

# Suspicious Activity Detection Using Transfer Learning Based ResNet Tracking from Surveillance Videos

International Conference on Soft Computing and Pattern Recognition

SoCPaR 2020: Proceedings of the 12th International Conference on Soft Computing and Pattern Recognition (SoCPaR 2020) pp 208-220 | Cite as

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Conference paper

First Online: 16 April 2021

- 119 Downloads

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1383)

## Abstract

Tracking objects in video surveillance is a challenging task for public security. The advent of the semantic approach has greatly raised the growth of anomaly detection. However, the current anomaly detection methods typically experience problems like inadequate use of movement patterns and inconsistency on various datasets. This research proposed a system to enhance the efficiency of anomaly detection in video surveillance. The proposed system consists of two parts that involves object tracking and suspicious activity detection. The overall framework detects and tracks the abnormal objects in video surveillance. The transfer learning-based ResNet tracking has been used for object tracking. Distance Metric Learning (DML) method has been used for detecting suspicious activities in video surveillance. The results are estimated to analyze the efficiency of the proposed method. The proposed network classifier is compared with the existing ResNet and VGG-16 network. The proposed method provides 99% accuracy that had high performance compared to other existing methods.

## Keywords

ResNet network   Transfer learning   Distance metric learning   Video surveillance