

عنوان مقاله:

Reconstruction of "D Stack of Stars in Cardiac MRI using a Combination of GRASP and TV

محل انتشار:

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نویسندگان:

M. Tavakkoli - Electrical and Computer Engineering, Babol Noshirvani University of Technology, Babol, Mazandaran, .Iran

A. Ebrahimzadeh - Electrical and Computer Engineering, Babol Noshirvani University of Technology, Babol, .Mazandaran, Iran

A. Nasiraei Moghaddam - Biomedical Engineering, Amirkabir University of Technology (Tehran Polytechnic), Tehran, .Iran

J. Kazemitabar - Electrical and Computer Engineering, Babol Noshirvani University of Technology, Babol, .Mazandaran, Iran

خلاصه مقاله:

One of the most advanced non-invasive medical imaging methods is MRI that can make a good contrast between soft tissues. The main problem with this method is the time limitation in data acquisition, particularly in dynamic imaging. Radial sampling is an alternative for faster data acquisition and has several advantages compared to Cartesian sampling. Among them, robustness to motion artifacts makes this acquisition useful in cardiac imaging. Recently, CS has been used to accelerate data acquisition in dynamic MRI. Cartesian acquisition uses irregular undersampling patterns to create incoherent artifacts to meet the Incoherent sampling requirement of CS. Radial acquisition, due to its incoherent artifact, even in regular sampling, has an inherent fitness to CS reconstruction. In this study, we reconstruct the (\muD) stack of stars data in cardiac imaging using the combination of the TV penalty function and the GRASP algorithm. We reduced the number of spokes from Y1 to I\mu and then reduced to A to observe the performance of the algorithm at a high acceleration factor. We compared the output images of the proposed algorithm with both GRASP and NUFFT algorithms. In all three modes (Y1, I\mu, and A spokes), average image similarity was increased by at least by ore, or compared to NUFFT, GRASP respectively. Moreover, streaking artifacts were significantly reduced. According to the results, the proposed method can be used on a clinical study for fast dynamic MRI, such as cardiac imaging with the high image quality from low- rate sampling

کلمات کلیدی:

Cardiac MRI, Golden Ratio Radial Acquisition, Compressive sensing

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