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Plenary Lecture 3,4 PL4



MR Image Reconstruction for Fast Imaging and Artifact Correction

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Since MRI had been introduced, many image reconstruction algorithms have been developed. Initially, projection reconstruction methods had been used, and later Fourier imaging method have been widely used. In order to reduce the imaging time, various fast imaging methods had been introduced. This talk introduces the advanced parallel imaging reconstruction methods developed by KAIST, which reduced the aliasing artifacts and improved image details. In 2010's, the deep learning technologies have been widely applied to image processing and computer vision area. Medical imaging is also very good application area of the deep learning, including object segmentation, tumor detection, and image reconstruction. We developed the deep learning methods to reconstruct images for parallel imaging, metal artifact correction and motion correction. In order to overcome the limitations of training data in MRI, new technology based on MR physics was introduced. The reconstructed images from the proposed deep learning methods are mostly superior to those from the conventional model-based methods.

Keywords: Artifact correction, Deep learning, Image reconstruction, Parallel imaging.