Title of the Project: Human Behaviour and Abnormality Detection using

Spatio Temporal and Yolo V5

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**ABSTRACT**

The growing urban population has brought economic prosperity while increasing the likelihood of various abnormal events. Video data captured by surveillance cameras is an important means for law enforcement officers to judge the incident. However, a large number of surveillance cameras record massive amounts of data at all times, increasing the workload of law enforcement officers and providing opportunities for criminals. This project proposes a Spatio Temporal model and a novel regularity score based on the results of the YOLO network to detect abnormal behavior in crowd scenarios. The Spatio Temporal model extracts spatial features of video frames. In the training process, a weighted loss function is proposed based on the YOLO detection results, which emphasizes the foreground part and thus overcomes the impact of complex background. In addition, a novel regularity score is put forward in the anomaly detection process. The existing system only detects violence detection which is already available in real-time CCTV abnormal detection systems The proposed model employs Spatio Temporal and YOLO architecture. Most recent accurate models require multiple GPUs to train with a large mini-batch size, and doing so with only one GPU is extremely sluggish and inefficient. This issue is addressed in YOLO Model by creating an object detector that can be trained on a single GPU with a reduced mini-batch size. The proposed system allows a single 1080 Ti or 2080 Ti GPU to train a speedy and accurate object detector. The proposed system supports human abnormality detection with both image and video inputs. The experimental results on UCSD ped1 and ped2 dataset verify that the proposed method achieves better performance than the most of semi-supervised methods.