

Machine Learning for Real-Time Air Quality Monitoring in Smart City Applications Optimization

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Abstract:

The integration of machine learning (ML) techniques into real-time air quality monitoring systems has significantly enhanced the capability of smart cities to manage environmental health. By employing a variety of sensors, such as gas sensors and environmental monitors, these systems collect comprehensive data on pollutants like CO₂, NH₃, CH₄, LPG, alcohol, and CO. This data is processed using ML algorithms to compute the Air Quality Index (AQI), providing accurate and timely assessments of air quality. The implementation of such ML-driven systems enables proactive interventions, supports public health initiatives, and contributes to the sustainable development of urban environments.

Keywords: Machine Learning, Real-Time Monitoring, Air Quality, Smart Cities, AQI, Environmental Health

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