# OPTIMASI FUNGSI MULTI-OBYEKTIF BERKENDALA MENGGUNAKAN ALGORITMA GENETIKA ADAPTIF DENGAN PENGKODEAN *REAL*

## **aWayan Firdaus Mahmudy, bMuh. Arif Rahman**

Program Studi Ilmu Komputer, Universitas Brawijaya

Jl. Veteran Malang, 65145

E-Mail: awayanfm@ub.ac.id

***Abstract***

*Multi-objective optimization problem is difficult to be solved as its objectives generally conflict with each other and its solution is not in the form of a single solution but a set of solutions. Genetic algorithms (GAs) is one of meta heuristic algorithms that may be used to solve this problem. However, a standard GAs is easily trapped in local optimum areas and searching process rate will be lower around the optimum points. This paper proposes a GAs with an adaptive mutation rate to balance the exploration and exploitation on the search space. A simple rule has been developed to determine wheter the mutation rate is increased or decreased. If a significant improvment of the fitness value is not achieved, the mutation rate is increased to enable the GAs exploring search space and escaping the local optimum area. In contrast, the mutation rate is decreased if significant improvment of the fitness value is achieved. This mechanism guide the GAs to exploit the local search area. The experiments show that by using the adaptive mutation, the GAs will move faster toward a feasible search space and achieving solutions on sorter time.*

*Key words: multi-objective optimization, genetic algorithms, adaptive mutation.*