Spatial Analysis of Violent Crime Dataset Using Machine Learning

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Abstract

The monster called crime has been living with us from the beginning of human existence and impacts negatively on the general health of a nation. Different approaches were employed in the past studies for predicting occurrence of violent crime to aid predictive policing, which makes conventional policing more efficient and proactive. This paper investigates the accuracy of Machine Learning-based crime prediction approaches, which were used previously by other researchers. This study presents Machine Learning approaches to violent crime prediction. Five years' historical dataset between July 2014 and July 2019 were collected from Nigerian Police Lagos, analyzed and used for training the models built. Two different Machine Learning predictive models, Decision Tree and K-Nearest Neighbor, were implemented using IBM Watson Studio and violent crime prediction accuracy of 79.65%, and 81.45% were obtained, respectively, with the real-life dataset collected from Nigerian Police Obalende Lagos and online crime reported portal during violent crime prediction in Lagos. This could be used to enhance crime prevention and control strategies in curbing the worrisome crime rate in the country.

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