As the applications of systems are increasing in various aspects of our daily life, it enhances the complexity of systems in Software design (Program response according to environment) and hardware components (caches, branch predicting pipelines). Within the past couple of years the Test Engineers have developed a new testing procedure for testing the correctness of systems: namely the evolutionary test. The test is interpreted as a problem of optimization, and employs evolutionary computation to find the test data with extreme execution times. Evolutionary testing denotes the use of evolutionary algorithms, e. g., Genetic Algorithms (GAs), to support various test automation tasks. Since evolutionary algorithms are heuristics, their performance and output efficiency can vary across multiple runs, there is a strong need for an environment that can handle these complexities. Now a day’s MATLAB is widely used for this purpose. This paper explores the potential power of Genetic Algorithm for optimization by using a new MATLAB based implementation of Rastrigin’s function, throughout the paper we use this function as an optimization problem to explain some key definitions of genetic transformation like selection, crossover, and mutation.
References

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Index Terms

Computer Science

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