

Lesson 4: Evaluate the Tuned Model

Project environment setup

- Install Tensorboard (if running locally)

```
!pip install tensorboard
```

Explore results with Tensorboard

```
In [1]: # %load_ext tensorboard
```

```
In [2]: # port = %env PORT1
# %tensorboard --logdir reward-logs --port $port --bind_all
```

```
In [3]: # Look at what this directory has
# %ls reward-logs
```

```
In [4]: # port = %env PORT2
# %tensorboard --logdir reinforcer-logs --port $port --bind_all
```

```
In [5]: # port = %env PORT3
# %tensorboard --logdir reinforcer-fulldata-logs --port $port --bind
```

- The dictionary of 'parameter_values' defined in the previous lesson

```
In [6]: parameter_values={
    "preference_dataset": \
    "gs://vertex-ai/generative-ai/rlhf/text_small/summarize_from_fee
    "prompt_dataset": \
    "gs://vertex-ai/generative-ai/rlhf/text_small/reddit_tfds/train/
    "eval_dataset": \
    "gs://vertex-ai/generative-ai/rlhf/text_small/reddit_tfds/val/*.
    "large_model_reference": "llama-2-7b",
    "reward_model_train_steps": 1410,
    "reinforcement_learning_train_steps": 320,
    "reward_model_learning_rate_multiplier": 1.0,
    "reinforcement_learning_rate_multiplier": 1.0,
    "kl_coeff": 0.1,
    "instruction":\
    "Summarize in less than 50 words"}
```

Note: Here, we are using "text_small" for our datasets for learning purposes. However for the results that we're with the following hyperparameters:

```
parameter_values={
    "preference_dataset": \
    "gs://vertex-ai/generative-ai/rlhf/text/summarize_from_feedback_tfds/compa
    "prompt_dataset": \
    "gs://vertex-ai/generative-ai/rlhf/text/reddit_tfds/train/*.jsonl",
    "eval_dataset": \
    "gs://vertex-ai/generative-ai/rlhf/text/reddit_tfds/val/*.jsonl",
    "large_model_reference": "llama-2-7b",
    "reward_model_train_steps": 10000,
    "reinforcement_learning_train_steps": 10000,
    "reward_model_learning_rate_multiplier": 1.0,
    "reinforcement_learning_rate_multiplier": 0.2,
    "kl_coeff": 0.1,
    "instruction":\
    "Summarize in less than 50 words"}
```

Evaluate using the tuned and untuned model

```
In [7]: import json
```

```
In [8]: eval_tuned_path = 'eval_results_tuned.jsonl'
```

```
In [9]: eval_data_tuned = []
```

```
In [10]: with open(eval_tuned_path) as f:
          for line in f:
              eval_data_tuned.append(json.loads(line))
```

```
In [11]: # Import for printing purposes
          from utils import print_d
```

```
In [12]: # Look at the result produced by the tuned model
print_d(eval_data_tuned[0])
```

```
-----
key:inputs
```

```
val
```

```
-----
key:inputs_pretokenized
```

```
val:Summarize in less than 50 words.
```

Before anything, not a sad story or anything. My country's equivalent to Valentine's Day is coming. Want to surprise my girlfriend with a pretty simple idea to surprise my girlfriend and it would involve giving her some roses. I know she would appreciate my intention in and of itself, I don't know if she would like getting some, but I wanted to find out if she likes roses and if she would like getting some, as not to spoil the surprise. Any ideas on how to get that information out of her?

```
-----
key:targets_pretokenized
```

```
val:
```

```
-----
key:prediction
```

val:My country's equivalent to Valentine's Day is coming. Want to surprise my girlfriend with a pretty simple idea to surprise my girlfriend and it would involve giving her some roses. I know she would appreciate my intention in and of itself, I don't know if she would like getting some, but I wanted to find out if she likes roses and if she would like getting some, as not to spoil the surprise. Any ideas on how to get that information out of her?

```
In [13]: eval_untuned_path = 'eval_results_untuned.jsonl'
```

```
In [14]: eval_data_untuned = []
```

```
In [15]: with open(eval_untuned_path) as f:
          for line in f:
              eval_data_untuned.append(json.loads(line))
```

```
In [16]: # Look at the result produced by the untuned model
print_d(eval_data_untuned[0])
```

```
-----
key:inputs
```

```
val
```

```
-----
key:inputs_pretokenized
```

```
val:Summarize in less than 50 words.
```

Before anything, not a sad story or anything. My country's equivalent to Valentine's Day is a pretty simple idea to surprise my girlfriend and it would involve giving her some roses. I know she would appreciate my intention in and of itself, I don't know if she would like them, so I wanted to find out if she likes roses and if she would like getting some, but I don't want to spoil the surprise. Any ideas on how to get that information out of her?

```
-----
key:targets_pretokenized
```

```
val:
```

```
-----
key:prediction
```

```
val:The author wants to surprise his girlfriend with roses on Valentine's Day but es. He wants to find out without spoiling the surprise.
```

Explore the results side by side in a dataframe

```
In [17]: # Extract all the prompts
prompts = [sample['inputs']['inputs_pretokenized']
            for sample in eval_data_tuned]
```

```
In [18]: # Completions from the untuned model
untuned_completions = [sample['prediction']
                       for sample in eval_data_untuned]
```

```
In [19]: # Completions from the tuned model
tuned_completions = [sample['prediction']
                    for sample in eval_data_tuned]
```

- Now putting all together in one big dataframe

```
In [20]: import pandas as pd
```

```
In [21]: results = pd.DataFrame(
        data={'prompt': prompts,
              'base_model': untuned_completions,
              'tuned_model': tuned_completions})
```

```
In [22]: pd.set_option('display.max_colwidth', None)
```

```
In [23]: # Print the results
         results
```

Summarize in less than 50 words.

Before anything, not a sad story or anything. My country's equivalent to Valentine's coming and I had this pretty simple idea to surprise my girlfriend and it would involve giving her some roses. The thing is, all know she would appreciate my intention in and of itself, I don't know if she would like the actual flowers and such, so I want to find out if she likes roses and if she would like getting some, but without her realizing it so as not to spoil the surprise. Any idea how to get that information out of her? [summary]

Summarize in less than 50 words.

For most of high school, I've been the go to "computer kid." I'll be the first to admit I know a lot about how computers work, and often fix things for teachers before the IT guys have a chance to get a whack at it. I worked at a computer repair shop for half a year as a technician. I've done the typical tech guy thing and drooled over computers that come out (read: Wired/PopSci/2600 articles and centerfolds). That said, I have NO IDEA what kind of computer to get for college. I've always wanted to buy a ton of parts and build my own "super" desktop, but I for sure need a laptop. If everything goes according to plan, I'm enrolling at Champlain College next Fall to double major in Computer Network Information Security and Digital Forensics. A lot of you probably already know this, but this major involves a lot of virtual desktops. Essentially I set up entire networks on my own rig and then go in and play around with them, all from one computer. It takes a lot of processing power and hard drive space. Over the years I've built up several stereotypes about different brands, operating systems, products... Recently, my mind has been opened back up and I'm willing to take a look at anything, even a Dell. Asus. It's recently been brought to my attention that Macs are actually pretty good. I've always been a notorious Windows guy. I finally decided to bite my tongue and take a look under the hood, and my god are these things powerful... I guess it does help making everything but the processor in-house. Anywho, what I really need is suggestions that might work well for my major, hopefully staying under a budget of \$1600. Also, what are the big differences between a MacBook and MacBook Pro? [summary]

Summarize in less than 50 words.

So I graduated in May 2014 in the DC area but couldn't start applying to jobs till April of this year due to family circumstances. So far I've applied to nearly 50+ places, 4 recruiters contacted me and added me to their available candidates list after a small interview (one of them got me a small office assignment but that's over) and got 2 interviews by myself (none of which panned out). I have experience in office software and am pretty well versed in Excel (a little less than advanced but a lot more than proficient) and advanced mathematics. I have a GPA higher than 3 but lower than 4 which I don't mention in my resume. Could that be it? I don't understand what I'm doing wrong. So far I've been applying for anything remotely related with data, analysis, finance at entry level but I barely get any response. Data entry and administrative positions are no different. I also write cover letters for almost every place. I also don't know many people here since my family isn't really well connected enough for me to have great networking opportunities. I really don't know what to do next. I can't

how people applying to over 200-400 places deal with the frustrating and emotionally draining experience. I would really appreciate some advice from recent econ/finance grads or hiring personnel. [submitted]

3 Summarize in less than 50 words.
Hello /r/jobs, I graduated a few months ago and had no luck so far to get marketing/sales. There's a small local company (perhaps 30 employees) but they are actually pretty successful in what they're doing (known worldwide). I checked their website and it's awful. Looks like a website from the early 2000's. So I guess they're pretty good in (online-)marketing. I would like to do a cold application (not sure if they are looking for a marketing guy) but I had no luck with this kind of application in the past. That's why I thought I try something different. I have good skills in photo editing, web design and illustration. As a teenager I also built websites using HTML, so I thought I build a dummy website fitted to the company and attach some screenshots to my application. What do you think? Is this a feasible idea or will they be offended?
Thank you very much in advance. [submitted]

4 Summarize in less than 50 words.
Hello! I hope that someone can lend me some advice for a situation that I find myself in. Here's my situation: About 10 years ago as I was traveling, I applied for my first credit card which was an AMEX delta card. The years after, I traveled often, and got benefits from this card. Now, after I have recently graduated college, and landed a full-time job, I no longer have time to travel as much, and therefore have no need to use the Delta card. Last year I paid off my balance with the card, and haven't used it since. Recently, I had to pay the \$95 annual fee, and realized that I should perhaps consider applying for another credit card. I thought about closing this account and applying for a cash rewards card. Now my issue is that the AMEX card is my ONLY and OLDEST credit card account. I would like to close the account and apply for a Bank of America cash rewards card. My checking/savings accounts are with them. However, I am concerned with how this will affect my credit report. Will closing the account greatly affect my credit score? I even spoke with the reps at AMEX about downgrading to a cash rewards card with no annual fee, and apparently I cannot do this as my AMEX card is linked with the Delta account. I do not want this card, I'm stuck in a pickle... Any advice would be appreciated! [submitted]