

Improving Coherence of Neural Extractive Summarization with Reinforcement Learning

Jimmy Wu

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Abstract

Work in progress

Problem setting: neural extractive summarization

Research gap: coherence under this setting received little attention

Contribution: an end-to-end model for enhancing coherence

Evaluation and conclusion: WIP

1 Introduction

2 Related Works

Limitations of previous extractive summarization models using Deep Learning:

1. They do not take coherence into consideration.

Drawbacks of previous methods that tries to enhance coherence for summaries:

1. Previous methods are developed based on **hand-crafted low level features** such as entity-grid or word co-occurrence.
2. Automatic evaluation of coherence is based on linguistic theorems such as Centering theorem and other similarity discovered by linguistics, which are in turn based on the observation of what is coherent text and what is not. This process is **not data-driven** and is doomed to be based by human observation.
3. The introduction of coherence is often through post-processing. It does not directly effect the probability that a sentence is chosen? (this is doubtful)

Related works are summarized as follows:

(Nayeem and Chali, 2017): MDS setting. Use TextRank + RAKE ensemble to select sentences. Coherence defined as sum of similarities of all adjacent sentences. A greedy selection algorithm is used to get an ordering of the selected

sentences. **Limitation:** BOW feature ignores sequential information in sentence. Sentence-to-sentence coherence is limited in modeling coherence among multiple sentences. Multi-stage, not end-to-end. **Inspiration:** could use automatic evaluation metric.

3 Model

References

Mir Tafseer Nayeem and Yllias Chali. Extract with order for coherent multi-document summarization. *TextGraphs-11*, page 51, 2017.