

DEEP LEARNING APPROACH FOR SUSPICIOUS HUMAN BEHAVIOUR DETECTION

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Abstract

Video surveillance systems take a more important place in the public security sector. These systems are used to detect human suspicious behaviors, analyze crowd behaviors, manage road traffic, track vehicles, etc. Previously the surveillance systems were managed by security persons manually by looking at screens of the systems. But that method was not efficient due to human inattention and fatigue-like situations. With the importance of this surveillance and the inefficiency of manual methods, researchers tend to research automated surveillance systems. This area is an active research area due to that reason. When implementing these automated surveillance systems, researchers faced a lot of challenges due to the limitations of the available datasets. Researchers had to collect data and create new datasets for their projects and it is a costly approach to conduct the research. Most of the available datasets have common issues like untrimmed videos, unannotated videos, ambiguous data, etc. to process those data to compatible with the research process, the researchers have to manually trim and annotate those data. it is a very time-consuming task and because of that, the author of this research proposed a novel algorithm to solve the limitations with the datasets. The author proposed a novel algorithm by combining MobileNet and LSTM for the solution. It is a transfer learning approach and it achieved 97% of accuracy and f1-score. Four state-of-the-art models are tested with different configurations and finally, this algorithm was implemented. This will contributes toward the improvements of the surveillance systems.

Keywords:

Suspicious behavior detection, Video surveillance, Transfer learning, Anomaly detection, Computer vision.