

CS685 Quiz 3: *text generation*

Released 3/8, due 3/11 on Gradescope (please upload a PDF!)

Please answer both questions in 2-4 sentences each.

1. OpenAI showed that GPT-3 can perform simple arithmetic (e.g., addition, multiplication) without any fine-tuning (i.e., in the zero/one-shot/few-shot setting). In Section 3.9.1 of [their paper](#), they measure how many of the 3-digit addition problems in their test set also occur in GPT-3's training data by searching for all occurrences of the following expressions:

- "<NUM1> + <NUM2> ="
- "<NUM1> plus <NUM2>"

Using this method, they find that only 17 out of 2000 addition problems occur within the training data. Does this experiment convince you that the model has learned the underlying process of addition instead of just memorizing things from its training data? Why or why not?

I'm convinced that model has learned the underlying process. If it memorized the 17 sentences it wouldn't be able to make sense for the rest of it. If it can, it means it learned to.

2. Explain how the [prompt tuning](#) method discussed in class allows us to solve multiple different NLP tasks within a single batch.

If we don't want to train the model again and perform no gradient updates we can achieve it with prompt tuning. We literally take the model, give few examples and and get the inference we want.