

# $k$ -sparse signal recovery via unrestricted $\ell_{1-2}$ -minimization

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## Abstract

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

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