

AI STORY PREDICTOR - HAPPILY EVER AFTER?

ABSTRACT

Language or story generation has a long history of pursuit in artificial intelligence. We present a model which predicts the story ending of texts of varied lengths. We have used **Transformer Based Network** by GPT-2 to generate endings for short stories, Essays and Game of Thrones

BACKGROUND

This is a very recent field in Natural language processing. Although, Google has championed in this field by using Neural Networks to help you write emails but doing something creative like generating second half of the story based on the first half of the story inputted is still an untouched territory. Recurrent neural networks (RNNs) have been the most popular way to solve the problem of text generation, or text completion. In the recent years, **Transformer Based Networks** have replaced Long Short Term Memory (LSTMs), and have been increasingly used to solve the same problem.

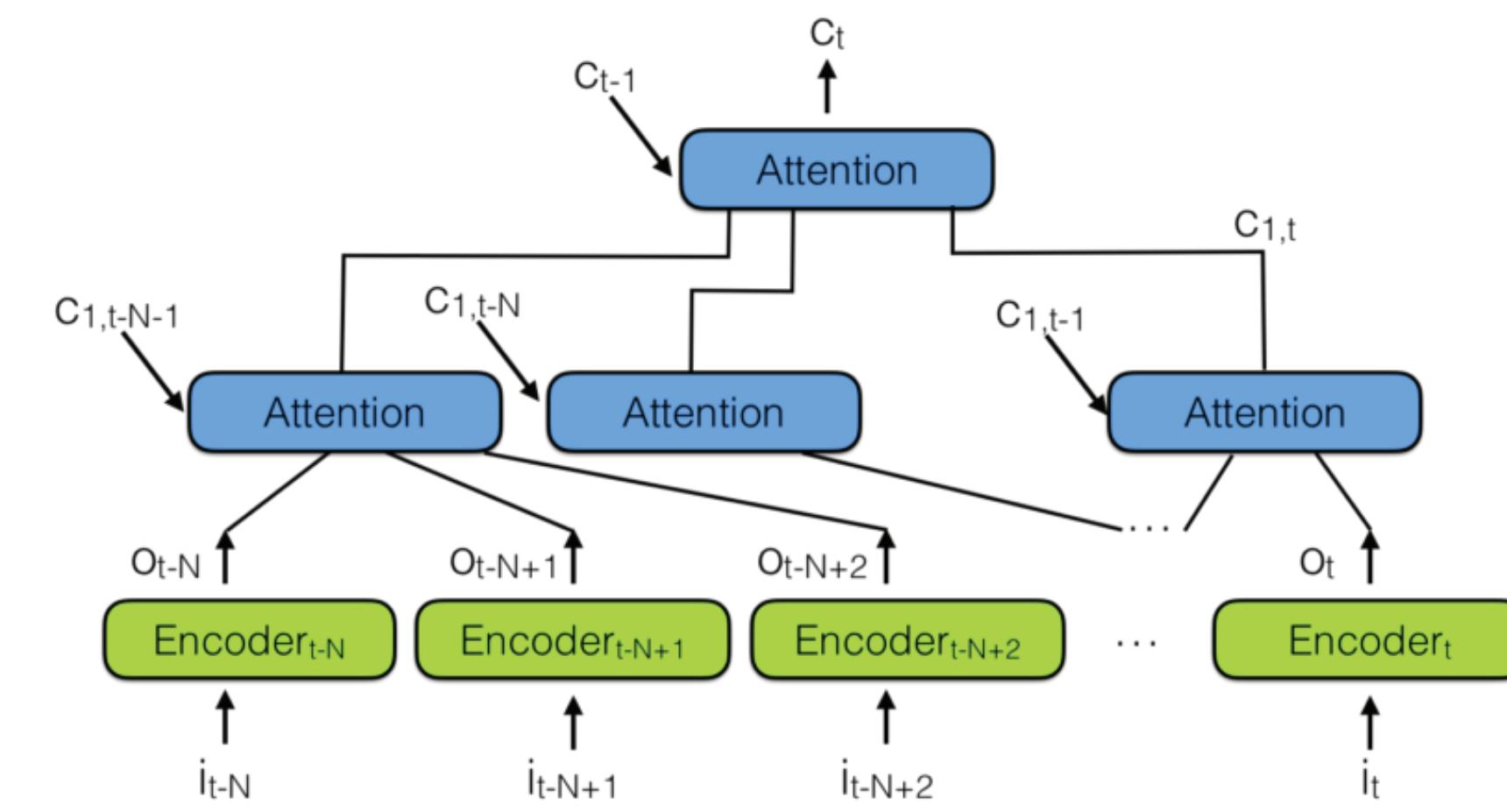


Google AI team has launched a model in Nov'18 called **BERT (Bidirectional Encoder Representations from Transformers)** which predicts whether two sentences inputted are related or not. But OpenAI is still working on the sentence generation model called **GPT-2 (Generative Pre-trained Transformer)**. GPT-2 generates text samples in response to the model being primed with an arbitrary input.

DATA

	TRAIN	TEST
Short Sentences: ROC Stories Corpora.	80%	20%
Essays: Essays from Paul Graham	80%	20%
Books: First 5 books of The Song of Ice and Fire	First 5 novels	6th novel

METHODOLOGY



For different formats of texts, we trained our model on a pre-trained model named GPT-2, launched by OpenAI. It achieves state-of-the-art performance on many language modeling benchmarks and text generation. It is a large transformer based language model with 1.5 billion parameters, trained on dataset of 8 million webpages, built with the intention to predict next word, given all of the previous words within some text. GPT-2 implemented Transformer Based Network primarily to perform this task. LSTM is a special type of RNN which is capable of learning long-term dependencies which are needed in text generation.

EVALUATION

ROC Short Stories and Essays

We compared our predicted output with the actual output by calculating the cosine similarity of their average vectors. This was calculated by Google's Word2Vec

GOT Corpus

We first trained **Google's Word2Vec** on GOT corpus and then predicted similarity in the same way

DATA TYPE	AVG. SIMILARITY
ROC Stories Corpora	61.93%
Essays	68.91%
Game of Thrones	64.12%

TRY YOUR LUCK

1
Brett had become frustrated with his job. He decided to ask friends to set an appointment. On his appointment, he recorded series of test questions for the specific job. He concentrated on his money goal for that morning.

2
My son and I had gone out to walk the beach early in the morning. We climbed into a sandy blue sand dune. We saw tiny patchy stuff growing up under the sea. We saw husky kittens entangling themselves in long ditches.

3
Sam wanted to install a bird bath in his backyard so he dug a hole. He started by taking out some pine needles from his neighbor's yard. He placed the hole and pump a hole in the roof. He sat on the pine prop- water while working.

ESSAYS

One of the most valuable things Silicon Valley has to offer, as an incomparable deal it seemed to me, is not the money but idea of running an ordinary office.

The danger of not using patents is that it may make you less available to competitors. You can't simply ignore patents.

A lot of startups look to Google for growth and Google for marketing.

Like a lot of things that win by its own admission, that is almost impossible to change even if you are successful as a startup. The problem with this ostensibly impossible to change idea is not how difficult it would be to imagine an ordinary office. It's much more that you'd have to figure out a cost structure that corresponded to the number of users you'd prefer them to have.

You can't just ignore whatever suits you most. If you get sued by a competitor, will you tell them about it? Can't they just take your word for it? Couldn't they just ignore it and leave it at that? Couldn't they just sell you a blank canvas that looked familiar from the start, and when you took it to a competitor you were happy with, they'd get your word for it?

What growth means is getting users. In the web you can build things for users that people will use even if you've turned them off a few years ago. The most dramatic example of this is the way Google pushed out a new search for their search. Users tried it and loved it. But that's not growth.

GAME OF THRONES



Tyrion felt sorry for the lad.



Sansa was terrified of him

No one had ever lived that miserable life, Myr or Stafford or Dorne. His welfare reflected ten thousand thousand, if anything. Arya's carelessness at court turned into a rage, and Myr's misdeeds were all over the Plaza. Even mirthful hissing often climbed to that conclusion. When Lame Lothar gave him to his bosom and set it free, he'd waddled faster than might be expected. Myr's maid had gone mad, Myr's flannel was black, Lame Lothar had been wounded in the attack, and it had been Lord Symondon's Magnar who feared the maid almost as much as his brother's small brother Stannis.



Dragon was Dany's favorite treasure.



Jamie drew his sword

The fire swirled with unfriendly sounds. Unsullied peered upward through grisly green curtain laths, matching each other with their socketed mouths, untying their heels to form tiny swords with sharpened slashes, leaving two of Jaime's longsword, cool as heat. They moved most of the same, with unyielding swiftness. When Jaime used the Shortsword for the kill, the slashes shifted and flared, wrenching at each other to fit and curve and bend one another rather than chisel it. And the cudgels began to move.

The blade was a wild green that goutyened and darkened with every sharp slash. Dark steps swung downward. The scent of sweet onions mingled with the scent of the warm skin of the meat. "You won't know me," Jaime promised. The white sword sagged when his heavy hands crossed it. "Sweet onions, m'lord." Maester Hallyn held the blade and said, "Your presence will keep the game peaceful, you will need to be balanced. Shall I still use your blade to deliver Arishead you?"