MODIFICATIONS OF CONJUGATE GRADIENT METHOD BASED ON SECOND INEQUALITY OF STRONG WOLFE

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ABSTRACT

Large-scale UO problems have been significantly solved due in part to the CG methods. This research will focused on the modification of existing CG method of RMIL. One of the CG techniques with adequate descent and global convergent characteristics that satisfies an upper bound is the RMIL method. Still, there are certain shortcomings with this RMIL approach. The problem cannot be solved using this method in terms of efficiency and numerical performance. The second inequality of Strong Wolfe line search will be combined with RMIL and its variants to investigate the impact of the second inequality of Strong Wolfe to the performance of the conjugate gradient. This researched aimed to compare the convergence behaviour of CG with and without second inequality of Strong Wolfe. Each method's effectiveness will be compared in terms of the number of iterations, number of function evaluation, and norm. Extension to this study, higher dimension for the test function will be implemented on the IMR and RAMI method as it is perform better in previous study. It is expected that the modified conjugate parameter with higher dimension is more efficient and has minimum NOI, NOF and Norm compared to the existing CG methods.

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