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To Categorize and Forecast the Type of crime and Person-identification using Machine Learning

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ABSTRACT

Crimes are an irritant to society and have a discernible effect on it. Many law enforcement organizations currently have large amounts of crime-related data that need to be processed in order to become useful information. Crime data are complex since they include a lot of various formats and features. Law enforcement organizations face a number of challenges in their efforts to prevent crimes. To assist law enforcement agencies in conducting descriptive, predictive, and prescriptive analysis on crime data, we propose a desktop application for crime data analysis. Because the application was modular, each component was built separately. Person identification makes use of data analysis and biometric technologies to accurately identify individuals. Databases are able to record and store these characteristics.

Keywords-*Crime, Prediction, Person-Identification, SVM, Haar-cascade algorithm*

I. INTRODUCTION

The problem of criminal activity has grown to be rather serious and is believed to be becoming worse rather quickly. The process of developing predictive models that use past crime data to determine the likelihood that different kinds of crimes will occur in specific places and at specific times is known as crime prediction. Law enforcement agencies can identify high-risk areas, deploy resources there, and proactively halt criminal activity by using these models.

Accurately identifying people requires the application of data analysis and biometric technologies. Physical traits like face patterns are examples of biometrics. Law enforcement can compare these traits to existing records for criminal investigations by capturing and storing them in databases.

II. LITERATURE REVIEW

[1]: Prediction Analysis of Crime in India Using a Hybrid Clustering Approach *

Dr.J.Kiran Assistant Professor Department presents a comprehensive paper on One of the most intricate systems that humans have ever created is the cyberspace; although many people use it frequently, most users only have a cursory understanding of its capabilities. Cyberattacks used to typically be planned in a haphazard manner with the intention of tricking unsuspecting targets. Further evidence has shown that information about cyberattacks is disseminated among hackers and hacker forums within the virtual ecosystem. This paper suggests identifying texts related to cyber threats by using opensource intelligence from hacker forums on the deep web and the surface web (Twitter).

[2]: Crime Prediction Using K-Nearest Neighboring Algorithm *

Akash Kumar presents a comprehensive paper on People frequently hear about crimes occurring in developing nations like India. We need to be aware of our surroundings at all times due to the rapid urbanization of cities. We will attempt to track crime rates using the KNN prediction method in an effort to prevent the unfavorable. The type of crime, its

potential location, time, and date will all be tentatively predicted. Criminal investigations may benefit from knowing the crime patterns across a region provided by this data. Additionally, it will give us information on the highest number of crimes committed in that area. We will employ the machine learning algorithm known as the k-nearest neighbor in this paper.

[3]: Empirical Analysis for Crime Prediction and Forecasting Using Machine Learning and Deep Learning Techniques*

The threat that crime and violations pose to the rule of law is why they should be monitored. Computing can help to improve metropolitan safety by providing accurate crime predictions and future forecasting patterns. Many computational challenge opportunities arise from the precise estimation of the crime rate, types, and hot locations from historical trends. The present investigation employed various machine learning algorithms, including logistic regression, support vector machine (SVM), Naive Bayes, k-nearest neighbors (KNN), decision tree, multilayer perceptron (MLP), random forest, and eXtreme Gradient Boosting (XGBoost), in conjunction with time series analysis using long-short term memory (LSTM) and autoregressive integrated moving average (ARIMA) model, to enhance the fit of the crime data. In terms of the amount of mean absolute error (MAE) and root mean square error (RMSE), the performance of LSTM for time series analysis was passably good.

[4]:Smart Visual Surveillance: Proactive Person Re-identification instead of Impulsive Person Search*

Detecting and re-identifying people simultaneously on a live CCTV feed is a more proactive way to address surveillance difficulties than applying person search on CCTV video archives after an incident has occurred. Present person re-identification systems rely on off-the-shelf detectors for their practical application and do not address person detection. While person search techniques do, in theory, detect people, they only do so for a pre-defined selection of people (known as the query set) rather than tracking every individual who is there at any one time. In this study, we provide an independent method for concurrently identifying and re-identifying every individual surfacing inside a network of security cameras. To locate people in specific surveillance photos, a deep backbone network combines the Region proposal network and region of interest pooling.

[5]:SCA Net: Person Re-Identification with Semantically Consistent Attention*

Person re-identification (re-ID) is a recognition mission at the instance level that relies on particular discriminative traits. However, the semantic misalignment of the goal and background clutters quickly influences and weakens the learned features from the network. Semantically consistent attention network, or SCANet, is a novel deep re-identification CNN that is proposed in this work to learn the discriminative feature. By creating a foreground mask module on a backbone network made up of residual blocks, we accomplish the goal in this study. Crucially, a novel consistent attention loss is implemented to maintain the similarity of the inferred foreground mask from the shallow-, mid--, and deep-level feature maps dynamically.

III. SYSTEM ARCHIETECTURE:

System Architecture for Machine Learning-Based Crime prediction and Person identification.

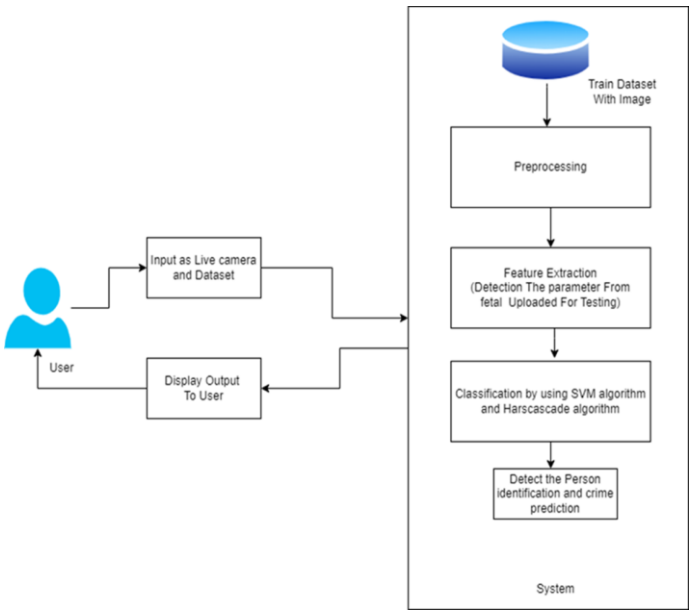

Figure 1:SYSTEM ARCHITECHTURE DIAGRAM

The architecture of a machine learning-based person identification and crime prediction system often includes data collecting from sources such as databases, CCTV, and sensors. After preprocessing, this data is input into crime prediction models, which may use random forests or neural networks as algorithms. Biometric information and facial recognition technology may be used to identify an individual. A feedback loop is necessary for the system's on going learning and development. To preserve data security and privacy, strong encryption and secure database integration are essential.

Feedback Loop:

Feedback Gathering: Information about the results of crime forecasts. This can contain data on actual crime incidences, law enforcement reactions, and prediction accuracy.

IV. CONCLUSION

This paper is useful to Crime analysis and prediction is a methodical way of detecting criminal activity. By forecasting places with a high probability of crime occurrence, this system can identify and visualize areas that are prone to crime. Data mining is a notion that allows us to extract previously unknown, meaningful information from unstructured data.

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