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Cluster K-Means versus Genetic Algorithm in a Radial Basis Function

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Abstract: The use of new approaches has been intensified because Industrial and Systems Engineering are supporting in new technologies or numerical methods for improving manufacturing processes, some of them are intelligent systems. The methods of intelligent systems are: Neural Networks, Fuzzy Logic, Evolutionary Algorithms and Hybrid Approach; thus Radial Basis Function is a Neural Network for modeling no linear process. This paper makes a comparative study between the Radial Basis Function Neural Network applying Clustering K-means versus Radial Basis Function with Genetic Algorithm. In this approach we used statistical metrics to validate the performance of the Neural Network. The results show that the Radial Basis Function Redesigned by Genetic Algorithm has a better performance than Radial Basis Function applying Clustering K-means method, and improving the prediction of a welding process.

Keywords: Radial Basis, Genetic Algorithm, Modeling