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Review Article

Advancing pedestrian safety in the era of autonomous vehicles: A bibliometric analysis and pathway to effective regulations

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HIGHLIGHTS

- From 2013 to 2023, 368 publications have highlighted autonomous vehicle (AV) pedestrian safety.
- Leading the research efforts in this field are China and the United States.
- Research mainly focuses on studying how pedestrians perceive and interact with AV.
- Policymakers ensure AV pedestrian safety: rules, ethics, research, awareness, tech.

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ABSTRACT

With the significant transformation in transportation, it is crucial to understand the impact of autonomous vehicles on pedestrian safety. To address this, a bibliometric analysis was carried out on 368 publications from 2013 to 2023, emphasising on autonomous vehicles and pedestrian safety. The study demonstrated a substantial impact with a total of 6366 citations and an average of 17.3 citations per publication. The journal "IEEE Transactions on Intelligent Transportation Systems" was identified as the primary source of contributions, with China and the United States leading in terms of productivity. Three major research clusters related to autonomous vehicles and pedestrian safety were identified: (1) behavioral and interaction studies, (2) technological advancements for collision avoidance, and (3) statistical analysis and risk perception. Many studies have been done on this topic, but there is still a significant gap in the comprehension of how autonomous vehicle works and applies in the real world. For example, most studies only use controlled tests, which raises concerns about their validity. As a result, policymakers need to put pedestrian safety first by addressing behavioural factors and ethical concerns, passing laws, influencing the design of infrastructure, educating the public, making it easier to collect data, and

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