Exam Professional Machine Learning Engineer All Questions

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EXAM PROFESSIONAL MACHINE LEARNING ENGINEER TOPIC 1 QUESTION 128 DISCUSSI...

Actual exam question from Google's Professional Machine Learning Engineer
Question #: 128
Topic #: 1
[All Professional Machine Learning Engineer Questions]

You are an ML engineer on an agricultural research team working on a crop disease detection tool to detect leaf rust spots in images of crops to determine the presence of a disease. These spots, which can vary in shape and size, are correlated to the severity of the disease. You want to develop a solution that predicts the presence and severity of the disease with high accuracy. What should you do?

A. Create an object detection model that can localize the rust spots.

B. Develop an image segmentation ML model to locate the boundaries of the rust spots.

C. Develop a template matching algorithm using traditional computer vision libraries.

D. Develop an image classification ML model to predict the presence of the disease.

Show Suggested Answer

by MithunDesai at *Dec. 21, 2022, 11:15 a.m.*

Comments

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Nayak8 Highly Voted 1 year, 10 months ago

Selected Answer: B

Not D because Classification can't predict the severity for that we need Segmentation

upvoted 8 times

fitri001 Most Recent 6 months, 2 weeks ago

Selected Answer: B

Rust Spot Location and Size: Object detection (A) primarily focuses on identifying and bounding the location of objects.expand_more While it can detect the presence of rust spots, it wouldn't capture the variations in size and shape that correlate with disease severity.
Detailed Boundaries: Image classification (D) would only predict the presence or absence of the disease based on the entire image. It wouldn't provide details about the location or extent of the rust spots.
Template matching (C) with traditional libraries might be computationally expensive and struggle with the variability in spot shapes and sizes.

upvoted 2 times

julliet 1 year, 5 months ago

Selected Answer: B

only B gets the severity here

upvoted 2 times

M25 1 year, 6 months ago

Selected Answer: B

Object Detection [Option A] and Image Segmentation [Option B]:
https://www.oreilly.com/library/view/practical-machine-learning/9781098102357/ch04.html
Image Recognition [Option D]:
https://www.oreilly.com/library/view/practical-machine-learning/9781098102357/ch03.html#image_vision

upvoted 2 times

TNT87 1 year, 8 months ago

Selected Answer: B

B. Develop an image segmentation ML model to locate the boundaries of the rust spots.

An image segmentation model is well-suited for this task because it can identify the exact location and shape of the rust spots in the image, which is critical for determining the severity of the disease. Once the rust spots have been identified, other algorithms can be used to analyze the data and predict the severity of the disease. Object detection models are another option, but they may not be as accurate as image segmentation models when it comes to identifying the exact boundaries of the rust spots. Template matching algorithms using traditional computer vision libraries are generally not as accurate as ML models when it comes to image analysis.

upvoted 2 times

andresvelasco 1 year, 1 month ago

Your reasoning is correct, but the headline says: "crop disease detection tool to detect leaf rust spots in images of crops to determine the presence of a disease". So I understand that from the output after processing the images is Disease/No Disease. Which I guess could be achieved with Classification.

upvoted 2 times

LFavero 8 months, 1 week ago

"You want to develop a solution that predicts the presence and severity of the disease with high accuracy."
Therefore, detection only is not the best solution as it is not reliable as to the size of the detected object (rust spot)

upvoted 1 times

q2ng 1 year, 10 months ago

Selected Answer: B

the shape of the spot is quite important for the severity of the disease, and image segmentation could help us to determine it in a more granular manner. And it is often used in the healthcare industry, for getting the shapes of all the cancerous cells

upvoted 3 times

Abhijat 1 year, 10 months ago

Selected Answer: B

Answer B

upvoted 2 times

Dataspire 1 year, 10 months ago

Selected Answer: B

To determine severity of the disease, boundary of rust spots should be determined - for size/ shape etc.

upvoted 4 times

hiromi 1 year, 10 months ago

Selected Answer: D

D should works

upvoted 3 times

MithunDesai 1 year, 10 months ago

Selected Answer: D

I think D

upvoted 1 times