# Long Input Dialogue Summarization with Sketch Supervision for Summarization of Primetime Television Transcripts

InoTUM Entry to the CreativeSumm 2022 Shared Task











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## Problem

### Primetime television screenplay summarization on the SummScreen Forever Dreaming dataset

- dialogues extremely long in size
- complex plots with important developments spread across the single utterances and utterance combinations
- scene descriptions in between utterance blocks

## Data: SummScreen Forever Dreaming (FD)

- TV series episode transcripts with corresponding hand-written summaries as gold labels
- Instance count:
  - train 4008
  - validation 337
  - test 459
- Transcript length:
  - min 1934
  - max 21425
  - avg 7587

- Summary length:
  - min 8 - max 822 - avg 111

Leo: Piper? Piper: Hm? Leo: What are you doing? (Leo sits up. Piper walks out of the nursery carrying a packet of diapers.) Piper: I'm putting the diapers back where they belong, that is what I'm doing. (She puts the diapers on a shelf.)

Example of a screenplay snippet from SummScreen-FD with environment or character descriptions (in brackets)

### **Previous Approaches**

- <u>Coreference-Aware Dialogue Summarization</u>
- <u>Multi-View Sequence-to-Sequence Models with Conversational Structure</u>
- <u>Controllable Abstractive Dialogue Summarization with Sketch Supervision</u> (CODS)
- BART/HMNet/Longformer approaches
- <u>SummN: A Multi-Stage Summarization Framework for Long Input Dialogues</u>

## Approach Used in this Submission

- <u>Coreference-Aware Dialogue Summarization</u>
- Multi-View Sequence-to-Sequence Models with Conversational Structure
- <u>Controllable Abstractive Dialogue Summarization with Sketch Supervision</u> (CODS)
- End-to-end BART/HMNet/Longformer approaches
- <u>SummN: A Multi-Stage Summarization Framework for Long Input Dialogues</u>

## Approach Used in this Submission

- <u>Controllable Abstractive Dialogue Summarization with Sketch Supervision</u> (CODS)
- With some modifications:
  - without text segmentation (expected performance gain negligible)
  - with modified utterance intent model (see next slides)

### Architecture













- clean up
- annotate utterances' meaningful overlap with the gold labels



syntax-driven sentence compressionBerkeley Neural Parser







#### Example of a summary + sketch

#### target (sketch + gold label)

0 abstain lily marshall waits at the airport 1 abstain during the second year of college, when lily is back from vacation marshall 2 none 3 abstain lily marshall waits at the airport 4 where ted 5 none 6 none 7 abstain ted and marshall are in mcclaren's 8 none 9 none 10 abstain lily want me to take a taxi to the airport just to get a taxi in the opposite direction 11 none 12 none 13 abstain that's all i want in the world 14 abstain runs out of the bar ted barney 15 abstain wanted to see what looks like a license in arizona 16 none 17 what 's good 18 none 19 none **TLDR** Lily comes back from a trip to Seattle only to run into a blizzard, which may threaten an airport ritual of meeting Marshall. Meanwhile, Ted & Barney offer to keep watch over the bar at MacLaren's while awaiting their dates, since Carl wants to close up early.





target (sketch + gold label)	prediction
0 abstain lily marshall waits at the airport 1 abstain during	0 none 1 when when lily is back
the second year of college, when lily is back from vacation	from vacation 2 none 3 none 4 where
marshall 2 none 3 abstain lily marshall waits at the airport	ted 5 none 6 none 7 abstain are in
4 where ted 5 none 6 none 7 abstain ted and marshall are in	mcclaren's 8 none 9 none 10 none
mcclaren's 8 none 9 none 10 abstain lily want me to take a	11 none 12 abstain that's all i want in
taxi to the airport just to get a taxi in the opposite direction	the world 13 abstain ted and barney
11 none 12 none 13 abstain that's all i want in the world 14	14 abstain wanted to see what looks
abstain runs out of the bar ted barney 15 abstain wanted to	like a license in arizona 15 none 16
see what looks like a license in arizona 16 none 17 what 's	what 's good 17 none 18 none 19
good 18 none 19 none <b>TLDR</b> Lily comes back from a trip	what barney leads ted to the bar en-
to Seattle only to run into a blizzard, which may threaten	trance. <b>TLDR</b> When Lily is forced
an airport ritual of meeting Marshall. Meanwhile, Ted &	to spend the holiday in Seattle with
Barney offer to keep watch over the bar at MacLaren's while	her boyfriend, Ranjit, Ted and Bar-
awaiting their dates, since Carl wants to close up early.	ney try to find a bar.

target (sketch + gold label)	prediction		
0 abstain lily marshall waits at the airport 1 abstain during	0 none 1 when when lily is back		
the second year of college, when lily is back from vacation	from vacation 2 none 3 none 4 where		
marshall 2 none 3 abstain lily marshall waits at the airport	ted 5 none 6 none 7 abstain are in		
4 where ted 5 none 6 none 7 abstain ted and marshall are in	mcclaren's 8 none 9 none 10 none		
mcclaren's 8 none 9 none 10 abstain lily want me to take a	11 none 12 abstain that's all i want in		
taxi to the airport just to get a taxi in the opposite direction	the world 13 abstain ted and barney		
11 none 12 none 13 abstain that's all i want in the world 14	14 abstain wanted to see what looks		
abstain runs out of the bar ted barney 15 abstain wanted to	like a license in arizona 15 none 16		
see what looks like a license in arizona 16 none 17 what 's	what 's good 17 none 18 none 19		
good 18 none 19 none TLDR Lily comes back from a trip	what barney leads ted to the bar en-		
to Seattle only to run into a blizzard, which may threaten	trance. TLDR When Lily is forced		
an airport ritual of meeting Marshall. Meanwhile, Ted &	to spend the holiday in Seattle with		
Barney offer to keep watch over the bar at MacLaren's while	her boyfriend, Ranjit, Ted and Bar-		
awaiting their dates, since Carl wants to close up early.	ney try to find a bar.		

## Results

Model	ROUGE-1	ROUGE-L	BERTScore-F1	LitePyramid-p2c	$SummaC_{ZS}$	Length
LED 1024	0.1428	0.1236	0.4052	0.1371	0.0559	330
LED 4096	0.1694	0.1501	0.4600	0.0337	0.1052	188
LED 16384	0.1514	0.1334	0.4489	0.0337	0.1644	192
InoTUM	0.2860	0.2529	0.5750	0.0673	0.0272	86
Team UFAL	0.2469	0.2300	0.5285	0.0472	0.1282	289
AMRTVSumm	0.2307	0.2106	0.5108	0.0116	0.024	256

### Discussion

- Factual consistency is an issue

good 18 none 19 none <b>TLDR</b> Lily comes back from a trip	what barney leads ted to the bar en-		
to Seattle only to run into a blizzard, which may threaten	trance. TLDR When Lily is forced		
an airport ritual of meeting Marshall. Meanwhile, Ted &	to spend the holiday in Seattle with		
Barney offer to keep watch over the bar at MacLaren's while	her boyfriend, Ranjit, Ted and Bar-		
awaiting their dates, since Carl wants to close up early.	ney try to find a bar.		

### Discussion

- Parameter tuning in the sketch creation process might help improve the results
  - max. number of turns to use for sketch creation (here: 20)
  - keyword quality and relevance
  - underlying utterance classes:
    - finegrain the rules to minimize number of "abstain"s
    - try out a different model than Five Ws

#### prediction

0 none 1 when when lily is back from vacation 2 none 3 none 4 where ted 5 none 6 none 7 abstain are in mcclaren's 8 none 9 none 10 none 11 none 12 abstain that's all i want in the world 13 abstain ted and barney 14 abstain wanted to see what looks like a license in arizona 15 none 16 what 's good 17 none 18 none 19 what barney leads ted to the bar entrance. **TLDR** When Lily is forced to spend the holiday in Seattle with her boyfriend, Ranjit, Ted and Barney try to find a bar.

### Thank you!

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