Automatic Naming characters in TV serial

Computer Vision Project

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Objective of the project

The objective of this work is to label television or movie footage with the identity of the people present in each frame of the video.

Face identification is a binary classification problem over pairs of face images: we have to determine whether or not the same person is depicted in both images

Methodology

- Subtitles and Script Processing
- Video Processing
- Combining the textual and Visual Information

Subtitles and Script Processing

- Extract initial prediction of who appears in the video.
- Dynamic Time Warping Algorithm is used to align the script and subtitles.
- Result of the algo is that each script line can be tagged with timing information from the subtitles.

Video Processing (Face tracking)

- Aim is to find people in the video.
- Frontal face detector can be used(with thresholding).
- Kanade–Lucas–Tomasi (KLT) tracker used for face tracks.
- KLT is less expensive than other methods.

Video Processing (Extracting Descriptors)

- Aim is to extract descriptors out of the face tracks for matching.
- Facial features:
  - Left Right corners of each eye
  - Two nostrils
  - Tip of nose
  - Left right corners of the mouth

Video Processing (Represent face appearance)

- Simple method can be use euclidean distance between each facial feature.
- Common methods are:
  - Eigenfaces
  - Fisherfaces
  - SIFT

Combining textual and visual information

- Aim is to combine script/subs and the face tracks to find the name with the corresponding face.
- Facial similarity measure
- Two classification methods:
  - Nearest neighbour method
  - SVM classifier

Thank you!