World Academy of Science, Engineering and Technology
International Journal of Computer and Systems Engineering
Vol:8, No:03, 2014

HR MRI CS Based Image Reconstruction

Authors : Krzysztof Malczewski

Abstract : Magnetic Resonance Imaging (MRI) reconstruction algorithm using compressed sensing is presented in this paper. It is exhibited that the offered approach improves MR images spatial resolution in circumstances when highly undersampled k-space trajectories are applied. Compressed Sensing (CS) aims at signal and images reconstructing from significantly fewer measurements than were conventionally assumed necessary. Magnetic Resonance Imaging (MRI) is a fundamental medical imaging method struggles with an inherently slow data acquisition process. The use of CS to MRI has the potential for significant scan time reductions, with visible benefits for patients and health care economics. In this study the objective is to combine super-resolution image enhancement algorithm with CS framework benefits to achieve high resolution MR output image. Both methods emphasize on maximizing image sparsity on known sparse transform domain and minimizing fidelity. The presented algorithm considers the cardiac and respiratory movements.

Keywords : super-resolution, MRI, compressed sensing, sparse-sense, image enhancement
Conference Title : ICPRIP 2014 : International Conference on Pattern Recognition and Image Processing
Conference Location : Miami, United States
Conference Dates : March 10-11, 2014