CrimeLens: Crime Pattern Prediction and Visualization Platform

ABSTRACT

CrimeLens is an AI-powered crime analytics platform designed to analyze, visualize, and predict crime trends using real-world crime data. The system enables users to upload datasets or automatically scrape data from public sources such as government portals. By applying clustering algorithms, it identifies crime hotspots and visualizes them through interactive heatmaps. The platform incorporates time-series analysis using models like Prophet and ARIMA to uncover temporal crime patterns and forecast future incidents. Machine learning models such as Random Forest and XGBoost are used to classify crime severity and predict high-risk areas based on features like time, location, and crime type. CrimeLens provides an intuitive dashboard, allowing users to filter data by location, search specific areas, and visualize crime trends over time. This system supports law enforcement, researchers, and citizens by delivering actionable insights into crime patterns, helping inform better decision-making and proactive safety measures.

Keywords : Crime Analytics, Hotspot Detection, Time-Series Forecasting, Machine Learning, XGBoost, Random Forest, Crime Severity Classification, Crime Risk Prediction

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