

Deep Learning Methods for Inverse Problems

[*IEEE Journal on Selected Areas in Information Theory \(JSAIT\)*](#)

Editor-in-Chief: Tara Javidi (University of California, San Diego)

Call for Papers

Deep learning methods have emerged as highly successful tools for solving inverse problems. They achieve state-of-the-art performance on tasks such as image denoising, inpainting, super-resolution, and compressive sensing. They are also starting to be used in inverse problems beyond imaging, including for solving inverse problems arising in communications, signal processing, and even on non-Euclidean data such as graphs. However, a wide range of important theoretical and practical questions remain unsolved or even completely open, including precise theoretical guarantees for signal recovery, robustness and out-of-distribution generalization, architecture design, and domain-specific applications and challenges. This special issue aims to advance cutting-edge research in this area, with an emphasis on its intersection with information theory.

Prospective authors are invited to submit original manuscripts on topics including but not limited to:

- Information-theoretic limits of deep inverse problems
- Reconstruction and generalization guarantees for deep-learning based signal recovery
- Deep generative priors
- Untrained neural networks
- End-to-end learning and learning-based decoding techniques
- Learning-based measurement strategies
- Self-supervised methods for signal recovery
- Robustness to adversarial noise and distribution shift
- Architecture design for deep inverse problems
- Deep learning methods for communications and coding

Overseeing Senior Editor:

Yonina Eldar (Weizmann Institute of Science)

Guest Editors:

Reinhard Heckel (Technical University of Munich)

Jonathan Scarlett (National University of Singapore)

Paul Hand (Northeastern University)

Rebecca Willett (University of Chicago)

Mahdi Soltanolkotabi (University of Southern California)

Piya Pal (University of California, San Diego)

Alex Dimakis (University of Texas at Austin)

Key Dates:

Manuscript Due: May 15, 2022

Acceptance Notification: October 1, 2022

Final to Publisher: November 1, 2022

Expected Publication: December 2022