Generative Adversarial Network for Pun Generation

Leena Dighole
lbd47

Amit Chawla
ac1910

Abhishek Bhatt
ab2083

1 Tasks Achieved

After the proposal, we did a thorough review of our main paper (Luo et al., 2019) as well as other papers from which it uses some techniques like (Yu et al., 2018). This exercise helped us to define our tasks under four main heads : data preparation, implementing the generator, implementing the discriminator, and unsupervised generator training with the ambiguity reward.

Over the course of next week, we were able to replicate the data preparation steps. Using the unsupervised WSD tool https://github.com/alvations/pywsd, we tagged each word in the English Wikipedia corpus with a word sense. This labeled dataset will be used to train the generator. Next we implemented the generator architecture. As described in (Yu et al., 2018), given two senses of a word as input, we use an LSTM based seq2seq model to first generate a sentence backward from the target word to "</s>" at the position 0 of the sentence, and then the latter part of this reversed half sentence. We have completed the code and debugging for this network so far. We will now proceed with its training using the full English Wikipedia corpus prepared earlier.

2 Next Steps

As a part of next steps, we are also providing our tentative planned dates for our remaining work and final project.

- Phase 1: (In Progress)
  1. Completing generator training
  2. Discriminator implementation

- Phase 2:
  3. Learning pun generation using Ambiguity Reward
  4. Model execution and Evaluation

- Phase 3:
  5. Experimentation with Architecture/use-cases (If time permits)
  6. Preparing Final Report and Final Presentation Recording

We have divided our remaining work into 3 phases. We are planning to finish the GAN architecture implementation, currently in progress, by 24th April 2021. The second phase will be training the GAN using ambiguity reward and the already prepared corpus by 30th April 2021. The model evaluation and any further debugging is expected to take no longer than 2nd May 2021.
Once we achieve comparable results as in the paper with our PunGAN implementation, we can focus on some extensions to our project. These can be training the model to generated Pun sentences in different languages or re-training the model for other possible sentence generation tasks. But the extensions in phase 3 are strictly subject to whether we finish all the tasks until phase 2 completely. We expect to be able to be ready with a demo ready project by 3rd May 2021. Final Project and Presentations video can be ready by 5th May 2021.

3 Additional Comments

We don't have any evaluation numbers or results at the moment since we haven't trained our GAN setup yet. We can share our results as compared to those in the paper around the time we start evaluating our implementation.

References

Fuli Luo, Shunyao Li, Pengcheng Yang, Lei li, Baobao Chang, Zhifang Sui, and Xu Sun. 2019. Pun-gan: Generative adversarial network for pun generation.

Zhiwei Yu, Jiwei Tan, and Xiaojun Wan. 2018. A neural approach to pun generation. In *Proceedings*

of the 56th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers), pages 1650–1660, Melbourne, Australia. Association for Computational Linguistics.

.