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Personal Data Breach Alert System

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ABSTRACT:

The rise of sophisticated cyberattacks and personal data breaches has made data protection a critical concern across industries. Traditional breach detection methods are limited in their ability to process large volumes of real-time activity and often fail to identify emerging threats. This project addresses the problem by proposing a personal data breach alert system that leverages artificial intelligence (AI) to detect anomalies, generate timely alerts, and support proactive response strategies.

The objectives of this work are to (i) monitor and analyze user activity patterns for signs of abnormal behavior, (ii) detect possible breaches involving sensitive personal data using AI-based predictive models, and (iii) minimize detection and response time through automated alerts. The proposed approach applies supervised and unsupervised machine learning models for anomaly detection, supported by statistical visualization and predictive analytics. These models will be integrated with a scalable alerting framework that enhances resilience, accuracy, and compliance with data privacy standards.

The expected outcome is a system capable of providing real-time alerts for personal data breaches, significantly improving detection accuracy compared to conventional methods. This will reduce risks associated with financial fraud, identity theft, and unauthorized access to sensitive information. Furthermore, the system is designed to adapt to evolving cyber threats, ensuring long-term reliability and scalability.

Base Research Paper Reference:

AI-Driven Security in Cloud Computing: Enhancing Threat Detection, Automated Response, and Cyber Resilience (2025). [arXiv link](#)