

Biosensors and Neural Network Optimization for Virus Detection in Urban IoT Environments

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Abstract:

Timely virus detection in densely populated urban environments is critical for public health management and epidemic prevention. This research explores the integration of biosensors with neural network optimization models within IoT-based infrastructures to enhance real-time virus detection capabilities. The proposed system employs advanced biosensing technologies for continuous environmental monitoring, transmitting data through IoT networks to centralized neural network-based analytics engines. These neural networks are optimized to classify viral threats with high accuracy, utilizing deep learning architectures trained on extensive biological datasets. The approach emphasizes low-latency processing, scalability, and adaptability to emerging viral mutations. Experimental evaluations in simulated urban scenarios reveal improved detection precision and faster response times compared to traditional systems. This fusion of biosensor data with intelligent neural optimization significantly strengthens health surveillance mechanisms in smart cities.

Keywords:

Biosensors, virus detection, neural networks, IoT, smart cities, optimization.

REQUEST FOR FULL TEXT

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