COMPUTATION AND PERFORMANCE ANALYSIS OF THREE TERM RMIL2012 CONJUGATE GRADIENT METHOD

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DECLARATION BY CANDIDATE

We certify that this report and the report to which it refers is the product of our own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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ABSTRACT

Conjugate Gradient (CG) methods usually used to solve unconstrained optimization problem. For this project, three term CG method is used to improve the performance of methods according to their efficiency and numerical performances. The three term CG that used are three term Hestenes-Stiefel (TTHS), three term new RMIL (3TNRMIL) and Method 3 that proposed by Norddin et al. in 2018. The five test functions that were selected are Extended Himmelblau, Extended Rosenbrock, Extended White and Holst, Extended Beale and Shallow Functions. The efficiency of the method is verified through comparison with three cases. The original three term is compared with these three cases. For case 1, it is where each of the three term is added with gamma or called as scaling initial direction. Case 2 is where the original of each three term CG coefficient is replaced with CG coefficient of RMIL2012 and case 3 is the combination of case 1 and case 2. The result has been obtained comprising the fulfilment of efficiency analysis based on number of iteration and CPU time. Based on the result, it shown that the original three term CG methods performed the best compared to the methods that being modified.

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