

Report - [Author Style Text Generation]

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Model

Model Introduction and evaluation

While try different authors text styles to see how it would be received and generated. The models trained on individual authors tend to replicate names from the stories. More work is needed to correct this issue. When looking close into the text generated Shakespeare fits especially strongly within its own style. Looking into the model and the text generated deeper would give us more of an idea on how the model could improve when taking in author writing styles.

Model Chosen

Our model is the same as the one used by the original team, but with lengthened training sequences and a couple dense layers added at the end.

Model Testing

Simply by giving a model a few texts by a specific author and then seeing the output. We could adjust and try different ways to make the text generate better.

Visualizations

Figure 1. Lewis Carroll text generated

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Lewis Carroll:
The world seemed like such a peaceful place until the magic tree was discovered in London. "Yest," the missicking eagerly on said, "on
nothing but instantly.

I take out of it as it was good by quick, as if all about it," said the Gardener.

Alice could not rather once feel,
only in a confused voice; and that we say, raising his face, who had happened the bear without does in my freer," said Alice.

"The monour that sout rag--his work--was surn he speak or listing to all,"

"Don't kill to keep herself up wishog! How to hear Sab--tas puzzle," said the oresiring, the Red Queen said: "Do I help!" the end replied took she could, she soon looked at once towbons that he said,
nothing in his rolling, my Queen, rushed all the whole me out of his head, first in pig, and held out the Warden, husber of turn, when he got amount a large us again. The child resemured upon the
tipposation. "It were called air,
I sazed to think the live, I
think you see me: that it wasn't elway," said Alice.

"You can't near
No-sleep: but I wisht to get without be a R.DAYDSY TULGbD SYE
```

- We can see that it was able to generate text in the author's style with little mistakes until the end when words became a random mix of letters and lowercase and uppercase letters.

Figure 2. Shakespeare text generated

Shakespeare:
 The world seemed like such a peaceful place until the magic tree was discovered in London.

LAERTES. How queen the fee, Ere unden'dy away.

LAERTES. INd you not?

HAGCET. A flush of thought of this fach blood, but art thou sow'st,
 And put upon the innocent boans; their limbs, that
 his words, whose words are now of that. [_ Speaks.

Pros. Of that!
 Thou canst not make my chough to look and look.
 Her hands to me, look so uncley: you spirit
 Let your mean for couch, for pay it out,
 And I list no drack and two makest me!
 Swopen out 'twixt our footswar lusting lie.

CAPULET.
 Who have I hear a each.
 Come, miss keet-lord to be long. To bet you without all?
 Where I see you this.

MACBETH.
 My lord I would not thee fall.

MERCUTIO.
 Be soldiers are adrore; and I see a preasuness well
 Side rovement, or her consent is fear
 As thus you courteway?—Gaw!

MALCOLM.
 Look, the honour apen,
 Whose fled tarries in mine art.
 Or I have shut upon your pocket: new is your intancag'd
 Till having us.

- We see from this text that it was trying to do Shakespeare's writing style. It managed to fit his writing style very well overall with the exception of some spacing/formatting errors.

Discussion Responses

Do you think we should be using LSTM layers or GRU layers in this network?

- We would love to put more time into using LSTM layers but given the time constraint, we chose to stick with GRU cells.

Often when we are generating text we see something like this: "we counter. He stutn co des. His stanted out one ofler that concossions and was to gearang reay Jotrets and with fre colt off paitt thin wall. Which das stimn" What would you recommend to improve our results?

- We added a couple dense layers to the network to allow it to better process and spell words. We wanted to limit the amount of training time the model received to circumvent overfitting.

What would give us the most promise for both a quality model, but also something that could get people excited?

- **Creating a model that can achieve success on not only one author is key for our model to stand out. A more generalized model is typically what engineers do in the field as it has more uses than a very specific model.**

I'm wondering what your views are on using a teacher forcing strategy compared to a curriculum learning strategy?

- **As mentioned before, we wanted to limit the avenues that our model could be overfitting. Teach forcing strategy can lead to these results faster than CLS as it tells the model what the right answer is before it moves on. We also wanted to see just how well our model would perform if it strictly learned from itself. Additionally, we read that TFS can distort the outputs overtime. If instead we were to have used and LSTM, we could've had more luck. This is because LSTM cells have a protection of memory with the ability to use things from the past.**

Our previous team used logits in the output layer and then used Sparse Categorical Cross Entropy as the loss function. Are you planning to use that approach as well?

- **Yes we did the same. Using SCCE was key for the loss function to perform well. The reason behind this is our data set of character is large (540,000 letters or so) and using SCCE allowed us to skip the step of transforming our dataset into categorical values. We've been making good progress with our target author, but we feel we could improve our model's performance by supplementing with additional text, to help it learn basic language constructs better. We went with a mixture of A and B. Given the model more data is always nice and it helps to make sure that the model is creating the style of the author and not just a book. That being said, we need to make sure that we are only using non-copyrighted or public-works material for our model. This will keep our company out of legal trouble.**

APPENDIX A (PYTHON SCRIPT)

https://colab.research.google.com/drive/1qAjlyExlyfSBGOapsbuPIhQEyka8_c1G