Real-Time Surveillance with AI: A Comprehensive Approach to Security and Monitoring

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Abstract: *The last ten years have been quite phenomenal for artificial intelligence and computer vision. For the past few years, it was unstoppable, with outstanding breakthroughs that moved towards advanced real-time surveillance systems-that wholesome approach to real-time surveillance through the power of AI in technological advancement for accuracy, scalability, and responsiveness. The system integrates facial recognition, object detection, and anomaly detection algorithms to give a very stable, adaptive response to the various facets of surveillance needs, such as public safety, institutional monitoring, and private security. Through deep learning models extracted from comprehensive datasets, the system is able to identify known individuals in real time and trace the movements and unusual behaviors of these people. A discussion of challenges in data privacy, computational efficiency, and false positives goes hand in hand with an in-depth analysis of system architecture, which includes thorough hardware and software configuration descriptions. The experimental results show the potential of the system in real-world environments as an alternate scalable solution for future security infrastructures.*

Keywords: AI-powered surveillance ,Real-time monitoring ,Face recognition technology ,Anomaly detection systems