

ABSTRACT

Traffic accidents caused by drowsy drivers are a serious issue that can lead to fatal consequences. Signs of drowsiness, such as increased blink frequency, prolonged eyelid closure, and decreased motor response, can serve as early indicators that a driver is losing alertness. Therefore, it is essential to develop a system that can accurately detect these signs of drowsiness, allowing drivers to receive early warnings to prevent accidents. This study aims to implement Xception architecture to detect open and closed eye conditions as indicators of drowsiness. The methodology involves collecting a dataset of eye images divided into training, validation, and testing data. The Xception model is trained with varying hyperparameter settings, including frozen layers, dropout rate, learning rate, and batch size. The results show that the model with 50% frozen layers, a dropout rate of 0,2; a learning rate of 0,0001; and a batch size of 16 achieves an accuracy of 98,36% on the test data, while also demonstrating a good balance between training and validation, thereby reducing the risk of overfitting.

Keywords: Drowsiness Detection, Transfer Learning, Xception, Eye Images, Traffic Accidents