



✓ **Congratulations! You passed!**

TO PASS 80% or higher

Keep Learning

GRADE
95%

Custom Loss

LATEST SUBMISSION GRADE

95%

1. One of the ways of declaring a loss function is to import its object. Is the following code correct for using a loss object?

1 / 1 point

```
from tensorflow.losses import mean_squared_error
model.compile(loss=mean_squared_error, optimizer='sgd')
```

☐ True

☒ False



Correct

Correct! You import from tensorflow.keras.losses.

2. It is possible to add parameters to the object call when using the loss object.

1 / 1 point

```
model.compile(loss=mean_squared_error(param=value), optimizer='sgd')
```

☒ True

☐ False



Correct

Correct! Adding parameters provides flexibility for other steps such as hyperparameter tuning.

3. You learned that you can do hyperparameter tuning within custom-built loss functions by creating a wrapper function around the loss function with hyperparameters defined as its parameter. What is the purpose of creating a wrapper function around the original loss function?

1 / 1 point

```
def my_huber_loss_with_threshold(threshold):
    def my_huber_loss(y_true, y_pred):
        error = y_true - y_pred
        is_small_error = tf.abs(error) <= threshold
        small_error_loss = tf.square(error) / 2
        big_error_loss = threshold * (tf.abs(error) - (0.5 * threshold))

        return tf.where(is_small_error, small_error_loss, big_error_loss)

    return my_huber_loss
```

☐ No particular reason, it just looks neater this way.

☐ The loss (model.compile(..., loss =)) expects a function that is only a wrapper function to the loss function itself.

☐ That's one way of doing it. We can also do the same by passing y_true, y_pred and threshold as parameters to the loss function itself.

☒ The loss (model.compile(..., loss =)) expects a function with two parameters, y_true and y_pred, so it is not possible to pass a 3rd parameter (threshold) to the loss function itself. This can be achieved by creating a wrapper function around the original loss function.



Correct

Correct!

4. One other way of implementing a custom loss function is by creating a class with two function definitions, init and call.

1 / 1 point

```
from tensorflow.keras.losses import Loss

class MyHuberLoss(Loss):
    threshold = 1
```

```
def __init__(self, ...):
    super().__init__()
    .
    .

def call(self, ...):
    .
    .
    .

return ...
```

Which of the following is correct?

- ☐ We pass `y_true` and `y_pred` to the init function, the hyperparameter (threshold) to the call function.
- ☐ We pass the hyperparameter (threshold) , `y_true` and `y_pred` to the init function, and the call function returns the init function.
- ☒ We pass the hyperparameter (threshold) to the init function, `y_true` and `y_pred` to the call function.
- ☐ We pass the hyperparameter (threshold) , `y_true` and `y_pred` to the call function, and the init function returns the call function.

✓ **Correct**

Correct! Threshold is passed into the inherent init function to initialize it as a class object and pass it back to the base class, and `y_true` and `y_pred` are passed into the call function when the class object, threshold, is instantiated.

5. The formula for the contrastive loss, the function that is used in the siamese network for calculating image similarity, is defined as following:

0.75 / 1 point

$$Y * D^2 + (1 - Y) * \max(\text{margin} - D, 0)^2$$

Check all that are true:

- ☒ If the euclidean distance between the pair of images is low then it means the images are similar.

✓ **Correct**

Correct!

- ☒ Margin is a constant that we use to enforce a maximum distance between the two images in order to consider them similar or different from one another.

!

This should not be selected

Incorrect! It is to enforce a minimum distance.

- ☒ `Y` is the tensor of details about image similarities.

✓ **Correct**

Correct!

- ☐ `D`s are 1 if images are similar, 0 if they are not.