

1. Record Nr.	UNISA996464486003316
Titolo	Machine learning for medical image reconstruction : 4th International Workshop, MLMIR 2021, held in conjunction with MICCAI 2021, Strasbourg, France, October 1, 2021, Proceedings / / edited by Nandinee Haq [and four others]
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] ©2021
ISBN	3-030-88552-6
Descrizione fisica	1 online resource (147 pages)
Collana	Lecture Notes in Computer Science ; ; v.12964
Disciplina	006.31
Soggetti	Diagnostic imaging - Data processing Artificial intelligence - Medical applications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Intro -- Preface -- Organization -- Contents -- Deep Learning for Magnetic Resonance Imaging -- HyperRecon: Regularization-Agnostic CS-MRI Reconstruction with Hypernetworks -- 1 Introduction -- 2 Background -- 2.1 Amortized Optimization of CS-MRI -- 2.2 Hypernetworks -- 3 Proposed Method -- 3.1 Regularization-Agnostic Reconstruction Network -- 3.2 Training -- 4 Experiments -- 4.1 Hypernetwork Capacity and Hyperparameter Sampling -- 4.2 Range of Reconstructions -- 5 Conclusion -- References -- Efficient Image Registration Network for Non-Rigid Cardiac Motion Estimation -- 1 Introduction -- 2 Method -- 2.1 Network Architecture -- 2.2 Self-supervised Loss Function -- 2.3 Enhancement Mask (EM) -- 3 Experiments -- 4 Results -- 5 Discussion -- 6 Conclusion -- References -- .26em plus .1em minus .1emEvaluation of the Robustness of Learned MR Image Reconstruction to Systematic Deviations Between Training and Test Data for the Models from the fastMRI Challenge*-6pt -- 1 Introduction -- 2 Methods -- 2.1 Image Perturbations -- 2.2 Description of 2019 fastMRI Approaches -- 3 Results -- 4 Discussion and Conclusion -- References -- Self-supervised Dynamic MRI Reconstruction -- 1 Introduction -- 2 Theory -- 2.1 Dynamic MRI Reconstruction -- 2.2 Self-supervised Learning --

3 Methods -- 4 Experimental Results -- 5 Conclusion -- References --

A Simulation Pipeline to Generate Realistic Breast Images for Learning
DCE-MRI Reconstruction -- 1 Introduction -- 2 Method -- 2.1 DCE-MRI Data Acquisition -- 2.2 Pharmacokinetics Model Analysis and Simulation -- 2.3 MR Acquisition Simulation -- 2.4 Testing with ML Reconstruction -- 3 Result -- 4 Discussion -- 5 Conclusion -- References --

Deep MRI Reconstruction with Generative Vision Transformers -- 1 Introduction -- 2 Theory -- 2.1 Deep Unsupervised MRI Reconstruction -- 2.2 Generative Vision Transformers -- 3 Methods.

4 Results -- 5 Discussion -- 6 Conclusion -- References --

Distortion Removal and Deblurring of Single-Shot DWI MRI Scans -- 1 Introduction -- 2 Background -- 2.1 Distortion Removal Framework -- 2.2 EDSR Architecture -- 3 Distortion Removal and Deblurring of EPI-DWI -- 3.1 Data -- 3.2 Distortion Removal Using Structural Images -- 3.3 Pre-processing for Super-Resolution -- 3.4 Data Augmentation -- 3.5 Architectures Explored for EPI-DWI Deblurring -- 4 Experiments and Results -- 4.1 Computer Hardware Details -- 4.2 Training Details -- 4.3 Baselines -- 4.4 Evaluation Metrics -- 4.5 Results -- 5 Conclusion -- References --

One Network to Solve Them All: A Sequential Multi-task Joint Learning Network Framework for MR Imaging Pipeline -- 1 Introduction -- 2 Method -- 2.1 SampNet: The Sampling Pattern Learning Network -- 2.2 ReconNet: The Reconstruction Network -- 2.3 SegNet: The Segmentation Network -- 2.4 SemuNet: The Sequential Multi-task Joint Learning Network Framework -- 3 Experiments and Discussion -- 3.1 Experimental Details -- 3.2 Experiments Results -- 4 Limitation, Discussion and Conclusion -- References --

Physics-Informed Self-supervised Deep Learning Reconstruction for Accelerated First-Pass Perfusion Cardiac MRI -- 1 Introduction -- 2 Methods -- 2.1 Conventional FPP-CMR Reconstruction -- 2.2 Supervised Learning Reconstruction: MoDL -- 2.3 SECRET Reconstruction -- 2.4 Dataset -- 2.5 Implementation Details -- 3 Results and Discussion -- 4 Conclusion -- References --

Deep Learning for General Image Reconstruction -- Noise2Stack: Improving Image Restoration by Learning from Volumetric Data -- 1 Introduction and Related Work -- 2 Methods -- 3 Experiments -- 3.1 MRI -- 3.2 Microscopy -- 4 Discussion -- 5 Conclusion -- References --

Real-Time Video Denoising to Reduce Ionizing Radiation Exposure in Fluoroscopic Imaging -- 1 Introduction.

1.1 Background -- 1.2 Our Contributions -- 2 Methods -- 2.1 Data -- 2.2 Training Pair Simulation -- 2.3 Denoising Model -- 2.4 Model Training -- 3 Experiments -- 3.1 Reader Study -- 3.2 Video Quality -- 3.3 Runtime -- 4 Conclusion -- References --

A Frequency Domain Constraint for Synthetic and Real X-ray Image Super Resolution -- 1 Introduction -- 2 Related Work -- 3 Methods -- 3.1 Frequency Domain Analysis -- 3.2 Frequency Domain Loss -- 4 Experiments -- 4.1 Dataset -- 4.2 Training Details -- 4.3 Results -- 4.4 Ablation Study -- 5 Conclusion -- References --

Semi- and Self-supervised Multi-view Fusion of 3D Microscopy Images Using Generative Adversarial Networks -- 1 Introduction -- 2 Related Work -- 3 Methods -- 4 Experiments and Results -- 4.1 Datasets -- 4.2 Existing Methods for Comparison -- 4.3 CNN-Based Multi-View Deconvolution and Fusion -- 5 Conclusions -- References -- Author Index.
