An Overview of the Applications of Artificial Intelligence in Transportation

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Abstract

The majority of major cities around the world have transportation, traffic, and logistics challenges. This is due to both the rapidly rising human population and the increased number of automobiles on the road. Technology could help enormously in the effective creation and management of a sustainable transportation system. With urban regions experiencing traffic congestion, AI solutions have arisen for accessing real-time vehicle information for traffic management and exploiting mobility on demand in trip planning by a single user interface. Other options for effective traffic management include the safe integration of AI-based decision-making, traffic management, routing, transportation network services, and other mobility optimization tools. Artificial Neural Networks (ANN), Genetic Algorithms (GA), Simulated Annealing (SA), Fuzzy Logic Models (FLM), and Ant Colony Optimizers (ACO) are examples of AI approaches used in transportation. The purpose of implementing these strategies in transportation management is to reduce congestion, enhance commuter travel time reliability, and improve the overall system's economics and productivity. Several studies have been undertaken around the world to address challenges relating to the transportation industry. The results of research activities conducted with the assistance of AI technologies in this business have given promise for this important area of development. AI's ability to handle transportation-related problems appears to be a perfect fit. However, like with AI in all other industries, adoption of these applications varies by industries,different sectors and geography. Depending on the environmental and geographic circumstances, the applications could be simple or complex, far or near, definite or contingent. This study initially identifies the basic concepts, functions and use cases for Artificial applications in transportation and reviews the applications of AI across organizations and adoption of AI by transport corporations for learning the AI accomplishments in transporation industry across the globe.

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