

k -sparse signal recovery via unrestricted ℓ_{1-2} -minimization

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Abstract

In the field of compressed sensing, ℓ_{1-2} -minimization model can recover the sparse signal well. In dealing with the ℓ_{1-2} -minimization problem, most of the existing literatures use the DCA algorithm to solve the unrestricted ℓ_{1-2} -minimization model, i.e. model (P) . Although experiments have proved that the unrestricted ℓ_{1-2} -minimization model can recover the original sparse signal, the theoretical proof has not been established yet. This paper mainly proves theoretically that the unrestricted ℓ_{1-2} -minimization model can recover the sparse signal well, and makes an experimental study on the parameter λ in the unrestricted minimization model. The experimental results show that increasing the size of parameter λ in model (P) appropriately can improve the recovery success rate. However, when λ is sufficiently large, increasing λ will not increase the recovery success rate.

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