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import numpy as np
from keras.models import Sequential
from keras.layers.core import Dense
training_data = np.array([[0,0],[0,1],[1,0],[1,1]], "float32")
target_data = np.array([[0],[1],[1],[0]], "float32")
model = Sequential()
model.add(Dense(16, input_dim=2, activation='relu'))
model.add(Dense(1, activation='sigmoid'))
model.compile(loss='mean_squared_error',
optimizer='adam',
metrics=['binary_accuracy'])
model.fit(training_data, target_data, epochs=1000)
scores = model.evaluate(training_data, target_data)
print("\n%s: %.2f%%" % (model.metrics_names[1], scores[1]*100))
print (model.predict(training_data).round())
#XOR Gate

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Epoch 960/1000
1/1 [=====] - 0s 4ms/step - loss: 0.0210 - binary_accuracy: 0.98
Epoch 961/1000
1/1 [=====] - 0s 4ms/step - loss: 0.0209 - binary_accuracy: 0.98
Epoch 962/1000
1/1 [=====] - 0s 9ms/step - loss: 0.0209 - binary_accuracy: 0.98
Epoch 963/1000
1/1 [=====] - 0s 5ms/step - loss: 0.0208 - binary_accuracy: 0.98
Epoch 964/1000
1/1 [=====] - 0s 8ms/step - loss: 0.0207 - binary_accuracy: 0.98
Epoch 965/1000
1/1 [=====] - 0s 10ms/step - loss: 0.0207 - binary_accuracy: 0.98
Epoch 966/1000
1/1 [=====] - 0s 6ms/step - loss: 0.0206 - binary_accuracy: 0.98
Epoch 967/1000
1/1 [=====] - 0s 4ms/step - loss: 0.0206 - binary_accuracy: 0.98
Epoch 968/1000
1/1 [=====] - 0s 7ms/step - loss: 0.0205 - binary_accuracy: 0.98
Epoch 969/1000
1/1 [=====] - 0s 18ms/step - loss: 0.0205 - binary_accuracy: 0.98
Epoch 970/1000
1/1 [=====] - 0s 6ms/step - loss: 0.0204 - binary_accuracy: 0.98
Epoch 971/1000
1/1 [=====] - 0s 15ms/step - loss: 0.0204 - binary_accuracy: 0.98
Epoch 972/1000
1/1 [=====] - 0s 13ms/step - loss: 0.0203 - binary_accuracy: 0.98
Epoch 973/1000
1/1 [=====] - 0s 5ms/step - loss: 0.0203 - binary_accuracy: 0.98
Epoch 974/1000
1/1 [=====] - 0s 5ms/step - loss: 0.0202 - binary_accuracy: 0.98
Epoch 975/1000
1/1 [=====] - 0s 6ms/step - loss: 0.0202 - binary_accuracy: 0.98
Epoch 976/1000
1/1 [=====] - 0s 8ms/step - loss: 0.0201 - binary_accuracy: 0.98
Epoch 977/1000
1/1 [=====] - 0s 6ms/step - loss: 0.0201 - binary_accuracy: 0.98
Epoch 978/1000
1/1 [=====] - 0s 17ms/step - loss: 0.0200 - binary_accuracy: 0.98
Epoch 979/1000
1/1 [=====] - 0s 19ms/step - loss: 0.0200 - binary_accuracy: 0.98
Epoch 980/1000

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1/1 [=====] - 0s 8ms/step - loss: 0.0199 - binary_accuracy: 0.9801  
Epoch 981/1000  
1/1 [=====] - 0s 10ms/step - loss: 0.0199 - binary_accuracy: 0.9801  
Epoch 982/1000  
1/1 [=====] - 0s 6ms/step - loss: 0.0198 - binary_accuracy: 0.9801  
Epoch 983/1000  
1/1 [=====] - 0s 8ms/step - loss: 0.0198 - binary_accuracy: 0.9801  
Epoch 984/1000  
1/1 [=====] - 0s 15ms/step - loss: 0.0197 - binary_accuracy: 0.9801  
Epoch 985/1000  
1/1 [=====] - 0s 11ms/step - loss: 0.0197 - binary_accuracy: 0.9801  
Epoch 986/1000  
1/1 [=====] - 0s 7ms/step - loss: 0.0196 - binary_accuracy: 0.9801  
Epoch 987/1000  
1/1 [=====] - 0s 5ms/step - loss: 0.0196 - binary_accuracy: 0.9801  
Epoch 988/1000  
1/1 [=====] - 0s 6ms/step - loss: 0.0195 - binary_accuracy: 0.9801  
Epoch 989/1000
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✓ 24s completed at 9:55 AM

