Your grade: 100%

Your latest: **100%** • Your highest: **100%** • To pass you need at least 80%. We keep your highest score.

Next item

1. Which of the following statements are true about convolutional neural networks (CNNs)? Select all that apply. **1 / 1 point**

- [ ] CNNs are always the best choice when it comes to algorithms for working with image data.
- [x] CNNs can be trained using supervised learning techniques by showing them many examples of images and labels.

  Correct
  That's right! CNNs are often used as supervised learning models.

- [x] They are AI models made of a set of interconnected layers that are optimized for learning patterns in images.

  Correct
  That's right! CNNs are a special type of neural network.

2. True or false: A model that has been pre-trained for the task you hope to work on might perform sufficiently well without any further training **1 / 1 point**

- (•) True.
- ( ) False.

Correct
That's right, when it comes to object recognition in images, oftentimes you can find a model that works well right out of the box.

3. Which of the following statements are true about fine-tuning models? Select all that apply. **1 / 1 point**

- [x] Fine-tuning can often achieve results that would require much more data if you were training from scratch.

  Correct
  That's right! Oftentimes training from scratch will require a large dataset, while fine-tuning can be accomplished with a relatively small amount of data.

- [ ] Fine-tuning a pre-trained model will always provide a better result than training your model from scratch.
- [x] In machine learning, fine-tuning a model means taking a model that was already pre-trained for some task and performing additional training on the dataset you're interested in.

  Correct
  That's right!

- [ ] When fine-tuning, you can only train the last few layers of your neural network.

4. Which sentences about MegaDetector are correct? Select all that apply. **1 / 1 point**

- [x] MegaDetector can tell you the location of an object in the image by identifying a bounding box that goes around the object.

  Correct
  That's right, and it can identify multiple objects via multiple bounding boxes.

- [x] MegaDetector can distinguish between three different classes: animal, vehicle and person, and identify multiple objects and / or classes of objects in the same image.

  Correct
  That's right!

- [ ] MegaDetector was trained on a large corpus of images and can thus distinguish between 1000 classes of different animals.

5. Why does it make sense to use MegaDetector to crop the animals in the images before attempting to classify them? Select all that apply. **1 / 1 point**

- [x] Cropping helps because it allows the classifier model to only focus on the region of interest and the majority of the background is eliminated.

  Correct
  That's right!

- [ ] Cropping out detected objects guarantees that the full object of interest, whether animal, person, or vehicle, is entirely visible.
- [x] A single image might contain multiple objects and so first separating and cropping them out helps narrow down the classification task.

  Correct
  That's right!

6. True or false: The purpose of data augmentation is to produce additional labeled examples for training that are similar but not identical to the original examples in your dataset **1 / 1 point**

- (•) True.
- ( ) False.

Correct
That's right, with data augmentation you can help balance out your dataset and train a more robust model.

7. What are some of the techniques you can use for image data augmentation? Select all that apply. **1 / 1 point**

- [x] Applying a zoom factor to images.

  Correct
  That's right. You can apply a zoom to create new example images.

- [x] Modifying brightness and contrast of the images

  Correct
  That's right! These are data augmentation techniques that help your model learn to recognize objects under different lighting conditions.

- [x] Flipping and rotating the image.

  Correct
  These are data augmentation techniques that help your model learn to recognize objects in different orientations.

8. With the NASNet pre-trained model that you fine-tuned for classification of animals, how would you characterize the model's performance before fine-tuning? **1 / 1 point**

- ( ) The model performed relatively well but in some cases misclassified the animals as other objects, like a bridge or a boat.
- (•) The model provided predictions that were wrong in every case, misclassifying animals for things like boats, trains, and lemons, sometimes even with high confidence.
- ( ) The model did not perform particularly well, but in some cases it accurately classified animals.

Correct
That's right, the model made predictions for the images in your dataset but none of them were correct.

9. After fine-tuning the NASNet model for classification, what were you able to observe within the confusion matrix? **1 / 1 point**

- [x] The percentage of times your model correctly classified each type of animal.

  Correct
  That's right.

- [x] The percentage of times your model incorrectly classified each animal as another type of animal.

  Correct
  Yes!

- [ ] The percentage of times your model classified an image as containing something other than the eleven classes of animals it was trained to recognize.

10. True or false: With your final image processing pipeline you could, at least in principle, upload an image that contained a zebra, a black backed jackal, a kudu, and a kori bustard, as well as several people and a vehicle, and get an output with bounding boxes drawn around the animals, people, and vehicles, and each of the animals identified as to what it was. **1 / 1 point**

- (•) True.
- ( ) False.

Correct
That's right! At least in principle, you now have an image processing system that can handle classification of 11 classes of animals as well as people and vehicles, try it out!