Hi Imraj,

Please find a few references for image reconstruction of MR fingerprinting data:

If i were you i would look at this review to start with which looks at a lot of different reconstructions both classical and deep learning based.

1. McGivney DF, Boyacıoğlu R, Jiang Y, et al. Magnetic resonance fingerprinting review part 2: Technique and directions. J. Magn. Reson. Imaging 2020;51:993–1007.

1) Early works

1. (original paper) Ma D, Gulani V, Seiberlich N, et al. Magnetic resonance fingerprinting. Nature 2013;495:187–92.

2. McGivney DF, Pierre E, Ma D, et al. SVD Compression for Magnetic Resonance Fingerprinting in the Time Domain. IEEE Trans. Med. Imaging 2014;33:2311–2322.

1) Iterative methods (with low rank subspace modelling):

1. Cline CC, Chen X, Mailhe B, et al. AIR-MRF: Accelerated iterative reconstruction for magnetic resonance fingerprinting. Magn. Reson. Imaging 2017;41:29–40.

2. Assländer J, Cloos MA, Knoll F, Sodickson DK, Hennig J, Lattanzi R. Low rank alternating direction method of multipliers reconstruction for MR fingerprinting. Magn. Reson. Med. 2018;79:83–96.

3. Bustin A, Cruz G, Jaubert O, Karina L, Botnar RM, Prieto C. High-Dimensionality Undersampled Patch-Based Reconstruction (HD-PROST) for Accelerated Multi-Contrast Magnetic Resonance Imaging. Magn. Reson. Med. 2019;81:3705–3719.

4. Lima da Cruz G, Bustin A, Jaubert O, Schneider T, Botnar RM, Prieto C. Sparsity and locally low rank regularization for MR fingerprinting. Magn. Reson. Med. 2019;81:3530–3543.

(these are two papers from my old lab, sorry i'm biased 🙂 )

2) DL methods:

I don't know as much.

Early work:

1. Cohen O, Zhu B, Rosen MS. MR fingerprinting Deep RecOnstruction NEtwork (DRONE). Magn. Reson. Med. 2018;80:885–894.

3D brain

2. Chen Y, Fang Z, Hung SC, Chang WT, Shen D, Lin W. High-resolution 3D MR Fingerprinting using parallel imaging and deep learning. Neuroimage 2020;206:116329

Good luck

Best,

Olivier Jaubert