

# Artificial Neural Network Analysis in Road Crash Data: A Review on Its Potential Application in Autonomous Vehicles



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**Abstract** This review examines the utilization of Artificial Neural Networks (ANNs) in the analysis of road crash data and their prospective contribution to autonomous vehicles. Artificial neural networks (ANNs) have exhibited considerable promise in the realm of modeling and forecasting crash occurrences, thereby offering valuable insights for enhancing road safety. Artificial neural networks (ANNs) play a crucial role in the functionality of autonomous vehicles by enabling them to effectively perceive their surroundings, make informed decisions, and operate with a high level of safety and efficiency. Nevertheless, the deployment of Artificial Neural Networks (ANNs) encounters various obstacles, such as their inherent opacity, the necessity for substantial quantities of meticulously curated data, and the demanding computational capabilities they demand. Possible solutions to these challenges encompass the advancement of methodologies for interpreting artificial neural networks (ANNs) and the utilization of more intricate ANN models. Notwithstanding the advancements achieved in this particular domain, it is imperative to acknowledge and rectify the existing deficiencies in the present body of research. These encompass the necessity for conducting more extensive research on the utilization of Artificial Neural Networks (ANNs) in the analysis of road crashes, the requirement for developing more resilient testing methodologies for these systems, and the demand for further investigation into the effective implementation of ANNs in autonomous vehicles. This review makes a significant contribution to the current academic conversation in the field, offering valuable insights for researchers, policymakers, and practitioners engaged in the domains of road safety and autonomous vehicles.

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