

Partially Knowing of Least Support Orthogonal Matching Pursuit (PKLS-OMP) for Recovering Signal

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Abstract : Given a large sparse signal, great wishes are to reconstruct the signal precisely and accurately from least number of measurements as possible as it could. Although this seems possible by theory, the difficulty is in built an algorithm to perform the accuracy and efficiency of reconstructing. This paper proposes a new proved method to reconstruct sparse signal depend on using new method called Least Support Matching Pursuit (LS-OMP) merge it with the theory of Partial Knowing Support (PSK) given new method called Partially Knowing of Least Support Orthogonal Matching Pursuit (PKLS-OMP). The new methods depend on the greedy algorithm to compute the support which depends on the number of iterations. So to make it faster, the PKLS-OMP adds the idea of partial knowing support of its algorithm. It shows the efficiency, simplicity, and accuracy to get back the original signal if the sampling matrix satisfies the Restricted Isometry Property (RIP). Simulation results also show that it outperforms many algorithms especially for compressible signals.

Keywords : compressed sensing, least support orthogonal matching pursuit, partial knowing support, restricted isometry property, signal reconstruction

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