JSAIT IEEE Journal on Selected areas in Information Theory

Deep Learning Methods for Inverse Problems

Call for papers

IEEE Journal on Selected Areas in Information Theory (JSAIT)
Editor-in-Chief: Tara Javidi (University of California, San Diego)

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

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