Qian, Xiaohui; Wang, Xiangmei  
A scaled incremental gradient method. (Chinese. English summary) Zbl 07404517  

Summary: A scaled incremental gradient algorithm for minimizing a sum of continuously differentiable functions is presented. At each iteration of the algorithm, the iteration is updated incrementally by a sequence of some steps, and each step evaluates a normalized gradient of a single component function (or several component functions). Under some moderate assumptions, the convergence result of the algorithm employing the divergence step sizes is established. As applications, the new algorithm and the unscaled one are applied to solve the robust estimation problem and the source localization problem, respectively. Some numerical experiments show that the new algorithm is more effective and robust than the corresponding unscaled one.

MSC:  
65K05 Numerical mathematical programming methods  
90C30 Nonlinear programming

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separable optimization; incremental gradient algorithm; divergence step size rule

Full Text: DOI