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Smart Cities CO_2 Emission Reduction Optimization Using Machine Learning and Neural Network Solutions

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Abstract:

Reducing CO_2 emissions is a critical challenge for smart cities striving for environmental sustainability. This research proposes the use of machine learning (ML) and neural network solutions to optimize CO_2 emission reduction strategies within urban environments. By leveraging data from various city sensors, including traffic flow, energy consumption, air quality, and transportation patterns, advanced ML algorithms and neural networks analyses real-time data to predict emission trends and identify potential areas for improvement. These techniques enable the design of targeted strategies to reduce emissions from key sectors such as transportation, energy, and waste management. The study presents a framework for applying ML models, including supervised and unsupervised learning, to develop optimized emission reduction plans and inform decision-making in urban planning. The implementation of such solutions can significantly contribute to achieving sustainability goals in smart cities while improving air quality and quality of life for residents.

Keywords:

CO_2 emission reduction, smart cities, machine learning, neural networks, urban sustainability, optimization.

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