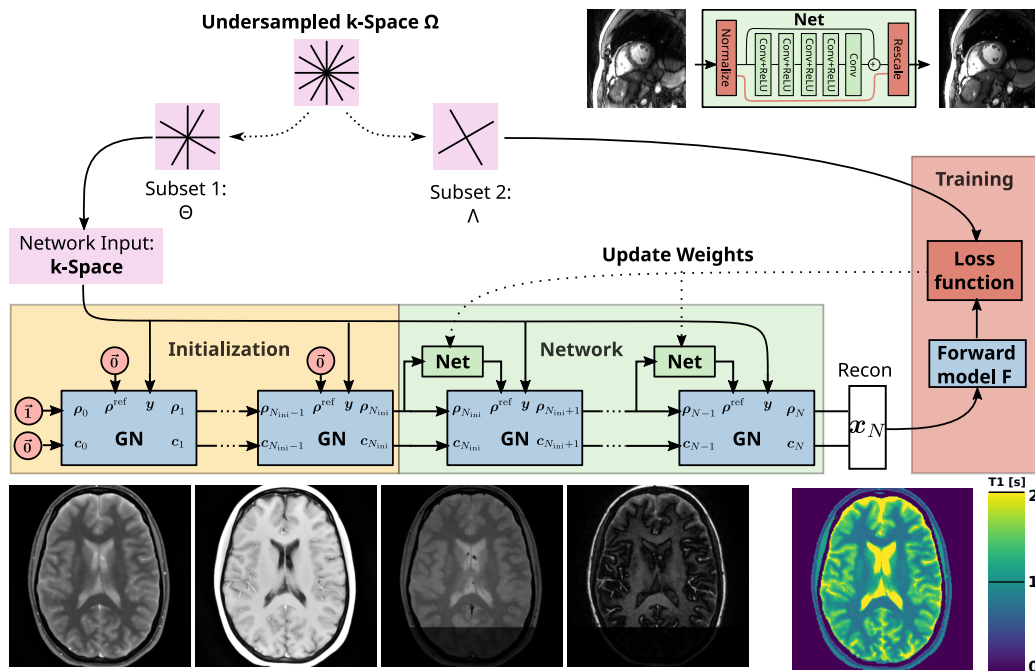


Master's Thesis: Self-Supervised Learning for Multi-Parametric qMRI

Overview

Deep learning has shown great potential in the field of MRI reconstruction in recent years. One fundamental problem of deep learning is the acquisition of ground truth data for training. Hence, one research branch focuses on self-supervised learning approaches that do not require ground truth references. A method developed at our institute, the NLINV-Net (<https://arxiv.org/abs/2402.06550>), was also applied to quantitative MRI (qMRI) data and showed promising results. The goal of this thesis is to extend the learned reconstruction to multi-parametric qMRI data.



Specific tasks

- Extensive literature review for multi-parametric qMRI
- (Training-)Data acquisition
- Training of NLINV-Net on acquired data
- Documentation and illustration of the results

Recommended Knowledge

- C/C++ programming experience
- Knowledge on MRI reconstruction and MRI physics
- Basic knowledge on Deep Learning / Neural Networks

Contact

Moritz Blumenthal
E-Mail: blumenthal@tugraz.at

Daniel Mackner
E-Mail: daniel.mackner@tugraz.at