

# AI IMAGE CLASSIFICATION FOR TRAFFIC MONITORING AND VEHICLE ANALYSIS

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## 1 History

AI image classification begun since the 1990's, however it witnessed significant breakthroughs in 2000s. This breakthrough was driven by the rise of deep learning techniques. Deep learning which are convolutional Neural Networks(CNNs) and Deep Neural Networks(DNNs). The development of powerful GPUs and the availability of large-scale labeled image data sets played a crucial role in training deep networks. Presently, AI image classification has now become a very matured field with advanced hardware.

## 2 Motivation

The accurate and real-time monitoring of traffic patterns and vehicle analysis can play a very important role in transportation management, public safety and even urban planning. Use of manual method can be slow in processing , cost higher and have limited coverage. There is growing interest in using AI techniques like image classification to automatically classify vehicles on the streets which is cost less and has higher coverage.

## 3 Aim

The primary objective of this is design and develop an accurate and efficient system that can classify various types of vehicles, including taxis, buses, trucks, and other cars, with high precision.

## 4 Current Line of Thought/Strategy

The current line of thought for this project involves using different Convolutional Neural Networks(CNNs) and Deep Neural Networks(DNNs) to classify the vehicles on the street of Ireland.

## 5 Evaluation Metrics

The evaluation metrics that will be used to assess the performance of the image classification models is accuracy and visualization of the error progress over the epochs.

## References

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- [2] Image Classification Based On CNN: A Survey Ahmed A. Elngar<sup>1</sup>, Mohamed Arafa<sup>2</sup>, Amar Fathy<sup>3</sup>, Basma Moustafa<sup>4</sup>, Omar Mahmoud<sup>5</sup> and Mohamed Shaban<sup>6\*</sup>, Nehal Fawzy<sup>7</sup>