

“To what extent do deep learning neural networks affect the progression of automation in land vehicles, and what are the ethical and safety concerns associated with self-driving technologies in the United States?”

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Word Count: 3999

World Studies - Science, Technology, and Society

Design Technology and Digital Society

Abstract

Vehicle usage has been growing steadily for the past several decades, due to the increasing need for mobility and transportation, especially in urban areas. Traffic congestion has many implications, including a higher risk of vehicular crashes due to errors in human judgment. Turning vehicles autonomous by adding onboard sensors to sense their environment and computers to make appropriate decisions could help eliminate these issues. Deep Learning Neural Networks (DLNNs) play a major role in advancing self-driving cars by helping them learn from large amounts of data and make smart decisions on the road. While this technology has the potential to change transportation for the better, it also raises important ethical and safety concerns. A new ethical model must be created to prioritize the safety of pedestrians rather than passengers in the vehicle, as pedestrians are more vulnerable to injury or death. In addition, it should be adaptive and maintain its ethical model depending on the legal system in which it is operating. In terms of job loss, investment in education and retraining programs could equip the local workforce with necessary skills for the AV industry. Government policies could be used in redistributing wealth and creating new job opportunities in regions most affected by automation. On a global scale, countries and regions competing for dominance in the autonomous vehicle sector can lead to disparities between countries. As a result, international regulations, standardizations, and agreements become crucial, ensuring interoperability, safety, and ethical usage of autonomous vehicles across borders. Inevitably, the future of autonomous vehicles is clear: AVs will play a major role in how we live, work, and travel.