Mitigating Clickbait: An Approach to Spoiler Generation Using Multitask Learning

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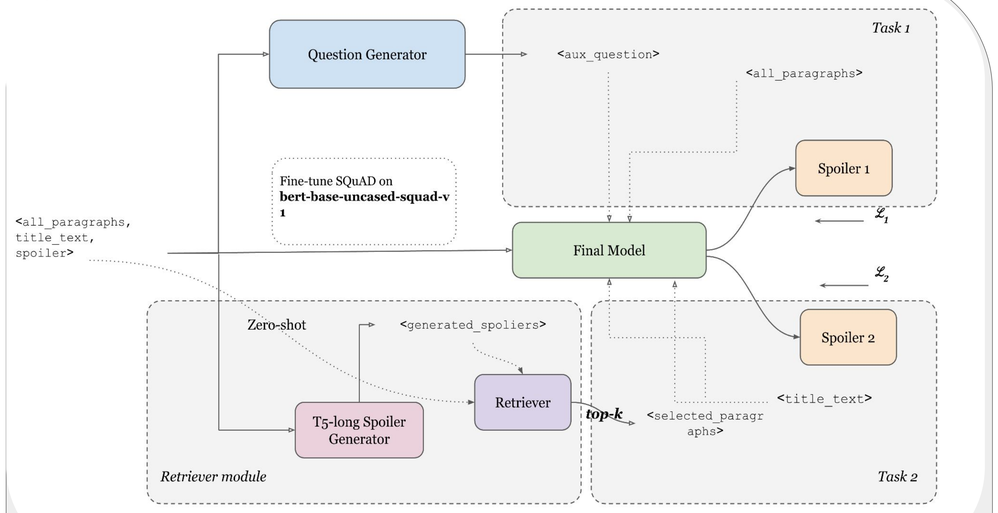
Introduction: Our study addresses the prevalence of misleading 'clickbait' in the digital era by developing 'clickbait spoiling', which provides accurate content summaries.

Background: The increasing dissatisfaction caused by clickbait in digital media has fueled the need for 'clickbait spoiling', a technique for creating honest, brief content spoilers.

Research Goal: Our research aims to enhance 'clickbait spoiling' by improving the accuracy and relevance of spoiler generation for different types of clickbait content.

Methodology:

- Our method tackles clickbait through a two-step process, initially **classifying spoilers** into categories like **phrases, passages, or multi-spoilers**.
- Secondly, **generating contextually precise and informative spoilers** using a **multi-task learning** framework.
- This dual approach ensures both accurate categorization and effective spoiler creation, addressing the complexities of clickbait content.



Overview of the Multitask Learning Learning Spoiler Generation Model

Conclusion: Our research enhances clickbait spoiling, especially in minimal context, highlighting LongT5's superiority for extended spoilers and setting the stage for further optimization.

Future Work: Future efforts will focus on adaptive multitask learning strategies and detailed statistical analysis to validate performance improvements.

Examples of different categories of clickbait spoilers from webis

Model Name	Eval Acc	Test Acc	Eval F1	Test F1
DistilBERT	67.8	67.7	67.7	66.2
Longformer	68.75	68.43	67.56	66.46
RoBERTa	71.8	71.46	70.3	70.26
RoBERTa-Large	**73.56**	**75**	**72.59**	**73.74**

Comparison of model performances for Spoiler Classification Task

Model	BLEU-4	METEOR	BERT Sc.
BERT-b-u (v)	56.96	47.44	76
BERT-b-u (t)	52.79	59.16	84
BERT-b-u (MTL) (v)	47.69	40.12	67
RoBERTa-b (v)	64.11	53.92	79
RoBERTa-b (t)	61.26	53.82	78
Our RoBERTa-l (v)	73.36	61.38	84
Hagen et al. RoBERTa-l (v)(n=97)*	79.47	78.61	84.04
Our RoBERTa-l (t)	**68.35**	60.79	**83**
Hagen et al. RoBERTa-l (t)	65.70	66.15	74.81

Phrase Spoiler Generation Results

Model	BLEU-4	METEOR	BERT Score
Hagen et al.	-	-	-
LongT5	81.55	85.39	96.67

Multi Spoiler Generation Results

Model	BLEU-4	METEOR	BERT Score
BERT-b-u (v)	21.11	22.72	52.68
BERT-b-u (t)	17.09*	23.65*(335)	53.62(335)
BERT-b-u (MTL) (v)	14.28	13.21	44
BERT-b-u (MTL) (t)	**17.78***	22.56*(335)	53*(335)
RoBERTa-b (v)	26.73	27.97	58
RoBERTa-b (t)	21.81*	29.72*(335)	58*(335)
RoBERTa-b (MTL) (v)	**26.86**	**28.14**	54
RoBERTa-b (MTL) (t)	**22.59***	**32.67*(335)**	**60(335)**
RoBERTa-l (v)	30.67	32.78	58
RoBERTa-l (t)	26.52	36.66(335)	63(335)
RoBERTa-l (MTL) (v)	29.71	30.99	56
RoBERTa-l (MTL) (t)	26.65	36.42(335)	63(335)
Hagen et al. (Best)	31.44	46.06	51.06
LongT5 (v) (our best)	**88.72**	**90.29**	**97.98**
LongT5 (t) (our best)	**90.10**	**90.81**	**98.17**

Passage Spoiler Generation Results——Here the letter b stands for the base, l stands for large, and c/u denotes cased or uncased, (v) means validation samples, (t) means test samples, * means the setting includes re- duction of context. Total passage spoilers in validation samples were 322, and test samples were 403, and Num- bers in the brackets indicate a subset of size n (random sample)