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# Survey of Deep Learning Techniques for Vehicle Detection

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**Abstract:** *Machine learning techniques have advanced quickly, making it a more crucial tool for object detection. The machine learning-based object detection methods can learn both low-level and high-level picture characteristics, unlike conventional manually built feature-based methods. The machine learning-based image features are more representative than the manually created features. As a result, while the conventional object detection techniques will also be briefly discussed, this review paper concentrates on object recognition algorithms based on machine learning and other deep convolutional neural networks. The following sections of this study are comprised through the review and analysis of machine learning-based object identification algorithms in recent years: traditional object detection architectures, backbone networks, loss functions, and training procedures; difficult issues; datasets; evaluation metrics; applications; and future development. Nowadays, "Unmanned Aerial Vehicles" (UAVs) are utilised for a variety of surveillance purposes. Particularly, due to its potential in applications like traffic control, parking lot management, and simplifying rescue operations in disaster zones and difficult terrains, the detection of on-ground cars from UAV photos has gained substantial attention.*

**Keywords:** Vehicle, Detection, Machine Learning, Deep Learning, Highway.

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