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EXAM PROFESSIONAL MACHINE LEARNING ENGINEER TOPIC 1 QUESTION 28 DISCUSSIO..

Actual exam question from Google's Professional Machine Learning Engineer
Question #: 28
Topic #: 1
[All Professional Machine Learning Engineer Questions]

You are training a Resnet model on AI Platform using TPUs to visually categorize types of defects in automobile engines. You capture the training profile using the
Cloud TPU profiler plugin and observe that it is highly input-bound. You want to reduce the bottleneck and speed up your model training process. Which modifications should you make to the tf.data dataset? (Choose two.)

A. Use the interleave option for reading data.

B. Reduce the value of the repeat parameter.

C. Increase the buffer size for the shuttle option.

D. Set the prefetch option equal to the training batch size.

E. Decrease the batch size argument in your transformation.

Show Suggested Answer

by chohan at *June 18, 2021, 2:23 a.m.*

Comments

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ralf_cc Highly Voted 3 years, 3 months ago

AD - please weigh in guys

upvoted 39 times

danielp14021990 Highly Voted 2 years, 12 months ago

A. Use the interleave option for reading data. - Yes, that helps to parallelize data reading.
B. Reduce the value of the repeat parameter. - No, this is only to repeat rows of the dataset.
C. Increase the buffer size for the shuttle option. - No, there is only a shuttle option.
D. Set the prefetch option equal to the training batch size. - Yes, this will pre-load the data.
E. Decrease the batch size argument in your transformation. - No, could be even slower due to more I/Os.

https://www.tensorflow.org/guide/data_performance

upvoted 25 times

PhilipKoku Most Recent 5 months ago

Selected Answer: AD

A) and D) are the right answers!

upvoted 1 times

harithacML 1 year, 3 months ago

Selected Answer: AD

A and D : https://www.tensorflow.org/guide/data_performance , interleave and prefetch

upvoted 2 times

M25 1 year, 6 months ago

Selected Answer: AD

Went with A & D

upvoted 2 times

MithunDesai 1 year, 10 months ago

Selected Answer: AD

yes AD

upvoted 1 times

OJ42 2 years, 2 months ago

Selected Answer: AD

Yes AD

upvoted 1 times

GCP72 2 years, 2 months ago

Selected Answer: AD

YES.....AD - agree with danielp1

upvoted 1 times

u_phoria 2 years, 3 months ago

Selected Answer: AD

AD - agree with danielp1

By the way, this is handy to understand the significance of shuffle buffer_size:
https://stackoverflow.com/a/48096625/1933315

upvoted 2 times

onku 2 years, 3 months ago

Selected Answer: DE

I think D & E are correct.

upvoted 1 times

Xrobat 2 years, 4 months ago

AD should be the right answer.

upvoted 3 times

eddy1234567890 2 years, 4 months ago

Answers?

upvoted 1 times

93alejandrosanchez 3 years ago

For me it should be D and E as well. Prefetching will help reading data while training is performed, which helps with the

bottleneck, D is for sure right. I think decreasing batch size would help too, because less records will be read in each training step (reading a lot of records would lead to the bottleneck described, as reading data is costly).

I'm not 100% sure on A, personally I don't think processing many input files concurrently would help in this case because the reading operation is precisely the problem. However, I'm no expert in this topic so I might be wrong.

upvoted 2 times

klemiec 2 years, 8 months ago

D is not correct answer. Instead of decrising batch size, incrising may help.
(https://cloud.google.com/tpu/docs/performance-guide - "TPU model performance" section)

upvoted 1 times

Goosemoose 5 months ago

you mean E, not D, right?

upvoted 1 times

gcp2021go 3 years, 3 months ago

I think it should be DE. I found this article https://towardsdatascience.com/overcoming-data-preprocessing-bottlenecks-with-tensorflow-data-service-nvidia-dali-and-other-d6321917f851

upvoted 3 times

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