APPLIED DATA SCIENCE

DEVELOPING A FLIGHT DELAY PREDICTION MODEL USING MACHINE LEARNING

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LITERATURE SURVEY

Literature	Methodology	Merits	Demerits
Study of Flight Departure Delay and Causal Factor Using Spatial Analysis	Assuming delay as a spatially dependent variable, finds delay distribution pattern to predict delay.	Considers spatial factors, people, day types and time ranges of a day to contribute to the prediction	Some of the attributes considered cannot be obtained on large scale in real time.
Flight delay forecasting and analysis of direct and indirect factors	LSTM network with attention mechanism to remember spatial dependencies	Direct and indirect causing factors are weighed differently.	Air interaction of flights not taken into account
Flight delay prediction based on aviation big data and machine learning	Comparison of LSTM and Random forest; Uses ADS-B data for improved accuracy.	Use of ADS-B can be seen promising. Showed that LSTM suffers from over fittingon test set.	Deployment of ADS-B is hectic. More data handing takes place.
Prediction of weather-induced airline delays based on machine learning algorithms	Experimented predicting delay using supervised machine learning algorithms. Uses SMOTE for weaker class sampling	Found weather causes to be amounting to a significant percent of delay.	Not taken spatial dependencies into account. Amount of delay could have been found.
A deep learning approach to flight delay prediction	A deep RNN and LSTM approach to prediction; uses limited data attributes	Predicting two sections namely day prediction and flight prediction seems more reasonable and can give more insights for the airport managers to make necessary arrangements.	Air traffic/flight interaction doesn't playgreat roles. Biased towards weather attributes.
Flight Delay Prediction System	Supervised Machine Learning algorithm using Naive Bayes	Considers independence among the predictors making the system scalable. Good for real time prediction	Does not take into account the impact of unprecedented reasons such as major calamities in flight delays

Predicting flight delay based on multiple linear regression	A multiple linear regression algorithm to predict delay	Both airline and weather features are taken into consideration. The methodology used in this gives better results compared to Naive-Bayes and C4.5 approach	Predicts only the flights which are delayed above 30 minutes
Airline Flight Delay Prediction Using Machine Learning Models	Comparison among 7 classification machine learning algorithms	Among the considered algos using 4 performance indicators decision tree was found to be the best in predicting flight delays	The data imbalance issue even though handled through weighted evaluation methods does had a significant effect on performance on the algorithms
Flight delay prediction from spatial and temporal perspective	ST-Random Forest for flight delay prediction using spatial features of aviation network and temporal correlation of weather condition and airport crowdedness on flight delays.	A real-time, highly accurate prediction system that guaranties the influence of the air traffic network in the prediction.	Over fitting might occurdue to LSTM.

References

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