A Review on Helmet Detection by using Image Processing and Convolutional Neural Networks

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Abstract

The main application of helmet detection is in traffic roads where accidents are more. Even though various measures are taken by government, it is not followed correctly by the motorcyclists, so several smart techniques should be employed. Construction industry and power substations suffer a lot of fatalities because of negligence in wearing safety helmets, hence there is a need of surveillance system that is capable of detecting helmets and preventing the deaths. A more sophisticated computer vision model that encompasses image processing, machine learning, Convolutional neural networks (CNN), classifiers such as support vector machine (SVM), ViBe background modeling algorithm, a relevant data set containing helmets; caps; Histogram of Oriented Gradients (HOG) features and number of other techniques would solve the problem. Methods like COCO model, HOG descriptors, Hough transforms are used to detect objects. Optical character recognition (OCR), Haar-like feature is used to detect number plates.
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Keywords

OCR, SVM, HOG, LBP, CNN