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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 AithunDesai 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 ② 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. The 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
E 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
4 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 • provided 3 times
♣ Abhijat 1 year, 10 months ago
Selected Answer: B
Answer B
♣ Dataspire 1 year, 10 months ago
Salacted Answer: R

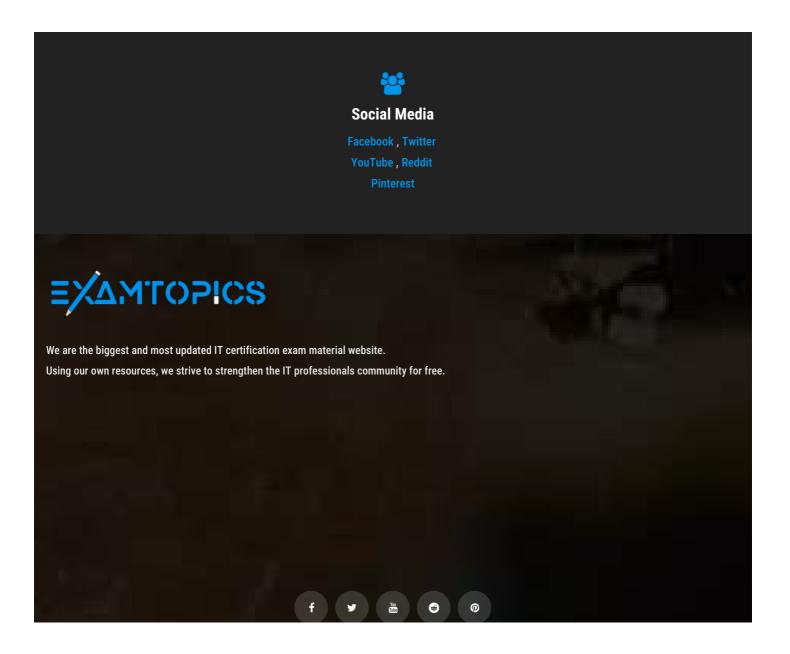
To determine severity of the disease, boundary of rust spots should be determined - for size/ shape etc.

_ -

upvoted 4 times



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