ITERATIVELY RE-WEIGHTED LEAST SQUARE METHODS FOR SPARSE OPTIMIZATION

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Iteratively Re-weighted Least Squares minimization (IRLS) appears for the first time in the approximation practice in the Ph.D. thesis of C. L. Lawson in 1961 for L_∞ minimization. In the 1970s extensions of Lawson's algorithm for ℓ_p-minimization were proposed, as reported in the work of M. R. Osborne. IRLS has been proposed for sparse recovery in signal processing in [5] and for total variation minimization in [3]. We would like to present the analysis of IRLS as provided in [1], and an application in color image restoration [4]. We conclude our talk by illustrating recent joint results with H. Rauhut and R. Ward on the use of IRLS for nuclear norm minimization in low-rank matrix completion [2].

References

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