



Statistics > Machine Learning

Sparse approximation and recovery by greedy algorithms in Banach spaces

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We study sparse approximation by greedy algorithms. We prove the Lebesgue-type inequalities for the Weak Chebyshev Greedy Algorithm (WCGA), a generalization of the Weak Orthogonal Matching Pursuit to the case of a Banach space. The main novelty of these results is a Banach space setting instead of a Hilbert space setting. The results are proved for redundant dictionaries satisfying certain conditions. Then we apply these general results to the case of bases. In particular, we prove that the WCGA provides almost optimal sparse approximation for the trigonometric system in L_p , $1 \leq p < \infty$.

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