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Real-time Video Text Detection and Recognition

General

The video text detection and recognition module provides an efficient way to extract text inserts from video and to transform them into a textual representation. This opens the possibility to use commercial text search algorithms for video data. Video frames are analyzed for the presence and position of text inserts in video real-time. Detected text regions are processed by a commercial state-of-the-art Optical Character Recognition (OCR) system.
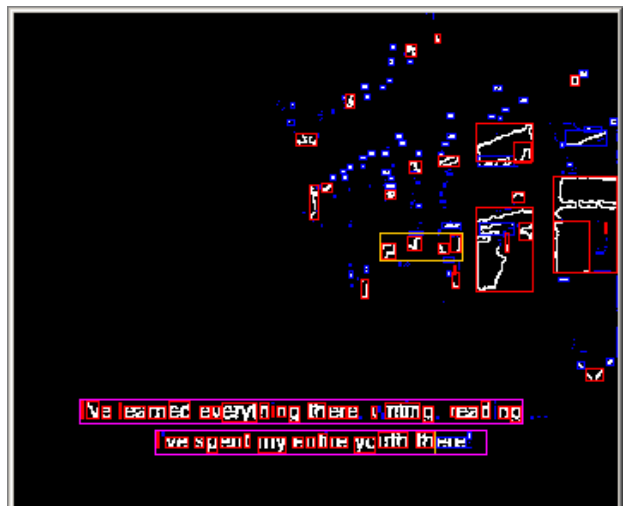
Detection of text inserts

The text insert detection on single video frames is a fast algorithm basing on edge detection combined with heuristics on properties of the appearance of typical text inserts. The detection of text inserts in a single frame generates a set of candidates for text inserts that will subsequently be validated or revised by temporal analysis.
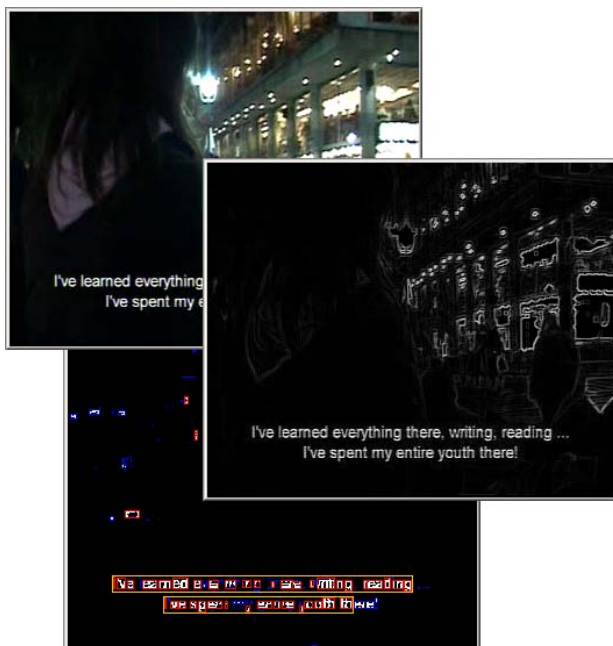
Single frame text insert detection

Temporal analysis of text inserts

Temporal analysis accumulates individually detected text regions of single frames into stable spatio-temporal candidates for regions most likely containing text inserts, while eliminating false positives, reducing region errors caused by wrong detected words or missing characters. The temporal analysis increases also the subsequent character

recognition rate by selecting the best quality frame as input for the OCR software.

Temporal analysis of text inserts

OCR on detected text regions

Finally, only those detected regions containing real text inserts are selected from the original video frame and fed into a commercial OCR system provided by a third party vendor. The preceding step ensures that the complex OCR task is triggered only when needed, enabling the entire module working on video speed. Deselecting non-text parts of the video frames finally increases the entire recognition accuracy. **Real-time Video Text Detection and Recognition** can easily be integrated into existing digital media asset management systems.

I've learned everything there, writing, reading ...
I've spent my entire youth there!

OCR result in detected text region