BCSE417P Fall 2024-25 Lab Assignments-3

Laleeth Adithya S 21BAl1 8 6 3

August 16, 2024

By turning in this assignment, I agree and declare that all of this is my own work.

Write an assignment on Spatio- Temporal segmentation task given below, following the same Template as Assignment 3.   
**Task Description**:

1. **Load Video**:
   * Load the provided video file.
2. **Frame Extraction**:
   * Extract individual frames from the video.
3. **Spatio-Temporal Segmentation**:
   * Perform segmentation on each frame using a technique like color thresholding or edge detection.
   * Track the segmented objects across frames to observe changes in motion and shape.
   * Identify the regions that remain consistent over time (foreground vs. background segmentation).
4. **Scene Cut Detection**:
   * Use pixel-based comparison or histogram differences between consecutive frames to detect abrupt changes (hard cuts).
   * Detect gradual scene transitions (Soft cuts) by analyzing frame-to-frame intensity changes over time.
5. **Mark Scene Cuts**:
   * Highlight the frames where scene cuts are detected.
   * Create a summary displaying the detected scene boundaries.
6. **Result Visualization**:

* Display frames where scene cuts are identified and show segmentation results for selected frames.

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

Video Link:

<https://drive.google.com/file/d/1uvuOtWbUOkJM89zp3Zgq5mjmLfH-QhvV/view?usp=sharing>

Github Link: