TRECVID 2022 MOVIE SUMMARIZATION INTRODUCTION AND TASK OVERVIEW

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Task Definition

- An important need in many situations involving video collections (archive video search/reuse, personal video organization/search, movies, tv shows, etc.) is to summarize the video in order to reduce the size and concentrate the amount of high value information in the video track.
- The task in 2022 is an extension to the VSUM task which made use of the BBC Eastenders dataset in 2020 & 2021.
- The goals for this track are to:
 - 1. Efficiently capture important facts about certain persons during their role in the movie storyline.
 - 2. Assess how well video summarization and textual summarization compare in this domain.
- This track is comprised of two main tasks:
 - 1. Video Summary
 - 2. Text Summary



Task Definition – Video Summary

System task:

- Given:
 - whole original movie (e.g 1.5 2hrs long)
 - a character
 - and image / video examples of that character
- Generate a video summary highlighting major key-fact events about the character. Video summaries will be limited by a maximum summary length.



Task Definition – Text Summary

System task:

- Given:
 - whole original movie (e.g 1.5 2hrs long)
 - a character
 - and image / video examples of that character
- Generate a textual summary to include key-fact events about the character role in the movie. Textual summaries will be limited by a maximum number of sentences.



Data

- Dataset comprised of 10 movies licensed from Kinolorber¹.
 - Long duration videos with a self-contained storyline.
 - Videos range from 79 minutes in length to 92 minutes.



¹https://kinolorberedu.com/



What is a Key-Fact Event?

- Any events that are important and critical in the character storyline.
- They should cover his/her role from the start to the end of the movie.
- Example : From the example movie "Super Hero" (below) Character: Jeremy:
 - Charlie bullies Jeremy
 - Charlie and Jeremy fight at the playground
 - Jeremy's mother reveals to the principal that Jeremy has a terminal illness
 - Jeremy gets admitted to the hospital
 - Jeremy passes away



Annotation Process

- A set of 10 human annotators:
 - Watched each movie
 - Selected 1 2 key characters for each movie
 - Extracted key-facts for each character
 - Key-facts later sanity checked by the TRECVID team



Movies and Selected Characters

- Archipelago
 - Cynthia
 - Edward
- Chained for Life
 Mabel
- Heart Machine
 - CodyVirginia
- Bonneville
 - > Arvilla
- Littlerock
 - Atsuko
 - > Cory













Assessment – Video Summary

- Assessors watched submitted video summary.
- For clips which matched with key-facts provided by prior annotators, assessors ticked the box for that key-fact and provided the clip number.
- Assessors then provided subjective ratings on the quality of the summary:
 - For Tempo and Rhythm (1 7, 7 is best)
 - ➢ Contextuality (1 − 7, 7 is best)
 - ➢ Redundancy (1 − 7, 1 is best)



Assessment – Text Summary

- Assessors read the submitted text summary.
- Text summaries displayed the list of key-facts sentences first followed by the complete text including both the key-facts and filler sentences.
- For key-facts sentences that could be said to be similar to a ground-truth key-fact, assessors ticked the box for that key-fact and provided the full sentence.
- Assessors then provided subjective ratings on the quality of the summary:
 - \succ Readability (1 7, 7 is best)
 - \succ Contextuality (1 7, 7 is best)
 - ➢ Redundancy (1 − 7, 1 is best)



Metrics

- All metrics normalized (0.000 1.000).
- Objective-all is equivalent to recall (correct key-facts / number of key-facts).
- Precision = correct key-facts / total submitted.
- Subjective ratings 1 7 also normalized. For example, a redundancy rating of 2, where 1 is best, is flipped to become 6/7, which is equal to 0.857.



Annotation Tool – Video Summaries

littlerock-cory-1



video summaries:



Movie Video Summarization

Task: You are given a video summary of a movie character, and list of textual key-facts about that character. Please watch the summary and select the key-facts that are shown in the video summary. Write the clip number that this key-fact appears at (clip numbers are shown in the top left corner of the video while playing).

empo and Rhythm: (1 - 7, high is best)	
/alue: 4	
Contextuality: (1 - 7, high is best)	
duc. 4	
alue: 4	
Cory meets Atsuko and her brother Rintaro at a party in a motel room.	
Cory tells Atsuko that his mother is dead.	
Cory wants to be a model and an actor and go to Hollywood.	
Cory owes Brody \$200, but only has \$50 to give him now.	
Brody gives Cory one hour to get the \$150 he owes him.	
Cory work for his father and does not like it.	
Cory was worried when Atsuko did not come back to the motel last night.	
Cory asks his father if Atsuko could stay with them since her brother left.	
Cory takes money out of the till at Mica's Restaurant where he works.	
Cory takes Atsuko to a July 4th parade.	
Cory says he loves Atsuko.	
Brody comes to the restaurant looking for Cory but is told he is not there.	
Cory tries to kiss Atsuko, who pushes him away.	
Cory asks to borrow a couple hundred dollars from his father, who refuses to give it to him.	
Cory confesses that Brody gave him drugs to sell and Cory smoked them, and cannot pay Brody back.	
Cory is observing his work in the art opening and is happy.	
Submit your key-facts assessments	



Annotation Tool – Text Summaries

little_rock.cory.1

cory speaking to the camera while holding up a microphone. cory sitting in a chair and leads into her holding a cigarette. cory standing in front of a large crowd of people and leads into a. cory talking to the camera and leads into a woman walking into a building. cory speaking to the camera while holding up a microphone. cory standing on a ladder and looking off into the distance. A man in a white shirt is standing on a horse. cory sitting on a bed with a woman standing in front of a camera. cory sitting on a table with a person standing in front of a large. cory shown again in the water and the camera shows the camera. cory speaking to the camera and leads into a woman holding a bottle. cory walking into a room and looking at the camera. cory sitting in a chair with a person standing in front of a camera. cory walking into a large pile of water and leads into a man holding. A man and a woman are standing in a room with a woman in a suit and. cory standing on a boat with a large wave and looking back to the.

A group of people are riding around on a beach with one another, cory speaking to the camera while holding up a microphone. cory speaking to the camera while holding up a microphone. cory sitting in a chair and leads into her holding a cigarette. cory sitting in a chair and leads into her holding a cigarette. cory standing in front of a large crowd of people and leads into a. cory standing in front of a large crowd of people and leads into a. cory standing in front of a large crowd arge crowd of people and leads into a. cory tainding the tot the camera and leads into a worman walking into a building, cory speaking to the camera while holding up a microphone. cory standing on a ladder and looking off into the distance.

Text Summaries:

little_rock.cory.1	
little_rock.cory.2	
little_rock.cory.3	
little_rock.cory.4	
little_rock.cory.5	
little_rock.cory.6	
little_rock.cory.7	
little_rock.cory.8	
little_rock.cory.9	
little_rock.cory.10	
little_rock.cory.11	

Movie Text Summarization

Task: You are given a text summary of a movie character, and list of textual key-facts about that character. Please read the summary and select the key-facts that are written/mentioned/infered in the text summary. When you find a matching key-fact, please copy and paste the part (text segment) in the summary that matches it.

Readability: (1 - 7, high is best)
Value: 4
Contextuality: (1 - 7, high is best)
Value: 4
Redundancy: (1 - 7, low is best)
Value: 4
Cory meets Atsuko and her brother Rintaro at a party in a motel room.
Cory tells Atsuko that his mother is dead.
Cory wants to be a model and an actor and go to Hollywood.
Cory owes Brody \$200, but only has \$50 to give him now.
□ Brody gives Cory one hour to get the \$150 he owes him.
Cory was worride when Asuke dia to the motal last night
Cory asks his father if Atsuko could stay with them since her brother left.
□ Cory takes money out of the till at Mica's Restaurant where he works.
Cory takes Atsuko to a July 4th parade.
Cory says he loves Atsuko.
Brody comes to the restaurant looking for Cory but is told he is not there.
Cory tries to kiss Atsuko, who pushes him away.
□ Cory asks to borrow a couple hundred dollars from his father, who refuses to give it to him.
Conv confesses that Brody days him drugs to sell and Conv smoked them and cannot hav Brody back
Son younesses and brody gare him stugs to set and cory sinored urien, and campo pay brody back.
Corv is observing his work in the art opening and is happy.
Submit your kew-facts assessments



MSUM 2022: 1 Finisher (out of 8)

Team	Organization
NII_UIT	National Institute of Informatics, Japan and University of Information Technology, VNU-HCMC, Vietnam



Video Summary Results – Archipelago



Character Cynthia
 performs best



Video Summary Results – Chained for Life





Video Summary Results – Heart Machine

- Character Cody performs best
- Not much difference in performance between characters





Video Summary Results – Bonneville





Video Summary Results – Littlerock

- Character Atsuko performs best on objective metrics
- Character Cory performs best on subjective metrics





Text Summary Results – Archipelago

Character Edward
 performs best





Text Summary Results – Chained for Life





Text Summary Results – Heart Machine

- Character Virginia performs best on objective metrics
- Very little difference in performance on subjective metrics





Text Summary Results – Bonneville





Text Summary Results – Littlerock

- Character Cory
 performs best
- Character Atsuko scores zero on objective metrics





Best Video Summary – Littlerock – Cory.2





Best Text Summary – Littlerock – Cory.3

cory speaking to the camera while holding up a microphone. cory sitting in a chair and leads into her holding a cigarette. cory talking to the camera and leads into a woman walking into a building. cory speaking to the camera while holding up a microphone. cory standing on a ladder and looking off into the distance. A man in a white shirt is standing on a horse. cory sitting on a bed with a woman standing in front of a camera. cory sitting on a table with a person standing in front of a large. cory speaking to the camera and leads into a woman holding a bottle. cory walking into a room and looking at the camera. cory sitting in a chair with a person standing in front of a camera. cory walking into a large pile of water and leads into a man holding. A man and a woman are standing in a room with a woman in a suit and. cory sitting on a chair with a camera.



A group of people are riding around on a beach with one another. cory speaking to the camera while holding a stick and leads into a woman. cory standing on a beach with a large group of people and looking back. cory speaking to the camera while holding up a microphone. cory sitting in a chair and leads into her holding a cigarette. cory talking to the camera and leads into a woman walking into a building. cory speaking to the camera while holding up a microphone. cory standing on a ladder and looking off into the distance. cory sitting on a bed with a person walking on the floor. A man in a white shirt is standing on a horse. cory standing on a ladder and begins walking around a large area. cory sitting on a bed with a woman standing in front of a camera. cory sitting on a bed with a woman standing in front of a camera. cory kneeling down on a long road with a large set of weights. cory kneeling down on a long road with a large set of weights. cory sitting on a table with a person standing in front of a large. cory shown again in the water and the camera shows the camera. cory speaking to the camera and leads into a woman holding a bottle. cory speaking to the camera and leads into a woman holding a bottle. cory walking into a room and looking at the camera. cory walking into a room and looking at the camera. cory walking into a room and looking at the camera. cory sitting in a chair with a person standing in front of a camera. cory sitting on a bed. cory walking into a large pile of water and leads into a man holding. A man and a woman are standing in a room with a woman in a suit and. cory walking along a road with a long rope in his hands. cory walking along a road with a long rope in his hands. cory walking along a road with a long rope in his hands. cory sitting on a chair with a camera. cory riding along the water with a large dog. We see an opening title screen.



Conclusions

- 1. Objective results (recall of key-facts) were better for Littlerock video summary than for any other submitted video summaries.
- 2. Objective results (recall of key-facts) were better for Heart Machine text summary than for any other submitted text summaries.
- 3. Objective results were also much better in general for video summaries than for text summaries.
- 4. Subjective results (tempo, contextuality, redundancy) were better for Heart Machine video summary than for any other summaries.



Conclusions

- 5. In general, results for text summaries were much lower than results for video summaries.
- 6. Subjective results (tempo, contextuality, redundancy) were very similar for Heart Machine and Littlerock text summaries. Both performed much better than any other text summaries.
- 7. 8 teams registered for this years task. Out of these only 1 team submitted runs. This leads to debate over whether this task should remain.
- If this task is to remain, a debate still needs to happen about whether to include the text summary sub-task. A lot of submitted text summaries were well below expectations, particularly the readability of said summaries.

