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Classification vs Regression

1/1 point (graded)

What is the difference between Classification and Regression?

- ☐ They are the same
- ☐ Classification calculates forwards, while Regression calculates backwards
- ☐ Classification works with images but Regression can't
- ☒ Classification is used to predict discrete outputs while Regression is used to find continuous outputs



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Regression Outputs

1/1 point (graded)

Assuming full training datasets are available and that all inputs are images or videos, which of the following output types would be good candidates for Image Regression? Check all that apply.

- ☒ Speed and Steering control outputs in autonomous driving
- ☐ Outputs of "Good Weld" or "Bad Weld" in industrial inspection
- ☒ Location coordinates of the nose on a face
- ☐ Dog breed identification



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Images

1/1 point (graded)

What are the size and number of channels for a captured input image in the project?

☒ Width=224, Height=224, Channels=3

☐ Width=224, Height=224, Channels=1

☐ Width=300, Height=300, Channels=3

☐ Width=300, Height=300, Channels=1



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Architecture

1/1 point (graded)

Which Neural Network architecture was used for the Regression Task?

☒ ResNet-18

☐ AlexNet

☐ MobileNet-V1

☐ PyTorch

☐ TensorFlow



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Layers

1/1 point (graded)

How many layers does the ResNet-18 Architecture have?

- ☒ 18 layers: 17 Convolutional layers and 1 Fully Connected layer
- ☐ 16 layers: 15 Convolutional layers and 3 Fully Connected layers
- ☐ 50 layers with 49 Convolutional layers and 1 Fully Connected layer
- ☐ 101 layers with 100 Convolutional layers and 1 Fully Connected layer



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Python code: resnet18

1/1 point (graded)

What does the following line of Python code mean?
`model = models.resnet18(pretrained=True)`

- ☒ Define a ResNet-18 model with pre-trained weights (transfer learning)
- ☐ Define a ResNet-18 model for a classification task, such that no training is needed for the specific application
- ☐ Define the ResNet architecture, and require a parameter if the 18 layer specific architecture is needed
- ☐ Randomize the weights for a ResNet-18 model



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Python code: fc

1/1 point (graded)

What does the following line of Python code do?

`model.fc = torch.nn.Linear(512, 5)`

- ☐ Modifies convolutional layers with of model to accept 5 labels
- ☒ Modifies the "Fully Connected" layer of the model to accept 5 labels
- ☐ Modifies the "First Convolution" layer of the model
- ☐ None of the above



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CATEGORIES variable

1/1 point (graded)

There is a global variable named `CATEGORIES` in the XY regression notebook. If we add a new category to this list how must the output dimension of the neural network change for an (x,y) regression task?

- ☐ The output dimension will stay the same
- ☐ The output dimension will increase by 1
- ☒ The output dimension will increase by 2
- ☐ The output dimension will increase by 4



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Server GPUs

1/1 point (graded)

What is the difference between training deep learning models on a cloud/server-grade GPU vs Jetson Nano?

☐ Jetson Nano has fewer CUDA Cores than cloud servers do, which means it can do fewer operations in parallel.

☐ Jetson Nano has 472 GigaFLOPS whereas a Tesla GPU P100 (as an example) server-grade GPU has 18.7 TeraFLOPS, which means computations are much faster. Therefore, Jetson Nano is slower for Training deep learning architectures than server Grade GPU.

☐ Jetson Nano has 4GB memory whereas a Tesla GPU P100 (as an example) server-grade GPU has 16GB GPU memory. Therefore, server-grade GPUs allow processing of larger batch sizes.

☒ All of the above

✓

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XY Model Output

1/1 point (graded)

How many outputs are required of the model to track the Nose position in the Face XY project?

✓

2

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