Teardrop - a video analysis software

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1 Description

trdrop - pronounced [*'teə(r),drɑp*], is a marvelous video analysis software. It can calculate the frame rate of a raw input video, show frame tears, visualize the result and export it into a youtube friendly format.

trdrop_lib is the core library which provides an interface to create a command line and a GUI interface for the provided functionality.

trdrop_c is the command line interface which will be configurable through a config file and/or flags. The output can be streamed while being processed from VLC to get a preview.

trdrop_v is the GUI interface which will be configurable through user interaction. The output can be shown in a custom window with additional layout options. This will only be done if the time constraint allows it.

2 Formal description

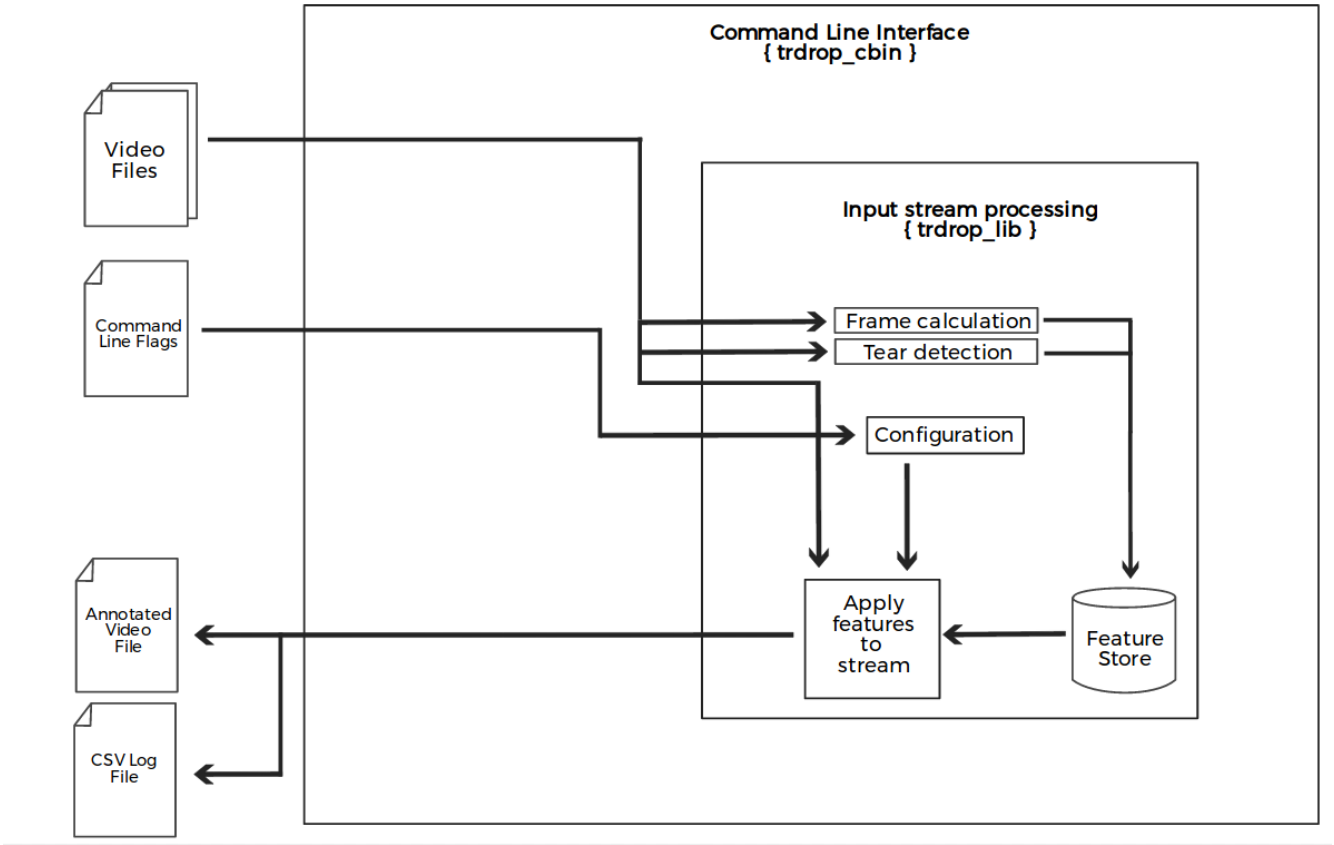
This project covers several themes of C++, mainly defined under the umbrella term *offline feature extraction of big raw video data*. The task consists of creating a streaming interface to being able to process multiple GB sized videos, apply the feature detection and encode everything into a single video in constant space complexitiy.

2.1 Functionality

The following features are to be included in **v0.1**:

- determine the real fps of the incoming video files
- show the fps as text in the video
- import up to 4 `.raw` video files with a size greater than 150 `GB`
- export the resulting video into a youtube friendly format (google-terms)
- the resulting video can be streamed using VLC while it's being created
- a log file is created with the framerate and every tear + fps
- a graph can be plotted with an alpha channel embedded into the video

2.2 Program Diagram



3 Example usage

3.1 Command Line Interface

```
# Creates a new annotated video with defaults
#
$ trdrop_cbin video_01.raw > converted_video.mp4

# Creates a new annotated video and VLC is used to visualize the result
#
$ trdrop_cbin video_01.raw > converted_video.mp4 | vlc

# Creates a new annotated video from multiple inputs
#
$ trdrop_cbin video_01.raw video_02.raw video_03.raw video_04.raw > converted_video.mp4
```

4 Future work