Storylines

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1 Introduction

Our goal is to improve the coherency of generative story models by modeling storylines. As an alternative to black-box models with little explicit structure, prior work has noted that including structure in the generative model improves coherence in the generations [1, 3].

However, prior investigations into narrative structure used hand-crafted representations, such as entity coreference or keywords. We hope to alleviate the need for hand-crafted structure via structured generative models.

2 Storyline Discovery with SBERT

We first investigate whether we can recover structure that resembles a storyline using pretrained models. In particular, we use SBERT [2] to map sentences $\mathbf{x}_i \in \mathcal{X}^*$ to vector representations $\mathbf{y}_i \in \mathbb{R}^n$. As each story consists of several sentences, we obtain a sequence of representations corresponding to each sentence in a given story $\mathbf{Y} = \langle \mathbf{y}_0, \ldots, \mathbf{y}_T \rangle$. We then compute an alignment between the sentences of two stories using DTW.

We evaluate the efficacy of SBERT and DTW without fine-tuning by determining whether $DTW(Y_i, Y_j)$ correlates with an intuitive distance of stories.

Global

3 Multisequence Alignment

Although we found that the pairwise comparison using DTW correlated with intuitive distance, the alignments themselves had issues. We hope to extract robust storylines, common to multiple stories. To accomplish this, we turn to multisequence alignment (MSA) which considers multiple stories and produces a global alignment involving all stories.

Global

4 A Generative Model

Both pairwise and multisequence alignment methods do not serve as good generative models, instead focusing on structure discovery.

5 Problem Statement

We would like to learn a

References

[1] Angela Fan, Mike Lewis, and Yann N. Dauphin. Strategies for structuring story generation. *CoRR*, abs/1902.01109, 2019. URL `http://arxiv.org/abs/1902.01109`.

[2] Nils Reimers and Iryna Gurevych. Sentence-BERT: Sentence embeddings using Siamese BERT-networks. In *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing (EMNLP-IJCNLP)*, pages 3982–3992, Hong Kong, China, November 2019. Association for Computational Linguistics. doi: 10.18653/v1/D19-1410. URL `https://www.aclweb.org/anthology/D19-1410`.

[3] Lili Yao, Nanyun Peng, Ralph M. Weischedel, Kevin Knight, Dongyan Zhao, and Rui Yan. Plan-and-write: Towards better automatic storytelling. *CoRR*, abs/1811.05701, 2018. URL `http://arxiv.org/abs/1811.05701`.