Main Project

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Topic : Human Activity Recognition using Deep Convolutional Network

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About project :

Human activity recognition is a major problem in smart videos surveillance. It is a fundamental problem in computer vision, i.e. to detect and recognize the activity of human in surveillance videos. The problem addressed is of activity detection in continuous, untrimmed video streams.

Human activity recognition is generally time consuming and this time consumption is due to the heavy size of the video clip of surveillance. This heavy size is because of the resolution of the camera. It becomes important to reduce the resolution of video clip and to detect what activity is been performed by the subjects. There are many solutions provided in deep learning until now, but none of them are efficient when there are lots of details in the video and it becomes difficult to detect the actual activity. In such case if rest of the details are compressed, it will be easy to apply attention to the actual activity.

In human activity recognition there are many computer vision techniques to detect the human activity, starting from image processing to machine learning and then deep learning too. For deep learning approaches, in the field of activity recognition from video, many CNN based approaches can be found. These CNN's based approaches drastically improves the efficiency of detecting the activities.

Methodology :

There are two parts of recognizing the human activity from video clips i.e compression and then activity recognition. Following are the steps to perform the activity recognition in conjunction with the compression:
Step 1 : Extract visual features from the surveillance video.
Step 2 : Video Compression
Step 3 : Prepare input for model, i.e. extracted feature from step 1 is passed to the network.
Step 4 : One of the approach is using Convolution 3D Network.

Publications :

- Paper - A Comparative Study on Deep Learning Techniques for Action Recognition
  Conference – ICICT 2018
  Journal – IEEE
  Status – Presented

- Paper – Diabetic Retinopathy Feature Extraction Methods
  Conference – ICICT 2018
  Journal – IEEE
  Status – Presented