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Hybrid form of accelerated gradient descent method

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Abstract

We present an gradient descent algorithm with a line search procedure for solving unconstrained optimization problems which is defined as a result of applying Picard-Mann hybrid iterative process on accelerated gradient descent *SM* method described in [26]. Using a merged features of both analyzed models, we show that new accelerated gradient descent model converges linearly and faster then the starting *SM* method which is confirmed trough displayed numerical test results. Three main properties are tested: number of iterations, CPU time and number of function evaluations. The efficiency of proposed iteration is examined for the several values of the correction parameter introduced in [10].

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