DEVELOPMENT OF A HYBRID ARTIFICIAL NEURAL NETWORK MODEL AND ITS APPLICATION TO DATA REGRESSION

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ABSTRACT—Simulating the behaviour of a nonlinear system from its historical noise corrupted data is one of the major applications of the Artificial Neural Network (ANN). The objective of this paper is to develop an autonomous incremental growth neural network model for carrying out the tasks of regression and classification in noisy environment. A hybrid ANN model called GRNNFA is proposed. It is a fusion of the Fuzzy ART (FA) and the General Regression Neural Network (GRNN) and facilitates the removal of the noise embedded in the training samples. The performance of the GRNNFA model was examined by two benchmarking problems which are the Approximation-Of-Noisy-Mapping and the Fisher’s Iris Data. The results demonstrate the superior performance of the GRNNFA model working in the noisy environments.