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عنوان مقاله:

Fuzzy Wavelet Neural Network Learning Using Artificial Bee Colony Algorithm

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خلاصه مقاله:

This paper presents a new hybrid algorithm for Fuzzy Wavelet Neural Network (FWNN) design. Proposed algorithm uses Orthogonal Least Square (OLS) algorithm to purifycandidate wavelets and Artificial Bee Colony (ABC) Algorithm to learn FWNN. In the proposed network, the fuzzy rulecorresponds to one sub-wavelet neural network (sub-WNN) which corresponds to wavelets with a specified dilation value. Orthogonal least square algorithm is used to choose efficientwavelets and to determine the number of fuzzy rules for network construction. In the proposed strategy, by minimizing aquadratic measure of the error between desired output and the FWNN's output, the problem is formulated as an optimizationproblem and the ABC algorithm is suggested to solve it. The structure is tested for the identification of the dynamical plants and prediction of chaotic time series. Simulation resultsdemonstrate effectiveness and ability of the proposed approach. To validate the results obtained by the proposed FWNN basedABC, a FWNN based Shuffled Frog Leaping (SFL) algorithm is adopted from the literature and applied for comparison. Thesimulation studies show ABC performs well in finding the solution.

کلمات کلیدی:

Artificial bee colony algorithm, Fuzzy wavelet neural network, Identification, Prediction

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