Skills

Languages: Python, Julia, C, MATLAB, Bash
Machine Learning Libraries: TensorFlow, PyTorch, Flux
Cloud Services Platform: AWS
Message Passing Standard: MPI
Version Control Systems: Git, SVN
Document Preparation Systems: LaTeX, Markdown

Teaching Experience

Georgia Institute of Technology — Atlanta, GA, USA
Teaching Assistant for Numerical Analysis I, Fall 2018
Teaching Assistant for Imaging with Data-Driven Models, Spring 2020

Sharif University of Technology — Tehran, Iran
Teaching Assistant for Signals and Systems, Spring 2011
Teaching Assistant for Digital Signal Processing, Spring 2011
Teaching Assistant for Linear Algebra, Fall 2010
Laboratory Assistant for Principles of Electrical Engineering, Fall 2010

Publications

[1] Ali Siahkoohi, Gabrio Rizzuti, Philipp A. Witte, et al. "Faster Uncertainty Quantification for Inverse Problems with Conditional Normalizing Flows". In: *Tech. rep. TR-CSE-2020-2, Georgia Institute of Technology*. June 2020.

[2] Gabrio Rizzuti, Ali Siahkoohi, Philipp A. Witte, et al. "Parameterizing uncertainty by deep invertible networks, an application to reservoir characterization". In: *SEG Technical Program Expanded Abstracts 2020*. Apr. 2020. URL: https://arxiv.org/pdf/2004.07871.pdf.

[3] Mi Zhang, Ali Siahkoohi, and Felix J. Herrmann. "Transfer learning in large-scale ocean bottom seismic wavefield reconstruction". In: *SEG Technical Program Expanded Abstracts 2020*. Apr. 2020. URL: https://arxiv.org/pdf/2004.07388.pdf.

[4] Ali Siahkoohi, Gabrio Rizzuti, and Felix J. Herrmann. "Weak deep priors for seismic imaging". In: *SEG Technical Program Expanded Abstracts 2020*. Apr. 2020. URL: https://arxiv.org/pdf/2004.06835.pdf.

[5] Ali Siahkoohi, Gabrio Rizzuti, and Felix J. Herrmann. "Uncertainty quantification in imaging and automatic horizon tracking—a Bayesian deep-prior based approach". In: *SEG Technical Program Expanded Abstracts 2020*. Apr. 2020. URL: https://arxiv.org/pdf/2004.00227.pdf.

[6] Ali Siahkoohi, Gabrio Rizzuti, and Felix J. Herrmann. "A deep-learning based Bayesian approach to seismic imaging and uncertainty quantification". In: *82nd EAGE Conference and Exhibition 2020*. Jan. 2020. URL: https://arxiv.org/pdf/2001.04567.pdf.

[7] Felix J. Herrmann, Ali Siahkoohi, and Gabrio Rizzuti. "Learned imaging with constraints and uncertainty quantification". In: *NeurIPS 2019 Deep Inverse Workshop*. Dec. 2019. URL: https://arxiv.org/pdf/1909.06473.pdf.

[8] Ali Siahkoohi, Mathias Louboutin, and Felix J. Herrmann. "Neural network augmented wave-equation simulation". In: *Tech. rep. TR-CSE-2019-1, Georgia Institute of Technology*. Sept. 2019. URL: https://arxiv.org/pdf/1910.00925.pdf.

[9] Ali Siahkoohi, Rajiv Kumar, and Felix J. Herrmann. "Deep-learning based ocean bottom seismic wavefield recovery". In: *SEG Technical Program Expanded Abstracts 2019*. Aug. 2019, pp. 2232–2237. DOI: 10.1190/segam2019-3216632.1.

[10] Ali Siahkoohi, Dirk J. Verschuur, and Felix J. Herrmann. "Surface-related multiple elimination with deep learning". In: *SEG Technical Program Expanded Abstracts 2019*. Aug. 2019, pp. 4629–4634. DOI: 10.1190/segam2019-3216723.1.

[11] Ali Siahkoohi, Mathias Louboutin, and Felix J. Herrmann. "The importance of transfer learning in seismic modeling and imaging". In: *Geophysics* 84.6 (July 2019), A47–A52. DOI: 10.1190/geo2019-0056.1.

[12] Gabrio Rizzuti, Ali Siahkoohi, and Felix J. Herrmann. "Learned iterative solvers for the Helmholtz equation". In: *81st EAGE Conference and Exhibition 2019*. June 2019. DOI: 10.3997/2214-4609.201901542.

[13] Felix J. Herrmann, Ali Siahkoohi, and Mathias Louboutin. "Machine Learning in Seismic Imaging—from Low-fidelity to High-fidelity". In: *SIAM Conference on Computational Science and Engineering*. (SIAM CSE). Mar. 2019.

[14] Ali Siahkoohi, Mathias Louboutin, Rajiv Kumar, et al. "Deep-convolutional neural networks in prestack seismic—two exploratory examples". In: *SEG Technical Program Expanded Abstracts 2018*. Oct. 2018, pp. 2196–2200. DOI: 10.1190/segam2018-2998599.1.

[15] Felix J. Herrmann, Gerard J. Gorman, Jan Hückelheim, et al. "The power of abstraction in Computational Exploration Seismology". In: *Smoky Mountains Computational Sciences and Engineering Conference*. Aug. 2018.

[16] Ali Siahkoohi, Rajiv Kumar, and Felix J. Herrmann. "Seismic Data Reconstruction with Generative Adversarial Networks". In: *80th EAGE Conference and Exhibition 2018*. June 2018. DOI: 10.3997/2214-4609.201801393.

[17] Ali Siahkoohi and Ali Gholami. "Sparsity Promoting Least Squares Migration for Laterally Inhomogeneous Media". In: *7th EAGE Saint Petersburg International Conference and Exhibition*. Apr. 2016. DOI: 10.3997/2214-4609.201600223.

[18] Mohmmad Sadegh Ebrahimi, Mohammad Hossein Daraei, Jamshid Rezaei, et al. "A Novel Utilization of Wireless Sensor Networks as Data Acquisition System in Smart Grids". In: *Materials Science and Information Technology*. Vol. 433. Advanced Materials Research. Trans Tech Publications, Jan. 2012, pp. 6725–6730. DOI: 10.4028/www.scientific.net/AMR.433-440.6725.

[19] Amir Najafi, Ali Siahkoohi, and Mohammad B Shamsollahi. "A content-based digital image watermarking algorithm robust against JPEG compression". In: *2011 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*. IEEE. Feb. 2011, pp. 432–437. DOI: 10.1109/ISSPIT.2011.6151601.