binary cross entropy with L2 regularization

def binary\_crossentropy\_with\_l2(y\_true, y\_pred, l2\_reg=0.01):

cross\_entropy = tf.keras.losses.binary\_crossentropy(y\_true, y\_pred)

l2\_loss = l2\_reg \* tf.reduce\_sum([tf.nn.l2\_loss(var) for var in tf.trainable\_variables()])

loss = cross\_entropy + l2\_loss

return tf.keras.backend.mean(loss)

In the code above, we first compute the binary cross entropy using the **tf.keras.losses.binary\_crossentropy** function. Then, we compute the L2 regularization loss by iterating over all the trainable variables and computing their L2 norm using the **tf.nn.l2\_loss** function. Finally, we add the cross entropy loss and the L2 regularization loss together, and return their mean using **tf.keras.backend.mean**.

You can adjust the strength of the regularization by changing the **l2\_reg** parameter.