学术报告会

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Fast Magnetic Resonance Imaging: Theory, Technique and Application

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摘要:

Accelerating magnetic resonance imaging (MRI) has been an ongoing research topic since its invention in the 1970s. Among a variety of acceleration techniques, compressed sensing (CS) has become an important strategy during the past decades. Although CS-based methods can achieve high performance with many theoretical guarantees, it is challenging to determine the numerical uncertainties in the reconstruction model such as the optimal sparse transformations, sparse regularizer in the transform do-main, regularization parameters and the parameters of the optimization algorithm. Recently, deep learning has been introduced in fast MRI to address these issues and shown potential to significantly improve image quality. In this presentation, we survey compressed sensing and deep learning methods for MR image reconstruction with a big picture. Specifically, we introduce some works using these two techniques from my group.

简介:

梁栋，研究员，中国科学院深圳先进院医工所所长、医学人工智能研究中心主任，医学成像科学与技术系统重点实验室副主任，中国科学院医学成像技术与装备工程实验室主任，广东省多模态无创脑机接口理论与技术重点实验室主任。主要研究方向为人工智能医学影像。主持国家杰出青年科学基金、国家自然科学基金重点项目、国家自然科学基金天元基金重点专项等多个科研项目。发表国际学术期刊论文100余篇，现担任《IEEE Transactions on Medical Imaging》等多个领域内权威期刊编委、中国生物医学工程学会理事、副秘书长；国家科技进步一等奖等多个奖项获得者。