COMPARISON OF THREE MODIFIED CONJUGATE GRADIENT METHODS TO SOLVE UNCONSTRAINED OPTIMIZATION PROBLEMS

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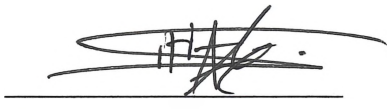
DECLARATION BY CANDIDATE

We certify that this report and the project 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

In Mathematical problems, optimization is a technique for finding minimization or maximization in order to find the best value of a function. This project is conducted to solve unconstrained optimization problem using numerical method. One of the numerical method that can be used to solve optimization problems is Conjugate Gradient (CG) method as it is one of the most used method in solving large scale unconstrained optimization problems. There are many types of CG method such as classical, parameterize, scalar, hybrid and modified CG. In this research, it focuses on three modified CG method due the nice descent and convergent properties rather than existing CG method. These modification were proposed by some researchers to increase the efficiency by adding three different third term for each method. The chosen three modified CG methods are the modification of RMIL which has been proposed by Khadijah et al. denoted as SKRMI, the modification of RMIL which has been proposed by Norrdin et al. denoted as Method 2 and the modification of PRP which has been proposed by Zhang et al. denoted as MPRP method. All these methods were tested with five different test functions and different initial points. Then, it will be compared based on its performances by evaluating the number of iteration and CPU times. Thus, the best method among these modified CG will be determined.

TABLE OF CONTENT

		Page
DECLARATION BY THE SUPERVISOR		i
DECLARATION BY THE CANDIDATE		ii
ABSTRACT		iii
ACKNOWLEDGMENT		iv
LIST OF TABLE		ix
LIST OF FIGURE		xii
LIST OF ABBREVIATIONS AND SYMBOL		xiii
LIST OF ALGORITHM		xiv
1.0	INTRODUCTION OF RESEARCH	1
1.1	Introduction	1
1.2	Background of Study	1
1.3	Problem Statement	4
1.4	Objectives	5
1.5	Significant of Project	5
1.6	Scope of Project	6
1.7	Project Benefits	8
1.8	Definition of Terms and Concepts	8
1.9	Organization of the Report	9
2.0	METHODOLOGY	11
2.1	Introduction	11
2.2	Literature Review	11

	2.3	Research Step	15
	2.4	Test Functions	22
	2.5	Fundamental of modified Conjugate Gradient method	27
		2.5.1 SKRMI Method	27
		2.5.2 Method 2	28
		2.5.3 MPRP Method	29
	2.6	Conclusion	32
3.0	IMPLEMENTATION		33
	3.1	Introduction	33
	3.2	Implementation of MPRP Method	33
	3.3	Conclusion	38
4.0	RESULTS AND DISCUSSION		39
	4.1	Introduction	39
	4.2	Numerical results based on number of iteration	40
		4.2.1 Extended Himmeblau	40
		4.2.2 Extended Denschnb	42
		4.2.3 Diagonal 4	45
		4.2.4 Extended Fletcher	47
		4.2.5 Extended Beale	49
	4.3	Numerical results based on CPU time	51
		4.3.1 Extended Himmeblau	52
		4.3.2 Extended Denschnb	54
		4.3.3 Diagonal 4	56