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Two Fast Algorithms for L^1-type Estimation in Regression

Two algorithms are proposed for minimization of L^1-type objective functions in regression. The first algorithm is based on mixture of coordinate descent and steepest descent steps to partially relax the two problems of coordinate descent for non-smooth functions: convergence to local non-optimal kinks and slow convergence speed. The second algorithm is a relaxation method which finds a "smart" descent direction at each iteration step to avoid possible zigzag convergence phenomenon in coordinate and steepest descent algorithms. Both methods are efficient and work nicely in practice.