Project Report

Anomaly-Driven Video Summarization for Real-Time Surveillance Systems

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Title: Anomaly-Driven Video Summarization for Real-Time Surveillance Systems

Team:

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- Akash Thirumuruganantham - A20539883

Main Paper:

Name: Real-world Anomaly Detection in Surveillance Videos [2019]
Authors: Waqas Sultani , Chen Chen , Mubarak Shah

Additional Paper:

Name: A Three-Stage Anomaly Detection Framework for Traffic Videos [2022]
Authors: Junzhou Chen, Jiancheng Wang, Jiajun Pu, and Ronghui Zhang

Problem Statement:

Surveillance systems generate large volumes of video data, which are typically collected and stored passively, leading to inefficiencies in monitoring and retrieval. The manual review of such video data is labor-intensive and prone to errors. The key challenge is to automatically detect anomalies within the videos and summarize the most relevant footage for efficient storage and quick threat identification. This project addresses how to optimize video processing to detect and summarize anomalous activities in surveillance footage without requiring real-time analysis.

Approach:

Team Member Responsibilities:

- **Vishnu Priyan:**
    - Feature extraction and implementation of C3D and 3D ResNet.
    - Loss function modification and scoring mechanism development.
- **Akash]:**
    - Video segmentation and summarization process.
    - Dataset preparation and evaluation.