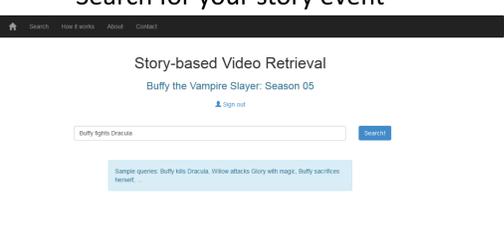


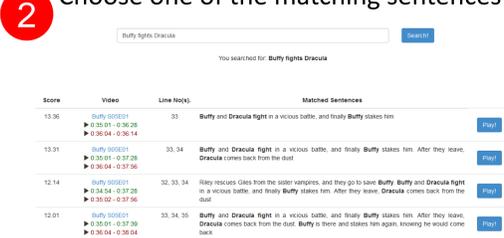
Contributions

- Automatic retrieval of video snippets related to events in a storyline
- Alignment of human written natural language descriptions (plot synopses) to shots of a video
- Annotations for alignment of text to video for complete season 5 of Buffy the Vampire Slayer

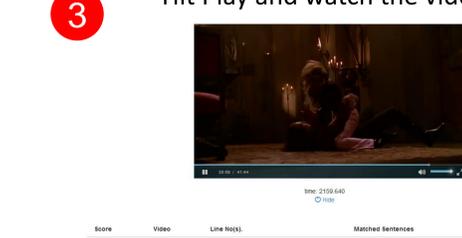
1 Search for your story event



2 Choose one of the matching sentences



3 Hit Play and watch the video



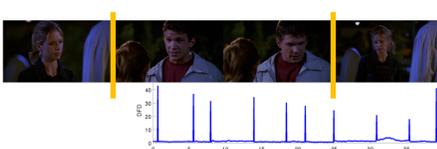
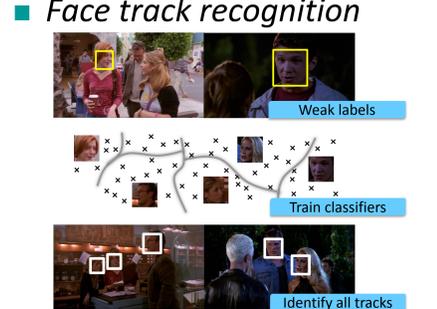
Motivation

While concept-based video retrieval is a big step forward from low-level content-based search, it searches only for mid-level events. In this work, we propose to use crowd-sourced information such as plot synopses on Wikipedia for structured videos (TV series, movies) to augment the video information and allow story-related queries within a long storyline.

Text Processing

- Part-of-speech tagging**
Buffy/NNP awakens/VBZ to/TO find/VBP Dracula/NNP in/IN her/PRP bedroom/NN ./ She/PRP is/VBZ helpless/JJ against/IN his/PRP powers/NN and/CC unable/JJ to/TO stop/VB him/PRP from/IN biting/VBG her/PRP ./
- Coreference resolution**
Buffy awakens to find Dracula in her bedroom. She is helpless against his powers and unable to stop him from biting her. When she wakes the next morning ...

Video Processing

- Shot detection**

- Face track recognition**


Text-Video Alignment

- Idea**
Compute a similarity score between every shot and every sentence.



Cues

Person identities



130	131	132	133	134	
WRiley	WRiley	WSpike	WDrac	0	Riley asks Spike about Dracula, but the former ...
0	0	0	WDrac	WBuffy	Buffy awakens to find Dracula in her bedroom.

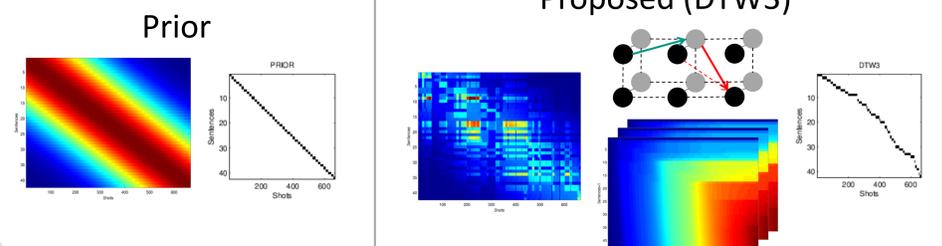
Subtitle matching



Giles has Willow start scanning books into a computer so there can be resources for the gang to use.

He then tells her that he's going to England because it seems he's no longer needed by Buffy.

Alignment methods



Data and Story-events

- Buffy the Vampire Slayer (season 5, 22 episodes)
- Data statistics
 - 15700+ shots
 - 800+ sentences
 - 21000+ face tracks
 - Per episode: 720 shots, 36 sentences
- Story events
 - 62 queries (fan-forum + annotators)



M. Tapaswi, M. Bäuml, and R. Stiefelhagen. Story-based Video Retrieval in TV series using Plot Synopses. In *ACM International Conference on Multimedia Retrieval (ICMR)*, 2014.

Contact

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Project page (data and code)

http://cvhci.anthropomatik.kit.edu/projects/mma



Results

- BF-1:27. Dracula talks to Buffy of all the things he will do for her while she struggles to regain control of herself.
- BF-1:28. Xander tries to stop Riley from going after Dracula, but Riley knocks him out with one punch.
- BF-1:29. Giles finds himself victim to the Three Sisters who effectively keep him distracted.



Alignment Evaluation (fraction of shots assigned to correct sentence)

Method	Buffy E01	Buffy E02	Buffy E03	Buffy E04	Average E01 - E22
Human	81.5	86.4	77.5	72.8	-
Prior	2.9	23.8	27.9	8.8	10.11
Character ID	DTW3	42.2	43.8	40.4	41.17
Subtitles	DTW3	20.4	48.4	35.3	37.00
Char-ID+Subt.	DTW3	40.8	51.3	41.4	49.16

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