Abstract

Temperature prediction is the application of science and technology to predict the state of the temperature for a future time and a given location. Temperature prediction is important to protect life and property. Temperature prediction is made by collecting quantitative data about the current state of the atmosphere. In this paper, an artificial neural network was employed using the Levenberg-Marquardt backpropagation to develop the prediction model. The Root Mean Square Error is then calculated between the perceptron and the desired output for the input vectors. This back-propagation approach is chosen for this training because, from the works of literature reviewed, it is regarded as one of the most efficient training algorithms because of its fast and stable convergence and suitable for training small and medium-sized problems in the artificial neural-networks field. Our study used four years’ data (2013-2016) gotten from Atmospheric Monitoring Equipment Network Automatic weather station situated at Centre for Atmospheric Research, Anyigba North Central Nigeria. The proposed model is tested using the network of the hidden neuron with the least root mean square error to the observed data. The outcome of the predicted values is compared with the observed values. After
comparing the results with the observed values, it shows that our model has the potential for temperature prediction.

References

2. Ananth Ranganathan (2004). The Levenberg-Marquardt Algorithm. 8th June, 2004
3. C. Gershenson “Artificial Neural Networks for Beginners” Networks, 2003., vol. cs.NE/0308,
13. www. Skymind.ai

Index Terms

Computer Science Artificial Intelligence

Keywords

Artificial Neural Network, Backpropagation, Multi-layer perceptron, Air Temperature Prediction.