**Video Summarization Workflow**

This repository contains a step-by-step workflow for generating keyframes from video input using advanced models. Follow the instructions below to process your videos and extract keyframes.

**Workflow Steps**

**Step 1: Generate .npy File using TransNetV2**

1. Run the following command to process your video using the **TransNetV2** model:

python run.py --input <path\_to\_video>

go to FINAL> Tran and CIPI > TransNetV2>inference>run\_transnetv2.py

• **Input**: Path to the video file you want to process.

• **Output**: A .npy file containing shot boundary information.

**Step 2: Convert Video to CLIP Format**

2. Use the **CLIP** model to extract semantic features by running the following command:

Goto go to FINAL> Tran and CIPI > TransNetV2>inference>run\_cipi.py

python run\_CLPi.py --input <path\_to\_video>

• **Input**: Same video file as used in Step 1.

• **Output**: A pickle file containing the semantic feature representations.

**Step 3: Pass Files to the Keyframe Extraction Model**

3. Provide the .npy file (from Step 1) and the pickle file (from Step 2) to the **Keyframe Extraction Model**:

Move the .npy and .pkl file to = key>data> shot\_segmentation>trav2 and cipi

python key\_extraction\_module.py --npy <path\_to\_npy> --pickle <path\_to\_pickle>

• **Input**:

• .npy file (shot boundary information).

• Pickle file (semantic feature representations).

• **Output**: Processed data used for final keyframe extraction.

**Step 4: Generate Keyframes**

4. Run the final module to extract keyframes:

python same\_mod\_file.py

• **Input**: Output from Step 3.

• **Output**: Keyframes extracted from the input video.

**File Descriptions**

• run.py: Processes the video to generate a .npy file using TransNetV2.

• run\_CLPi.py: Converts the video into a format compatible with CLIP and produces a pickle file.

• key\_extraction\_module.py: Combines outputs from TransNetV2 and CLIP to prepare data for keyframe extraction.

• same\_mod\_file.py: Performs the final keyframe extraction.

**Requirements**

• Python 3.8 or later

• Dependencies (install using requirements.txt):

pip install -r requirements.txt

**Example**

*# Step 1: Generate .npy file*

python run.py --input sample\_video.mp4

*# Step 2: Generate CLIP pickle file*

python run\_CLPi.py --input sample\_video.mp4

*# Step 3: Prepare data for keyframe extraction*

python key\_extraction\_module.py --npy sample\_video.npy --pickle sample\_video.pkl

*# Step 4: Extract keyframes*

*# Step 5: Save\_keyframes*

python save\_keyframes.py