PROPOSAL FOR

CSE4238

SOFT COMPUTING LAB

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Deep Learning-Based Multivariate Forecasting of Rainfall, Temperature, and Humidity Patterns

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1 Objective

With the increasing frequency and intensity of extreme weather events, accurate prediction of rainfall patterns has become paramount for effective climate adaptation and disaster management. This study focuses on developing a robust rainfall prediction model tailored to the unique climatic conditions of Bangladesh.

2 Data Collection

We will use historical data on Bangladesh's rainfall.

3 Features

To select the features, we have to research the parameters that the rainfall mostly depends on. The selected features are such as dew point temperature, daily temperature, humidity, wind speed, pressure, and rainfall.

4 Model Selection

We will make three hybrid models using conv1d combined with three RNN each. For RNN we will be using LSTM, BiLSTM, and GRU, as these will give a good accuracy for data which are based on Time-Series.

4.1 Model Evaluation

Assess performance using metrics like accuracy, precision, MAPE, ROC-AUC curve, and confusion matrix.