Information Summarization and Topics generation

DS 595 Natural Language Processing

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Outline

1. References
2. Introduction
3. Methodology

References

Reference i

- Nallapati, R., Zhou, B., dos Santos, C., Gulçehre, Ç., and Xiang, B. (2016). Abstractive text summarization using sequence-to-sequence RNNs and beyond.
  In Proceedings of The 20th SIGNLL Conference on Computational Natural Language Learning, pages 280–290, Berlin, Germany. Association for Computational Linguistics.
- Raffel, C., Shazeer, N., Roberts, A., Lee, K., Narang, S., Matena, M., Zhou, Y., Li, W., and Liu, P. J. (2020).
  Exploring the limits of transfer learning with a unified text-to-text transformer.

Reference ii

Journal of Machine Learning Research, 21(140):1–67.

- See, A., Liu, P. J., and Manning, C. D. (2017).
  Get to the point: Summarization with pointer-generator networks.
- Sutskever, I., Vinyals, O., and Le, Q. V. (2014).
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  In Ghahramani, Z., Welling, M., Cortes, C., Lawrence, N., and Weinberger, K. Q., editors, Advances in Neural Information Processing Systems, volume 27. Curran Associates, Inc.

Introduction

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- There are a lot of

Problem Statement

Given the document D, we want to generate string h_D such that it summarizes the content in D with accurate information and concise.

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Example

D: At the request of the international war crimes court in The Hague, Bosnian Serb police seized the passports of the wife, son, daughter and son-in-law of Radovan Karadzic, the Bosnian Serb leader during the country's war.

h_D: Bosnia: Police Take Passports of Karadzic Family

Methodology

Literature Review

- As suggested by [Sutskever et al., 2014], RNN model can yield us the promising result but it also yield "artifacts" to the result.

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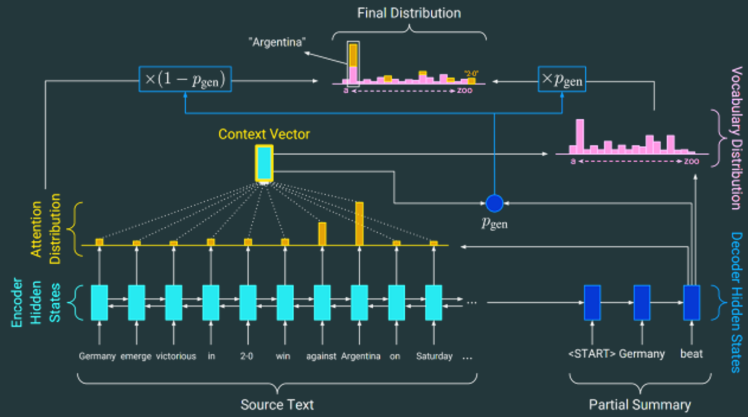
- Bidirectional RNN [Nallapati et al., 2016] shows the better performance.

Architecture



Use bidirectional LSTM along with attention to encode and generate context vector [See et al., 2017].

Architecture

- What if we combined the method proposed by [See et al., 2017] or [Raffel et al., 2020] with generative model?

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- What if we combined the method proposed by [See et al., 2017] or [Raffel et al., 2020] with generative model?
- That is, what if we treat [See et al., 2017] or [Raffel et al., 2020] model as the generator and we then create discriminator on top of that?

Dataset

- NYT news dataset

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- >100K entries of title, topic, abstract, keywords
- Problem: Some punctuation might contains semantic value

Evaluation

- Metric of evaluation: F-1 measure (based on BLEU and ROUGE)