Evaluating long single-document text summarization methods with transfer learning

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The problem

Extractive text summarization cannot effectively summarize long documents.

Well, what about abstractive summarization techniques?

Transformers are typically pre-trained on syntactically correct inputs.

Does this mean they can't correct syntax errors?

Large Transformers are computationally expensive, and many of them require a complex fine-tuning process.

So how can they be used?

Framing model combinations as transfer learning

Method 1: Abstract-to-extract

Method 2: Abstract-to-abstract

PEGASUSForConditionalGeneration

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TextRank

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Ranked abstractive summary

PEGASUSForConditionalGeneration

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BARTForConditionalGeneration

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Doubly abstracted summary

"Colorado can better promote health and healing by reducing its focus on criminal punishments for persons who suffer mental health issues. Colorado can better promote health and healing by reducing its focus on criminal punishments for persons who suffer mental health issues. The purpose of this Natural Medicine Health Act is to establish a new, compassionate, and effective approach to natural medicines. The department shall regulate the manufacture, cultivation, testing, storage, transfer, transport, delivery, sale, and purchase of natural medicines. Not later than January, the department shall adopt rules to establish the qualifications, education, and training requirements that facilitators must meet prior to providing natural medicine services. "

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Results

Method 1: Abstract-to-extract

ROUGE-L F-1 on ref[0]	ROUGE-L F-1 on ref[1]	BERT F-1 on ref[0]	BERT F-1 on ref[0]	Total
0.386	0.398	0.916	0.891	1.2955

Method 2: Abstract-to-abstract

ROUGE-L F-1 on ref[0]	ROUGE-L F-1 on ref[1]	BERT F-1 on ref[0]	BERT F-1 on ref[0]	Total
0.472	0.431	0.944	0.866	1.356