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Biosensor Technology Optimization for Virus Detection in IoT-Based Smart Healthcare Systems

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Abstract:

The increasing demand for rapid and accurate virus detection in the wake of global health crises has driven innovation in biosensor technologies integrated with Internet of Things (IoT) frameworks. This paper investigates the optimization of biosensor performance using machine learning and signal processing techniques within IoT-based smart healthcare environments. By deploying biosensors capable of real-time data acquisition and transmission, the system enhances early detection capabilities and supports proactive healthcare interventions. Neural networks and data-driven models are utilized to improve signal classification accuracy, reduce false positives, and adapt to varying viral profiles. The proposed system presents a scalable, intelligent solution for timely virus detection, especially in urban and remote settings where healthcare infrastructure may be limited.

Keywords:

Biosensors, virus detection, IoT, smart healthcare, neural networks, real-time monitoring

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