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Paper Title: Latent-Optimized Adversarial Regularizers for accelerated MRI

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Authors: Huayu Wang (Inner Mongolia University, China); Jing Cheng (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China); Chen Luo and Qiyu Jin (Inner Mongolia University, China); Zhuo-Xu Cui (Shenzhen Institute of Advanced Technology, China); Dong Liang (Shenzhen Institute of Advanced Technology, China, China)

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Email: wanghywork@gmail.com

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## Abstract

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Accelerating Magnetic Resonance Imaging (MRI) is a crucial task in the field of medical imaging. Traditional algorithms usually have a limited performance. Data-driven deep learning algorithms, on the other hand, lack interpretability and tend to be overly task-specific. To address the challenges of accelerated MRI, we proposed the Latent-optimized Adversarial Regularizers(LoAR), a deep learning-based variational regularization method. Our proposed approach leverages deep learning techniques to capture information about data distribution and incorporates data priors while maintaining interpretability. We utilized neural networks to learn the regularization term in the variational regularization method, which measures whether a sample lies on the true data manifold. In the experimental section, we evaluated the performance and robustness of proposed method. It exhibited consistent performance with the theoretical analysis and achieved reconstruction results that can compete with state-of-the-art methods.

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