**ABSTRACT**

In a software development process, effective cost estimation is the most challenging activity. Software effort estimation is a crucial part of cost estimation. Management cautiously considers effort and benefits of software before committing the required resources to that project or order for a contract. Unfortunately it is difficult to measure such preliminary estimation as it has only little information about the project at an early stage. In this paper, a new approach has been proposed which is based on neural network and optimization approach in order to calculate the effort estimation of the software. In this approach, at first the datasets are clustered in order to create the rules. Once the clustering is done, various rules are obtained and these rules are given as the input to the neural network. Here we have modified the neural network by incorporating optimization algorithms. The optimization algorithms employed here are Artificial Bee Colony (ABC) algorithm, Modified Cuckoo Search (MCS) algorithm and Hybrid ABC-MCS algorithm. Hence we obtain three optimized set of rules which are used for the effort estimation process. The performance of the proposed model is investigated using parameters such as Mean Absolute Relative Error (MARE) and Mean Magnitude of Relative Error (MMRE).