Developing A Flight Delay Prediction Model Using Machine Learning

Literature Survey: -

S.No	Title	Author and year of Publication	Proposed Work	Limitations
1.	**Flight delay prediction based on deep learning and Levenberg-Marquart algorithm**	Yazdi, M.F., Kamel, S.R., Chabok, S.J.M. [2020]	Flight delay is inevitable and it plays an important role in both profits and loss of the airlines. An accurate estimation of flight delay is critical for airlines because the results can be applied to increase customer satisfaction and incomes of airline agencies.	Comparing the three models for two of imbalanced and balanced datasets shows that accuracy of SDA-LM model with imbalanced dataset respectively is greater by 8.2 and 11.3% Than SAE-LM and SDA models.
2.	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. .
3.	**Probabilistic Flight Delay Predictions Using Machine Learning and Applications**	Kluyverweg 1 [2021]	The algorithms were trained using features extracted from a flight schedule dataset and a weather dataset, which contained data from Rotterdam The Hague Airport. Six performance metrics were defined to evaluate the probabilistic predictions, and the influence of the hyperparameters on the probabilistic prediction performance was investigated.	This paper has no specific drawbacks
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.	AIRLINE DELAY PREDICTION USING MACHINE LEARNING ALGORITHMS	Dand, Alok [2020]	The aim of the dissertation is to provide decision makers in the airline industry models that can assist by predicting airline delays, the cause, and the impact of the delays. The health of airline industry has been adversely impacted by the Covid-19 pandemic resulting in lost revenue due to cancellations and decrease in passenger traffic. The studies in this dissertation explore issues that can assist airlines in improving flight operations in predicting potential delays	This paper has no specific drawbacks
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.	Study of Flight Departure Delay and Causal Factor Using Spatial Analysis	Shaowu Cheng,[1]Yaping Zhang,[1]**Siqi Hao**,[1]Ruiwei Liu,[2]Xiao Luo,[3]and Qian Luo[3] [2019]	This study studied the flight departure delay and its causal factors by developing a novel spatial analysis method, which enables the correlation in data samples. First, spatial analysis is confirmed as a useful method in the delay and causal factor analysis in this study. Exploration analysis can intuitively demonstrate the distribution pattern of flight departure delay in the temporal dimension, semivariogram can quantify the spatial structure of the delay, and kriging interpolation allows delay estimation at unmeasured locations.	Some of the attributes considered cannot be obtained on large scale in real time.

9.	**Airline Flight Delay Prediction Using Machine Learning Models**	**Yuemin Tang [2021]**	The paper performed a prediction of the occurrence of flight delays by adapting it into a machine learning problem. A supervised machine learning approach in the form of binary classification was used for the prediction. Seven algorithms were used for delay prediction, and four measures were used for algorithms performance evaluation.	This paper has no specific drawbacks
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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