Deep generative adversarial neural networks for compressive sensing MRI

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Abstract

MRI reconstruction is a severely ill-posed linear inverse task demanding time and resource intensive computation. So, in this they combine the compressed sensing analytics framework with the benefits from generative adversarial networks (LSGAN) to train a manifold of diagnostic quality MR images from historical patients and it also increases the reconstruction under a few milliseconds faster than the CS-MRI schemes.

Introduction

To render with the ill posed linear inverse problem conventional compressed sensing incorporates the prior image information by means of sparsity regularization in a proper transform domain such as Wavelet.

Propose GANCS as a data driven regularization scheme for solving ill posed linear inverse problems that appear in imaging tasks dealing with aliasing artifacts.

Proposed and evaluated a novel network architecture to achieve better trade offs between data consistency and manifold learning.

Survey

Does not define the use in the field of 3D spatial correlations for improved quality imaging robustifying against patients with abnormalities.

And variations in the acquisition model for instance as a result of different sampling strategies.