


Geo-Spatial Crime Analysis Using Newsfeed Data in Indian Context

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ABSTRACT

Social media is the platforms where users communicate, interact, share ideas, career interest, pictures, video, etc. Social media gives an opportunity to analyze the human behavior. Crime analysis using data from social media such as Newsfeeds, Facebook, Twitter, etc., is becoming one of the emerging areas of research for law enforcement organizations across the world. The intelligence gathered through data is used for identifying future attacks and plan for reinforcements. This article focuses on the implementation of textual data analytics by collecting the data from different newsfeeds and provides an optimized visualization. This article establishes a framework for better prediction of 16 types of crime in India and the Bangalore area by providing the coordinates of the crime area, along with the crime which might happen there.

KEYWORDS

Crime Analysis, Crime Prediction, Crime, Law Enforcement, Newsfeed Crime Data, Predictive Analysis, Social Media

1. INTRODUCTION

Crime imposes a price on economies because it acts as a tax on what's wrongfully created within the society. To forestall crime, the govt will invest in exploitation completely different tools. One among these is education. Our Tools can identify the relation between the crime rate India and Bangalore where more educated people are more in number. Obtaining a lot of individuals educated will increase the returns of legal activities against outlawed ones. However, education features a positive crime, because it will increase the quantity of being taken. The connection between education and crime is so ambiguous. A recent Local study known the links between the behavior patterns of youngsters and their later anti-social conduct and noted that each will most frequently be foreseen from school days.

The national security concern is that the primary goal of any nation. Criminology studies specialize in distinctive criminal characteristics. The applying of information mining techniques will facilitate with this identification. Crime analysis, a part of criminology, is a law enforcement preform that entails the systematic analysis of deciding on and analyzing both patterns and tendencies in crime and disorder. Crime analysis is one of the most critical activities in solving criminal cases. Modern technology and other advancements have enabled analysis of a considerable number of crimes. Unregulated migration and population growth have contributed to the high magnitude of crimes happening in cities. Intelligence organizations and law enforcement organizations collect massive amounts of crime data to predict future occurrence. Since this involves analyzing a large number

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of data, manual methods for analyzing such data with huge variations have proven to be stressful and unproductive. Therefore, crime analysis has become one of the prominent problems in all law enforcement organizations and Intelligence organizations.

This paper presents a crime analytics system based on social media data RSS feeds from different newspapers. With the help of crime analysis, crime events that share common characteristics such as location, frequency, etc. and victim patterns can be identified. By combining various available data in social media, it is possible to create a profile of social misconduct based on a spatial and temporal analysis. With the correct processing of social media data, it is possible to take corrective actions. With the construction of an efficient data pipeline, it is possible to identify indicators and utilize them for predicting social mishaps.

This paper focuses on development on a software system that can analyze the news feeds data and shows the spatial visualization of different types of crimes with Indian and Karnataka-Bangalore context. The remainder of work followed with 2. Literature review 3. Methodology Used & Implementation of the System, Section 4. Results obtained and discussion. The last, section 5 concludes our work and suggests future research scope.

2. LITERATURE REVIEW

Historical crime data can be used to identify high crime areas and plan resources optimally. Predictive policing using data enables law enforcement authorities to take proactive decisions to improve response time to crime incidents (Angers, Biswas & Maiti, 2016). Knowledge acquired from the data mining techniques can be used to helping find criminals faster thereby reducing crime rate. crime prediction, a subtask of crime analysis, considers all the past crime records, classifies the crime categories and predicts the future crime. Crime prediction using pattern and association rule mining determines the chances of performing crime by the same criminal.

Research by urban activist Jane Jacobs (2012) emphasizes that natural surveillance, i.e., the presence of high density of visitors and high diversity enhance the safety of the target area and in effect reduces crime. With the help of data-driven and place-centric approach, it is possible to determine whether a particular geographic area can be identified as a future crime area proposed by X. Wang et al. (2012). Crime models based on spatial analysis created from newsfeed proposed by Jayaweera et al. (2015) can help us in understanding criminal activity better. Also, this anonymized data has the advantage of limited to no privacy risks. Combining anonymized and aggregated user data with demographics can help in identifying whether specific locations are more prone to future crimes or not.

Other studies include Chaolun Xia et al. (2014) that proposes the development of systems that use hyper-local social media data to create a real-time visualization for crimes in cities. This visualization data is sourced from various platforms like Fourspace, Twitter, and Instagram. However, there are challenges in forming robust hyper-local event detection because of the scale and noise of social media data. Irrelevant content can dilute the information available to the system. Along with the screening, real-time updates are required in applications for users such as journalists and city officials. Spatial, Meta, Textual, and Historical (SMTH) Features are extracted from the real-time data. Twitter data has been a focal point in research in which the DataStream is used to detect events by grouping tweets into clusters.

According to research from M. Rospoche et al. (2016), European project news reader processes news-stream in 4 languages and extracts relevant data such as what happened, who was involved, when and where it happened, etc. taking sources from various news sources, the system compares information for contradictions and correlations. A study was done on J. H. Ratcliffe et al. (2006) population have used spatial and temporal patterns of historical crime to identify clusters of criminal activity. Research done by Pease (1998) indicates that clusters of crimes occur due to the encouragement from the success of previous attempts in the surroundings. Kennedy et al. (2011) also found that crime clusters contribute to socio-economic consequences such as depreciating housing prices, increased fear, etc.

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