

## Modeling and Prediction LTE 4G NW According to Memory Algorithm of Long-Short Term

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**Abstract:** With increasing of using smart phone, has run to a tense growing in internet traffic. Therefore, prediction and modeling NW turn to be very significant for monitoring NW for increasing quality of services (QoS). The novelty of designed prediction model for managing the NW intelligently. In this paper, proposed Long-Short Term Memory (LSTM) to forecast traffic as cellular. The normalization as min-max method has been implemented for scaling the NW traffic NT data. The LSTM model was evaluated by employing real standard LET NW loading that gathered from kaggle. The empirical results of LSTM model have revealed that has achieved greater accuracy, according to R metrics 98.67% at the training phase. The prediction NT was very close to the target values, this is approved the robustness of the deep learning model LSTM for handling LET traffic. Where the proposed system at unseen data (testing phase) has achieved superior performance, the correlation percentage of the LSTM model at testing phase is 97.95%. Finally, we believe that the system has ability to monitoring LET NW.

**Keywords:** Long-Short Term Memory, Deep learning, 4G NW, time series model, Prediction NW

### 1. Introduction

Internet is NWs (NW that) connect billions of Internet utilizers and hosts and carries huge (Terabytes) data across the worldwide backbone [1-3]. International Union of Telecommunication has forecasted in the beginning of 2015 that three billion utilizers will be linked to Internet [report\_2014]. Internet has a giant optical fibers infrastructure, copper wireless and wires connections which are used by packet switches for connecting an extensive end-hosts variety of a range from customary web servers, laptop computers and PCs, to a large cell phones number and devices being smaller inserted in our homes, in the surroundings around us and in cars. Furthermore, Internet is as well infrastructure which maintenances a services variety i.e., mail, web, sharing of file, radio, telephony, games, TV and video distribution, banking of many kinds and commerce and in which new applications continually are deployed and developed [4-5]. NW infrastructure is growing at a rapid pace thus; Internet has become a very complex system. Due to this NW and consistency of having an independent and smaller NW of huge number, and as well protocols which define how communication of Internet is carried out and how it is organized into layers with diverse roles. Internet is a NW of heterogeneous set that interlinked with various capacities and sizes and at various administrations. NW as thousands which

set up Internet is linked together in hierarchy being loose. The NT prediction is a significant subject which has recently received ample attention from the community of computer NW [6-8]. The NT prediction duty, one of the classic subjects in measured data based NW control is for forecasting the variation of future traffic and it can be regarded as a time sequences prediction issue. The NT several works prediction in literature review are concerned in problem solving to improve the NT effectiveness and efficiency monitoring via in advance forecasting the flow of information packet. Thus a prediction as precise traffic model must have the capability for capturing the characteristics of prominent traffic, i.e., long and short-range dependence, similarity being self [9]. More accurately in order to predict NT models, it needs on 2 chief parameters: the getting of preceding NT data and to what extent forecasting future NW with traffic process rate able to predicted for a particular error limitation. The main contribution of the proposed research is as follows:

1. Using advance artificial intelligence like deep model of learning LSTM for prediction the NT.
2. The model being suggested was tested using real Long Term Evolution (LTE)
3. The system able to be utilized nay application of real time for forecasting values of future.

### 2. Background of study

Within the collected works, first paintings hiding place website traffic site predictions for switching circuit through growing time as statistical collection fashions based totally on records of observation i.e., auto-regressive moving integrated averages (ARIMA) [11,12]. Additional, numbers of models of prediction

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