

Road Mishap Risk Assessment Using Machine Learning

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ABSTRACT

This topic introduces the possibility of road accidents severity based on the provided dataset which creates awareness in the society and give insights to the government about safety precaution need to be taken in accident-prone areas. The proposed prediction model will be built based on different machine learning algorithms on the basis of available data determines the accident severity, most frequent accidents in a particular region based on road conditions, age groups, and so many other factors. Development of Artificial Intelligence technologies pushing personalized analysis and predictions, this model used several Machine Learning Algorithms like Decision Tree, Random Forest, Artificial Neural Network, Support Vector Machine and Logistic Regression.

INTRODUCTION:

Accident-prone travel is becoming an important factor for governments now days because of their frequency, traffic accidents are a major cause of death globally, cutting short millions of lives per year. Therefore, a system that can predict the occurrence of traffic accidents or accident-prone areas can potentially save lives. Accidents don't arise in a purely stochastic manner; their occurrence is influenced by a multitude of factors such as drivers' physical conditions, car types, driving speed, traffic condition, road structure and weather. Studying historical accident records would help us understand the relationships between these factors and road accidents, which would in turn allow us to build an accident predictor. Using legacy methods to predict the risk was tough question because of the difficulty in prediction factors and methods. In order to mitigate the traditional way problems this topic proposes new method to predict the road accident severities. The method can distinguish every individual parameter like Age of driver, vehicle type, sex of driver, age of vehicle, speed limit etc. So, by treating these values specifically which will bring positive excitation and encourage every person to pay more attention to their behaviour, which has a significant influence on

improvement of the whole society. However, for the past few decades, limited by computing methods, researchers can only use basic models to analyze risk factors, which is helpful but not accurate enough. Traditional models cannot fully utilize the potential information of data and factors. Therefore, we consider applying machine learning methods in risk prediction, which helps us improve the accuracy of our model and pursue further latent risk factors to perfect the model.

In this proposal we are trying to build a practical model to evaluate the accident severity and accident-prone areas based road accident data using machine learning methods. We select some representative features from behaviour data and build a high-accuracy model to predict the possibility of vehicle violations. The model can be applied to help predict the accident severity and accident-prone areas, and make more contribution to the improvement of transportation environment.