ARTIFICIAL NEURAL NETWORK SYSTEM AS AN ALTERNATIVE FOR THE PREDICTION OF PROCESS PARAMETERS IN ELECTRICAL DISCHARGE MACHINING

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ABSTRACT

Today Electrical discharge machining (EDM) has established itself as a versatile, cost effective machining tool. EDM is a thermal cutting process which uses tiny sparks generated between a tool electrode and the workpiece to remove material. Therefore, EDM is capable of machining any electrically conducting material regardless of its hardness. EDM process is rather complex in its nature and requires extensive empirical results to practically formulate its actual performance. EDM machining parameters are important factors affecting machine performance and accuracy, thus these parameters must be accurately selected for the purpose of improving the productivity.

Artificial neural networks can be used to extract patterns and detect trends that are too complex to be noticed by either humans or other computer techniques. A trained neural network can be thought of as an "expert" in the category of information it has been given to analyse. This expert can then be used to provide projections given new situations of interest and answer "what if" questions. In this work an artificial intelligent back propagation neural network system is developed for the purpose of predicting the cutting conditions and process parameters of electrical discharge machining process.

AUTHOR DETAILS

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