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EMPOWERING VIDEO SURVEILLANCE WITH DEEP LEARNING INTELLIGENCE

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ABSTRACT:
Abnormal activity detection plays a very important role in surveillance applications. To capture the abnormal activity of humans without the intervention of the system i.e. automatically captures the video can be implemented. Human fall detection, suddenly jumping down which has an important application in the field of safety and security. Proposed system use for detecting roadside human activities or behavior by using the Probabilistic Neural Network (PNN) method for classifying activities or behavior between training dataset and testing videos. The partitions between classes of normal activities have also been learned using multi-PNNs. recognizing human activity has become a trend in smart surveillance that contains several challenges, such as performing effective detection of huge video data streams, while maintaining low computational complexity. Current activity recognition techniques are using convolutional neural network (CNN) model with computationally complex classifiers, creating hurdles in obtaining quick responses for abnormal activity, so this paper proposes a framework for activity detection. First, we detect abnormal activity with humans in the surveillance stream using an effective CNN model. The detected individual is tracked throughout the video stream via an ultra –fast object tracker called 'minimum output sum of squared error' {MOSSE), Next, for each Tracked individual, pyramidal convolutional features are extracted from two consecutive frames using the efficient LiteFlowNet CNN. Finally, a novel deep skip connection gated recurrent unit is trained to learn different temporal changes in the sequence of frames for activity recognition and detection. We finish by the result indicate the efficiency of the proposed technique.

Keywords: Recognition, Video cameras, surveillance systems.

I. INTRODUCTION

During these recent years, applications of video surveillance have attracted more and more researchers. Consequently, various types of modeling, as well as several techniques of analysis and detection of human activities, are suggested. Particularly, many pieces of research are involved in the recognition and detection of human activities in general and especially abnormal activities. One important application is the supervision of elderly and disabled people at home in care centers, or hospitals. Recognition of human activities is a recent field that is interested to provide techniques and methods allowing the detection and classification of human activities, and extended now to recognize normal or abnormal activities. The motivation behind the latter is to provide an immediate intervention to preserve the lives of individuals or to ensure them some services they are unable to do by themselves. Being recent and interesting, this field has attracted the attention of several researchers who try to find solutions to the problems faced in studying such types of activities. However, the proposals made for this until now are those used for the recognition of normal

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human activities with minor modifications. These proposals are still very restricted because of the very limited number of works and surveys in this field. Moreover, they are not efficient and suffer from several limitations and technical difficulties. To this end, we propose in this paper an overview and an analysis of the existing works, to offer the researchers a general view of what exists in this field and to provide them with a tool being a help to them propose new approaches. For this, the manuscript is organized as follows. In the second section, we present a definition of the abnormal activities, their various types, as well as some examples of abnormal activities of a group or a single person. We then discuss in the third section the motivations that led to the advent of this research axis and the development of techniques allowing the analysis and recognition of human activities in general and abnormal activities in particular. The fourth section is devoted to the proposed approaches in the literature for the detection of abnormal activities. In this section, we present for each proposal, the purpose for which it is set up, its different stages, and the means used for its validation. Subsequently, we discuss some aspects affecting or influencing the effectiveness and credibility of the classification of human activities. The sixth section presents the three modes of automatic learning (supervised, unsupervised, and semi-supervised). Thereafter, we enumerate the encountered limitations to be taken into consideration to improve the systems of recognition and identification of abnormal activities. Finally, we finish with a conclusion where we summarize our study.

II. RELATED WORK

This paper is much work on abnormal behavior detection took a supervised learning approach. Diverse contributions have been made in the development of behavior recognizers for smart building surveillance applications. In automatic roaders, human surveillance, the vehicle or human activities and behaviors are detected and recognized for monitoring and warning purposes, for detecting human behavior.

Types of an anomaly to detect object or behavior some are as follows:

1. Video-based abnormal human behavior recognition

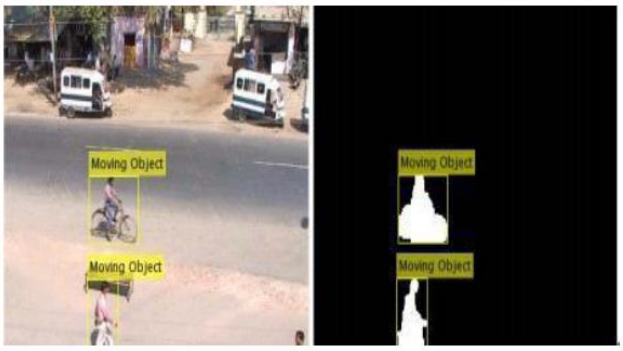

Fig. 1 Example of difference from walking or jogging

This technique only focuses on updating anomalous human activity detection. The hidden Markov Model (HMM) and Dynamic Bayesian Network Model (DBNM) [1] are using to detect suspicious behavior as shown in Fig. 1

2. Motion detection, tracking, and classification for automated video surveillance.

Fig. 2. Tracking of moving object

III.SYSTEM ANALYSIS

EXISTING SYSTEM

- In the existing system, the video surveillance system is designed for human operators to observe protected

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- Space or to record video data for further detection.
- But watching surveillance video is a labor-intensive need to be controlled.
- It is also a very tedious and time-consuming job and human observers can easily lose attention.

PROPOSED SYSTEM

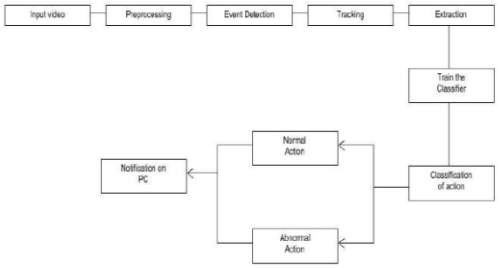

Fig 3. The proposed activity recognition framework for surveillance applications.

IV.SCREEN SHOTS

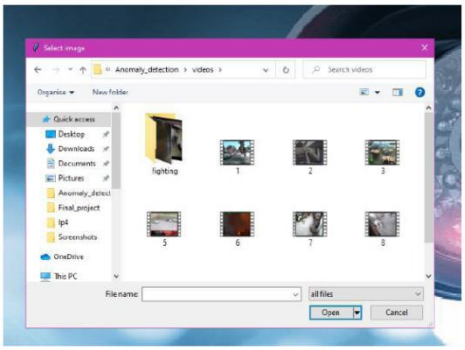

Fig: Input for Abnormal Activity Detection

- From here we'll take the file as an input for detection.

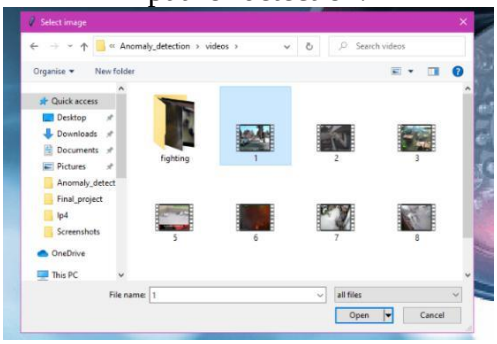

Fig: Input file for detecting abnormal activity.

Fig: Output of Abnormal Detection.

Fig: Output shows as a normal activity.

- After opening video, system will start processing on that video to detect abnormal activity, it will show result as an abnormal activity through that video.
- Whenever abnormal activity happen, system will detect that activity and label it as 'abnormal'.
- If there is no abnormal activity detected then it will label as 'Normal'.

V.CONCLUSION:

The proposed system aims to open a new door in the field of video surveillance and provide the result on the basis to detect abnormal activities. It will help the user to monitor any abnormal activities or suspicious events. It's been very difficult to monitor abnormal activities in various fields like security, crime prevention, traffic monitoring. It will help the user by sending an alert message when an abnormal condition is identified. The number of

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parameters currently included is an attempt to cover all the basic aspects of video surveillance and other overlooked parameters which deserve recognition. This work is interested in the recognition of abnormal human activities by providing a brief analysis of the recent research tasks in this field of video surveillance. We have implemented the CNN to detect abnormal activities. Finally, through this analysis of the recent research tasks in this field of video surveillance and provide the result on the basis to detect abnormal activities.

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