Developing A Flight Delay Prediction Model Using Machine Learning

Literature Survey: -

S.No	Title	Author and year of Publication	Proposed Work	Limitations
1.	Airline delay prediction by machine learning algorithms	H. Khaksar et al [1] [2019]	This paper proposes a flight delay prediction model through different methods which includes Bayesian modeling, decision tree, cluster classification, random forest, and hybrid methods. These methods were applied to estimate the occurrences and magnitude of delay in a network.	The accuracy in predicting the flight delay is comparatively low.
2.	Assessing strategic flight schedules at an airport using machine learning-based flight delay and cancellation predictions	Miguel Lambelho et al [2] [2019]	This paper provides a machine learning-based approach to assess the strategic flight schedules in terms of potential arrival/departure flight delays and cancellations. This paper also provides an approach supports an integrated strategic flight schedule assessment, where strategic flight schedules are evaluated with respect to flight delays and cancellations.	This paper has no specific drawbacks.
3.	A Data Mining Approach to Flight Arrival Delay Prediction for American Airlines	Navoneel Chakrabarty [3] [2019]	This paper aims at analyzing flight information of US domestic flights operated by American Airlines, covering top 5 busiest airports of US and predicting possible arrival delay of the flight using Data Mining and Machine Learning Approaches.	The data preprocessing should be done better in this proposed work.
4.	A Deep Learning Approach for Flight Delay Prediction through Time-Evolving Graphs	Kaiquan Cai et al [4] [2021]	This paper is about the flight delay prediction problem is investigated from a network perspective (i.e., multi-airport scenario). To model the time-evolving and periodic graph-structured information in the airport network, a flight delay prediction approach based on the graph convolutional	The quality of model can be improved with efficient data.

			neural network (GCN) is developed in this paper	
5.	Predicting flight delay based on multiple linear regression	Yi Deng et al [5] [2017]	This paper proposes a method to model the arriving flights and a multiple linear regression algorithm to predict delay, comparing with Naive-Bayes and C4.5 approach.	The accuracy and the operational efficiency can be further improved.
6.	Flight Delay Prediction Using Deep Convolutional Neural Network Based on Fusion of Meteorological Data	Jingyi Qu et al [6] [2020]	This paper provides a two flight delay prediction models using deep convolution neural network based on fusion of meteorological data are proposed in this paper. The first model is DCNN (Dual-channel Convolutional Neural Network), which refers to the ResNet network structure. The second model is SE-DenseNet (Squeeze and Excitation-Densely Connected Convolutional Network).	Improved Network models can be used to get better results.
7.	Flight Delay Prediction Based on Aviation Big Data and Machine Learning	Guan Gui et al [7] [2020]	This paper explores a broader scope of factors which may potentially influence the flight delay, and compares several machine learning-based models in designed generalized flight delay prediction tasks. To build a dataset for the proposed scheme, automatic dependent surveillance-broadcast (ADS-B) messages are received, pre-processed, and integrated with other information such as weather condition, flight schedule, and airport information.	The dataset is not sufficient enough to make predicting accuracy higher.
8.	Flight delay prediction for commercial air transport: A deep learning approach	Bin Yu et al [8] [2019]	This paper analyzes high-dimensional data from Beijing International Airport and presents a practical flight delay prediction model. Following a multifactor approach, a novel deep belief network method is employed to mine the inner patterns of flight delays. Support vector regression is embedded in the developed model to perform a supervised fine-tuning within the presented predictive architecture	The details about air traffic control is not available which is a drawback when comes to dataset collection.

9.	Machine Learning Approach for Flight Departure Delay Prediction and Analysis	Ehsan Esmaeilzadeh et al [9] [2020]	This paper employs a support vector machine (SVM) model to explore the non-linear relationship between flight delay outcomes. Individual flight data were gathered from 20 days in 2018 to investigate causes and patterns of air traffic delay at three major New York City airports	The evaluation metrics used can be improved better.
10.	Development of a predictive model for on-time arrival fight of airliner by discovering correlation between fight and weather data	Noriko Etani [10] [2019]	This paper aims to discover the correlation between fight data and weather data. A predictive model of on-time arrival fight is proposed with using fight data and weather data. The feasibility of the predictive model is evaluated by developing a tool of on-time arrival fight prediction.	This paper has no specific drawbacks.

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