

AI-Powered Traffic Detection and Signal Optimization

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Abstract: *In urban environments, the relentless surge in vehicle numbers surpasses the growth of traffic infrastructure, exacerbating congestion, particularly during accidents. This pervasive issue profoundly impacts various facets of modern society, including economic vitality, accident rates, greenhouse gas emissions, time inefficiencies, and public health. To mitigate these challenges, modern societies turn to traffic management systems, comprising a suite of applications and tools aimed at enhancing traffic efficiency and safety. One innovative approach is AI-powered traffic detection and signal optimization. By assimilating data from diverse sources, these systems identify potential hazards impeding traffic flow and implement targeted interventions to alleviate congestion. This article offers a comprehensive exploration of the classification, review, challenges, and future prospects associated with implementing AI-powered traffic management systems.*

Keywords: Congestion, Traffic Management, AI-Powered Detection, Signal Optimization, Urban Mobility

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