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Exam Professional Data Engineer All Questions

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EXAM PROFESSIONAL DATA ENGINEER TOPIC 1 QUESTION 148 DISCUSSION

Actual exam question from Google's Professional Data Engineer

Question #: 148

Topic #: 1

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You work for a shipping company that has distribution centers where packages move on delivery lines to route them properly. The company wants to add cameras to the delivery lines to detect and track any visual damage to the packages in transit. You need to create a way to automate the detection of damaged packages and flag them for human review in real time while the packages are in transit. Which solution should you choose?

- A. Use BigQuery machine learning to be able to train the model at scale, so you can analyze the packages in batches.
- B. Train an AutoML model on your corpus of images, and build an API around that model to integrate with the package tracking applications.
- C. Use the Cloud Vision API to detect for damage, and raise an alert through Cloud Functions. Integrate the package tracking applications with this function.
- D. Use TensorFlow to create a model that is trained on your corpus of images. Create a Python notebook in Cloud Datalab that uses this model so you can analyze for damaged packages.

[Show Suggested Answer](#)

by [madhu1171](#) at March 15, 2020, 5:16 p.m.

Comments

Type your comment...

[Removed] Highly Voted 4 years, 7 months ago

Should be B.

upvoted 34 times

[Removed] Highly Voted 4 years, 7 months ago

AutoML is used to train model and do damage detection

Auto Vision is used is a pre trained model used to detect objects in images

upvoted 23 times

ga8our 1 year ago

1. Who said we have a labelled corpus that can be fed to AutoML?

2. Auto Vision, as you say, is used to detect objects, like box, ship, human, etc. Now it depends only on our definition (parameters) of a "box" what the model should accept as intact or damaged.

3. ChatGCP also chooses C. Vision API.

Given that the question does not say we have labelled data, and that damage recognition is not qualitatively different from object recognition, I'd go for C - C. Vision API.

upvoted 4 times

brokeasspanda 12 months ago

Seriously, I feel the question was transcribed incorrectly but the answers were. It was probably meant to include a labeled corpus of images. With the details presented you'd have to hope that Vision API would be able to guess objects as damage.

upvoted 1 times

emmylou 11 months, 2 weeks ago

Add the sentence, "This is a practice exam question. Please assume no changes to the architecture" and it brings back B

upvoted 1 times

Deepakd 2 years, 7 months ago

Damage is an object in the image . So Auto Vision API can be used.

upvoted 3 times

[Removed] 4 years, 7 months ago

Correct : B

upvoted 12 times

enthGCP Most Recent 10 months, 1 week ago

as per chat gpt One of the features of Cloud Vision API is damage detection, which can be used to identify and classify various types of damage in images, such as cracks, dents, scratches, stains, etc

upvoted 2 times

MaxNRG 10 months, 3 weeks ago

Selected Answer: B

For this scenario, where you need to automate the detection of damaged packages in real time while they are in transit, the most suitable solution among the provided options would be B.

Here's why this option is the most appropriate:

Real-Time Analysis: AutoML provides the capability to train a custom model specifically tailored to recognize patterns of damage in packages. This model can process images in real-time, which is essential in your scenario.

Integration with Existing Systems: By building an API around the AutoML model, you can seamlessly integrate this solution with your existing package tracking applications. This ensures that the system can flag damaged packages for human review efficiently.

Customization and Accuracy: Since the model is trained on your specific corpus of images, it can be more accurate in detecting damages relevant to your use case compared to pre-trained models.

upvoted 1 times

MaxNRG 10 months, 3 weeks ago

Let's briefly consider why the other options are less suitable:

A. Use BigQuery machine learning: BigQuery is great for handling large-scale data analytics but is not optimized for real-time image processing or complex image recognition tasks like damage detection on packages.

C. Use the Cloud Vision API: While the Cloud Vision API is powerful for general image analysis, it might not be as

effective for the specific task of detecting damage on packages, which requires a more customized approach.

D. Use TensorFlow in Cloud Datalab: While this is a viable option for creating a custom model, it might be more complex and time-consuming compared to using AutoML. Additionally, setting up a real-time analysis system through a Python notebook might not be as straightforward as an API integration.

👍 🔄 🚩 upvoted 1 times

🗨️ 👤 **julioevk** 11 months ago

Selected Answer: B

I was leaning towards C but tested out uploading some damaged boxes to Vision API. It seems to have a lot of trouble detecting damaged boxes. It mislabeled boxes as a tire or toy. Also, there is no part of the API that seems to be able to detect damage. So I'll have to go with B. You should train a model to accomplish this then integrate with your app.

👍 🔄 🚩 upvoted 3 times

🗨️ 👤 **barnac1es** 1 year, 1 month ago

Selected Answer: B

AutoML for Custom Models: AutoML (Auto Machine Learning) is designed to simplify the process of training custom machine learning models, including image classification models. It allows you to leverage Google Cloud's pre-built AutoML Vision service to train a model specifically for detecting package damage based on your corpus of images. This ensures accurate and customized results.

Real-time API Integration: After training the AutoML model, you can create an API endpoint that integrates seamlessly with your package tracking applications. This means that as packages move on the delivery lines, you can send images in real-time to the API for immediate analysis.

Scalability: AutoML Vision is built to scale, so it can handle the analysis of images in real-time, even as packages move continuously on the delivery lines.

👍 🔄 🚩 upvoted 2 times

🗨️ 👤 **arien_chen** 1 year, 2 months ago

Selected Answer: C

Keywords: realtime, camera streaming

<https://cloud.google.com/vision#:~:text=where%20you%20are-,Vertex%20AI%20Vision,-Vertex%C2%A0AI%20Vision>

Option B AutoML would be too complex and not time efficient.

Using Vision AI(Vertex AI Vision) first + AutoML

Option D is better than B (just AutoML).

👍 🔄 🚩 upvoted 5 times

🗨️ 👤 **arien_chen** 1 year, 2 months ago

typo: Option C is better than B.

👍 🔄 🚩 upvoted 3 times

🗨️ 👤 **piyush7777** 1 year, 2 months ago

B

<https://www.cloudskillsboost.google/focuses/22020?parent=catalog>

👍 🔄 🚩 upvoted 1 times

🗨️ 👤 **vamgcp** 1 year, 3 months ago

Selected Answer: B

Option B - AutoML

👍 🔄 🚩 upvoted 1 times

🗨️ 👤 **Oleksandr0501** 1 year, 5 months ago

will stay with B. Might be more reliable, accurate.

as many says in duscission, Vision Api does not say it has defect detection.

i remember labs with Auto ML, where models were trained. Vertex AI labs.

👍 🔄 🚩 upvoted 3 times

🗨️ 👤 **AzureDP900** 1 year, 10 months ago

B is right

👍 🔄 🚩 upvoted 2 times

🗨️ 👤 **Atnafu** 1 year, 11 months ago

B

C-is not answer

Vision API currently allows you to use the following features:

[https://cloud.google.com/vision/docs/features-](https://cloud.google.com/vision/docs/features-list#:~:text=Vision%20API%20currently%20allows%20you%20to%20use%20the%20following%20features%3A)

[list#:~:text=Vision%20API%20currently%20allows%20you%20to%20use%20the%20following%20features%3A](https://cloud.google.com/vision/docs/features-list#:~:text=Vision%20API%20currently%20allows%20you%20to%20use%20the%20following%20features%3A)

👍 🔄 🚩 upvoted 3 times

cloudmon 1 year, 12 months ago

Selected Answer: B

It looks like B is the only valid option, with the assumption that you have a corpus of images (the question does not say that you do not).
It would not be Cloud Vision API because that does not do damage detection (<https://cloud.google.com/vision/docs/features-list>).

upvoted 3 times

John_Pongthorn 2 years, 1 month ago

<https://cloud.google.com/solutions/visual-inspection-ai#all-features>

upvoted 2 times

cloudmon 1 year, 12 months ago

This is how you would do it nowadays, but the question is not referring to this solution. It only refers to "Cloud Vision API" (not Visual Inspection API). Cloud Vision API does not do damage detection (<https://cloud.google.com/vision/docs/features-list>) so you would need to do AutoML. It looks like they assume that you have your own corpus of images.

upvoted 2 times

Deepakd 2 years, 9 months ago

Here it is mentioned that the company is planning to implement a camera system. So it does not have the training data yet. Without having training data, the only option left is to use pre-trained models through cloud API. C is the answer. B is wrong as you don't have data to train the model.

upvoted 1 times

Deepakd 2 years, 7 months ago

I would correct myself and go for B. I did not find any mention of cloud vision api being used for object detection.

upvoted 3 times

sraakesh95 2 years, 9 months ago

Selected Answer: B

AutoML is used to train model and do damage detection. Auto Vision is used as a pre-trained model used to detect objects in images.

upvoted 2 times

medeis_jar 2 years, 10 months ago

Selected Answer: B

Cloud Vision API -> pre-trained models to detect labels, faces, words
AutoML -> custom specific models trained for specific use case

upvoted 3 times

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