

CHAPTER V

CONCLUSIONS

A strong point of HSR algorithm is to locate the values of hard selective weighting function that is more uncomplicated than the former weighting function because there are just 2 stages of weighting values. This algorithm helps to reduce the mistake of parameter setting which is a direct fault of human invention.

Although HSR algorithm can recover the exact signal with high probability, we must know a certain number original zero entries. Thus, the proposed AAR algorithm is designed to cope with this difficulty even though its percentage of exact reconstruction is little lower than HSR. This means that we can substitute AAR for HSR when a number of original entries are not known.

From the results, the HSR sometimes yields higher than PSNR than that of AAR and former reweighted algorithm (sometimes it is the other ways round), the main purpose of this paper is to provide the new methods (HSR and AAR) that give better performance than ℓ_1 -minimization and more than compensate for the former reweighted algorithm with the successful algorithm for locating the weights. However, we mention the summary experiment in Figure 24 why does the best HSR and AAR algorithms with threshold 2τ outperform the other threshold in compressive sampling recovery.

In general, it is also an open question that when and what kind of signal should work in the compressive sampling recovery since the main principle of compressive sampling [1] is only proved with high probability of successful recovery when the signal is sparse enough. As yet there are many underdetermined question for reweighted algorithms such as,

- What condition does the algorithm converge?
- How many iterations does the solution converge?
- Can these weighting functions and algorithms apply to the other applications?

For further works, we offer to search out mathematical and theoretical supports for above questions that make reweighted more reliable than using only numerical experiments. Moreover, the practical applications that can be benefited are signal recognition, remote sensing, image processing, etc.