Weapon Detection using Artificial Intelligence and Machine Learning

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Abstract: *Security is always a main concern in every domain, due to a rise in crime rate in a crowded event or suspicious lonely areas. Abnormal detection and monitoring have major applications of computer vision to tackle various problems. Due to growing demand in the protection of safety, security and personal properties, needs and deployment of video surveillance systems can recognize and interpret the scene and anomaly events play a vital role in intelligence monitoring. This paper implements automatic gun (or) weapon detection using a convolution neural network (CNN) based SS D and Faster RCNN algorithms. Proposed implementation uses two types of datasets. One dataset, which had pre-labelled images and the other one is a set of images, which were labelled manually. Results are tabulated, both algorithms achieve good accuracy, but their application in real situations can be based on the trade-off between speed and accuracy.training results confirm that YOLO V3 outperforms YOLO V2 and traditional convolutional neural network (CNN). Additionally, intensive GPUs or high computation resources were not required in our approach as we used transfer learning for training our model.*

Keywords: Gun detection, deep learning, object detection, artificial intelligence, computer vision

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