SHIRIN SHOUSHTARI

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EDUCATION

Ph.D. in Electrical & System Engineering2022-2027Washington University in St. Louis, St. Louis, MO, USA.
Advisor: Prof. Ulugbek S. Kamilov2017-2020M.Sc. in Electrical Engineering (Orientation in Communication Systems)2017-2020Sharif University of Technology, Tehran, Iran.
Thesis title: "Designing EEG-based Deep Neural Network for Analysis of Functional and Effective Brain Connectivity"
Advisors: Prof. Arash Amini and Prof. Hoda Mohammadzadeh2017-2020

B.Sc. in Electrical Engineering Sharif University of Technology, Tehran, Iran. Thesis title: "Two-phase Cooperative Jamming and Beamforming for Physical Layer Secrecy" Advisor: Prof. Hamid Behroozi

RESEARCH INTERESTS

My research is dedicated to advancing computational imaging through the creation of innovative algorithms and profound mathematical insights. I am particularly drawn to contemporary subjects such as deep learning, and largescale optimization, as well as their applications in biomedical and scientific imaging, signal and image processing, computational photography, image analysis, and computer vision. My research is focused on two aspects: firstly, the exploration of fundamental and mathematical principles underlying imaging; secondly, the pursuit of projects that cater to specific applications, fostered by collaborations with experts in various domains.

HONORS AND AWARDS

Ranked Top 0.01% among approximately 300,000 participants in the National Entrance Exam for Iranian Universities, Iran, 2012.

Ranked Top 0.1% among more than 17,000 participants in the National Entrance Exam for M.Sc. degree, Iran, 2018.

National Elite Foundation Member, Iran, 2012.

Dean's honorary award for voluntary work in Student Union, Iran, 2014.

APPLICABLE COURSEWORK

Optimization	Foundation of Machine Learning	Large-scale Optimization
Deep Learning	Statistical Learning	Causal Inference
Mathematics of Imaging Science	Stochastic Processes	Digital Signal Processing

PUBLICATIONS

('*' indicates equal contribution)

Under review

C. Park^{*}, **S. Shoushtari^{*}**, W. Gan, and U. S. Kamilov, "Convergence of Nonconvex PnP-ADMM with MMSE Denoisers".

E. P. Chandler, S. Shoushtari, J. Liu, M. S. Asif, and U. S. Kamilov, "Convergence of Nonconvex PnP-ADMM

2012-2017

with MMSE Denoisers".

W. Gan, **S. Shoushtari**, Y. Hu, J. Liu, H. An, and U. S. Kamilov, "Block Coordinate Plug-and-Play Methods for Blind Inverse Problems", arXive:2305.12672

Preprint

S. Shoushtari^{*}, J. Liu^{*}, and U. S. Kamilov, "DOLPH: Diffusion Models for Phase Retrieval", Proc. 57th Asilomar Conf. Signal, System, & Computers 2023, in press

Journal

S. Shoushtari, J. Liu, Y. Hu, and U. S. Kamilov, "Deep model-based architectures for inverse problems under mismatched priors", IEEE J. Sel. Areas in Inf. Theory, 3(3):468–480, 2022.

Conference

J. Hu^{*}, **S. Shoushtari^{*}**, Z. Zou, J. Liu, Z. Sun, and U. S. Kamilov, "Robustness of Deep Equilibrium Architectures to Changes in the Measurement Model", ICASSP 2023-2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP). IEEE, 2023.

J. Liu, X. Xu, W. Gan, **S. Shoushtari**, and U. S. Kamilov. "Online deep equilibrium learning for regularization by denoising." Advances in Neural Information Processing Systems 35 (2022): 25363-25376.

S. Shoushtari, H. Mohammadzadeh, and A. Amini, "Emotion Recognition Using Sparse Graph Analysis of Brain Connectivity", 28th National and 6th International Iranian Conference on Biomedical Engineering (ICBME).

TEACHING EXPERIENCES

Teaching Assistant for Optimization course (ESE415), Washington University in St. Louis2023Teaching Assistant for Statistical Learning course , Sharif University of Technology2018

TECHNICAL SKILLS

Proficient with programming languages: Python, C Programming, Matlab.

Proficient with deep learning frameworks: Pytorch/PytorchLightning, TensorFlow, and Jax.

Five years of experience in computer vision, deep learning, optimization, inverse problems and medical imaging.

Fluency in imaging modality: single image super-resolution(SR), image deblur, compressive sensing, CT/MRI.

LANGUAGE SKILLS

Persian, English, French, Spanish, and Korean.

PROFESSIONAL SERVICES

Reviewers for journals

IEEE Transactions on Image Processing (TIP), IEEE Transactions on Signal Processing (TSP), IEEE Transactions on Computational Imaging (TCI)

Reviewers for Conferences

IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP),

Others

Student Member, IEEE Signal Processing Society (2022-present)