

E9 203: Homework - 3

Assigned on: 18 Feb. 2015, due 02 Mar. 2015

1 Topics

- Experiments in sparse signal recovery

2 Problems

Repeat HW1, questions 3 and 5, with the following recovery algorithms:

1. Orthogonal matching pursuit
2. CoSaMP
3. Subspace pursuit
4. Iterative hard thresholding
5. Hard thresholding pursuit
6. FOCUSS ($p = -1, 0.01, 0.5, 1$)
7. Chartrand and Yin reweighted ℓ_2
8. Candes et al. reweighted ℓ_1
9. Sparse Bayesian learning (EM updates)

In each case,

- i Specify the tunable parameters you used, if any, with your reflection on why it should be set that way.
- ii Compute the run-time of the algorithm (the most efficient version you can come up with) for a given number of experiments, and report a table comparing the performance.
- iii Which algorithm(s) would you recommend using, and why?