# Survey Towards Helmet Detection using Artificial Intelligence

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***Abstract:*** *The proposed framework for detecting whether a motorcycle rider is wearing a helmet or not is an example of using computer vision and deep learning to automate a task that would otherwise require human intervention. By using the You Only Look Once (YOLO)-Darknet deep learning framework, the system is able to accurately classify images of motorcycle riders and determine whether they are wearing a helmet or not. The YOLO framework is a popular approach for object detection in images and videos. It uses convolutional neural networks (CNNs) to identify objects in an image and their locations. The YOLO architecture is designed to be fast and efficient, making it well-suited for real-time object detection tasks. In the proposed framework, the YOLO network is modified to detect three classes: motorcycle riders with helmets, motorcycle riders without helmets, and background. The system uses a sliding window approach to process the images and extract features that are used to classify the objects in the image. The system is trained on the Common Objects in Context (COCO) dataset, which contains a large number of images and annotations of common objects in real-world scenes. The system achieves a mean average precision (MAP) of 81% on the validation dataset using the training data. Overall, the proposed framework has the potential to automate the detection of motorcycle riders without helmets, which could help reduce the number of road accidents and injuries caused by lack of helmet use. However, it is important to note that the system's accuracy may depend on various factors such as lighting conditions, image quality, and the variety of helmets and motorcycles present in the dataset.*

***Keywords:*** Video Surveillance, Anomaly Detection, Machine Learning, Convolutional Neural Networks, Image Processing.

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