

B. Tech Minor Project Overview

Anomaly Detection in Image Sequences

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Overview

Anomaly detection in Image Sequences (Videos) has many varied applications from monitoring, recognizing anomalies in important industrial applications and also self driving cars, unmanned vehicles and many other countless applications.

In today's world we have many different video cameras spread around the globe in different parts of the world all capturing information of highly varied type and steaming it at a different resolution and different frame rates etc. All of this information can't be viewed by humans and all of the information can't be viewed simultaneously in real time.

This is where Anomaly detection in Video Frames come in. Anomaly detection in Image sequences aims to tag specific frames or specific parts of frames as an anomaly and help users be alerted to anomalies in real time without requiring constant surveillance of the video stream.

Problem Statement


The problem of Anomaly detection in Image Sequences is a problem of identifying anomalies in a particular frame or particular frames by simply learning the features from an unlabeled video sequence corpus. Hence this is an unsupervised learning problem of identifying anomalies given past data.

Proposed Method

I am currently working with Dr. Rajiv Kapoor on a novel idea of anomaly detection using distributed lattices and the method and results will be explained in more detail in subsequent findings.

Milestones

1. In this project the first milestone would be to understand the problem and go through current literature on the problem to understand what the current state of the art methods are and what are the pitfalls and shortcomings in current methods.
2. Then the next step will be to brainstorm a novel idea for anomaly detection by combining current methods with new optimizations to improve the anomaly detection results.
3. Then the next step will be collecting the data that we will run our novel approach on and also labelling the anomalous data frames with the corresponding labels so as to test the accuracy of our model on the provided database.

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4. Next step will be implementing the novel idea as an algorithm so as to run it and test it on the data of image sequences and test the accuracy of anomaly detection framework.
 5. The results need to then be compiled and compared with other state of the art methods and this comparison needs to be compiled in a proper graphical format so that the new method can be easily compared with other methods by external researchers.
 6. The method, novel idea, results with the database need to be compiled in a proper academic journal format and they need to be sent to various conferences, journals etc. to get it published.

These are the long term 1 year milestones for the B. tech project.