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Modified BPNN via iterated least median squares, particle Swarm optimization and firefly algorithm (Article)

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Abstract

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There is doubtlessly manufactured artificial neural system (ANN) is a standout amongst the most acclaimed all-inclusive approximators, and has been executed in numerous fields. This is because of its capacity to naturally take in any example with no earlier suppositions and loss of all inclusive statement. ANNs have contributed fundamentally towards time arrangement expectation field, yet the nearness of exceptions that normally happen in the time arrangement information may dirty the system preparing information. Hypothetically, the most widely recognized calculation to prepare the system is the backpropagation (BP) calculation which depends on the minimization of the common ordinary least squares (OLS) estimator as far as mean squared error (MSE). Be that as it may, this calculation is not absolutely strong within the sight of exceptions and may bring about the bogus forecast of future qualities. Accordingly, in this paper, we actualize another calculation which exploits firefly calculation on the minimal middle of squares (FA-LMedS) estimator for manufactured neural system nonlinear autoregressive (BPNN-NAR) and counterfeit neural system nonlinear autoregressive moving normal (BPNN-NARMA) models to cook the different degrees of remote issue in time arrangement information. In addition, the execution of the proposed powerful estimator with correlation with the first MSE and strong iterative slightest middle squares (ILMedS) and molecule swarm advancement on minimum middle squares (PSO-LMedS) estimators utilizing reenactment information, in light of root mean squared blunder (RMSE) are likewise talked about in this paper. It was found that the robustified backpropagation learning calculation utilizing FA-LMedS beat the first and other powerful estimators of ILMedS and PSO-LMedS. As a conclusion, developmental calculations beat the first MSE mistake capacity in giving hearty preparing of counterfeit neural systems.

Author keywords

Anomalies Evolutionary algorithms Learning algorithm Robust estimators Time series

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