Clickbait Spoiling via Question Answering and Passage Retrieval

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Clickbait Spoiling via Question Answering and Passage Retrieval

Spoilers: The Dark Side

LUKE, I AM YOUR FATHER
A spoiler is a short summary that reveals details of a plot

Accidentally seeing a spoiler may ruin the experience

Wikipedia had spoiler alerts until 2007
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Spoilers: The Dark Side

- A spoiler is a short summary that reveals details of a plot
- Accidentally seeing a spoiler may ruin the experience
- Wikipedia had spoiler alerts until 2007
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Spoilers: The Light Side

How to keep your workout clothes from stinking:
lifehac.kr/57YOuEZ

Clickbait  [Potthast et al., 2018]

- Social-media posts that create a curiosity gap to generate clicks
- Resolution is usually ordinary or trivial
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Spoilers: The Light Side

Clickbait [Potthast et al., 2016]

- Social-media posts that create a curiosity gap to generate clicks
- Resolution is usually ordinary or trivial

Clickbait Spoiling

- Generating a short text that satisfies the curiosity gap
Webis Clickbait Spoiling Corpus 2022

Corpus Construction

Goal: 5,000 spoilable clickbait posts with high quality annotations

-One weird trick for not losing your iPhone 7 headphone dongle slct.al/2gbEv5

2:07 vorm. · 15 Nov. 2016 · SocialFlow

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Webis Clickbait Spoiling Corpus 2022
Corpus Construction

Goal: 5,000 spoilable clickbait posts with high quality annotations

Starting point:
- 5 social media accounts that manually spoil clickbait
- Webis Clickbait-17 dataset

560 hours annotation effort:
- Manual post selection, main content extraction, and spoiler identification
- 3 types of spoilers: Phrase, Passage, Multi
Webis Clickbait Spoiling Corpus 2022

Spoiler Types

- **Phrase**
  - $\leq5$ consecutive words
  - Often entities and nouns

- **Passage**
  - $>5$ consecutive words
  - Often Descriptions

- **Multipart**
  - Lists closing multiple curiosity gaps

- **Example for Phrase**
  - Someone is typing.

- **Example for Passage**
  - Just leave the dongle attached to the headphones.

- **Example for Multipart**
  - 1. Set Your Alarm with Precision
    2. Write Down 1 Daily Intention
Webis Clickbait Spoiling Corpus 2022

Spoiler Types

- **Phrase**
  - \( \leq 5 \) consecutive words
  - Often entities and nouns

- **Passage**
  - \( >5 \) consecutive words
  - Often Descriptions

- **Multipart (future work)**
  - Lists closing multiple curiosity gaps

Examples:
- Someone is typing.
- Just leave the dongle attached to the headphones.
- 1. Set Your Alarm with *Precision*
  2. Write Down 1 Daily Intention
### Corpus Overview

<table>
<thead>
<tr>
<th>Spoiler</th>
<th>Entries</th>
<th>Corpus splits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Train</td>
</tr>
<tr>
<td>Phrase</td>
<td>2,125</td>
<td>1,367</td>
</tr>
<tr>
<td>Passage</td>
<td>1,999</td>
<td>1,274</td>
</tr>
<tr>
<td>Multipart</td>
<td>876</td>
<td>559</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>5,000</strong></td>
<td><strong>3,200</strong></td>
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Supported Subtasks

Spoiler type classification

- Input: Post, Article
- Output: Phrase, Passage, Multipart

Spoiler generation

- Input: Post, Article, Spoiler type
- Output: text that satisfies the curiosity gap of the post
Spoiler Type Classification

Feature-Based Models

- Models: Naïve Bayes, Logistic Regression, SVM
- Features: $tf / tf \cdot idf$ of uni/bi-grams from the post and the linked web page
- Chi-square feature selection

Transformer Models

- Models: BERT, DeBERTa, and RoBERTa
- Input: Post + main content of the linked page
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Results (Phrase vs. Passage)

<table>
<thead>
<tr>
<th>Model</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naïve Bayes</td>
<td>67.07</td>
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<tr>
<td>SVM</td>
<td>69.61</td>
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<tr>
<td>Log. Regression</td>
<td>70.10</td>
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<tr>
<td>BERT</td>
<td>76.27</td>
</tr>
<tr>
<td>DeBERTa</td>
<td>79.06</td>
</tr>
<tr>
<td>RoBERTa</td>
<td><strong>80.39</strong></td>
</tr>
</tbody>
</table>
Spoiler Generation
Effectiveness (1)

- Dedicated models per spoiler type
  - Question answering for phrase spoilers
  - Passage retrieval for passage spoilers
- Pilot study with 20 models
- Question answering models first fine-tuned on SQuAD then on our corpus

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Phrase Spoilers</th>
<th></th>
<th>Passage Spoilers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BERTScore</td>
<td>P@1</td>
<td>BERTScore</td>
<td>P@1</td>
</tr>
<tr>
<td>Question</td>
<td>BERT (baseline)</td>
<td>71.06</td>
<td>66.67</td>
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<tr>
<td>Answering</td>
<td>DeBERTa-large</td>
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<td>RoBERTa-large</td>
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<td>53.85</td>
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<td>Passage</td>
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<td>19.94</td>
<td>8.27</td>
<td>34.71</td>
<td>4.22</td>
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<tr>
<td>Retrieval</td>
<td>monoBERT</td>
<td>20.66</td>
<td>42.08</td>
<td>36.58</td>
<td>26.05</td>
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<tr>
<td></td>
<td>monoT5</td>
<td>20.98</td>
<td>43.97</td>
<td>36.70</td>
<td>29.03</td>
</tr>
</tbody>
</table>
## Spoiler Generation

### Effectiveness (2)

- Ablation study: Do we need spoiler type classification?

<table>
<thead>
<tr>
<th>Two-Step Pipeline</th>
<th>End-to-End Effectiveness</th>
</tr>
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<tr>
<td></td>
<td>BERTScore</td>
</tr>
<tr>
<td>Type Classification</td>
<td>Spoiler Generation</td>
</tr>
<tr>
<td>RoBERTa</td>
<td>DeBERTa</td>
</tr>
<tr>
<td>None</td>
<td>DeBERTa</td>
</tr>
<tr>
<td>Oracle</td>
<td>DeBERTa</td>
</tr>
</tbody>
</table>
Conclusion

New Task: Clickbait spoiling

- Present a short text that satisfies the curiosity induced by a clickbait post

Webis Clickbait Spoiling Corpus 2022

- First large resource for clickbait spoiling

First baselines for clickbait spoiling

Code and data: github.com/webis-de/acl-22
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Future work

Explore other approaches to clickbait spoiling

- Paraphrase a clickbait post so that it contains its own spoiler

Multipart spoilers

- Summarization models to select the different parts of the document
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Thank You!