#For DQN:

nb\_actions = env.action\_space.n

model = Sequential()

model.add(LSTM(64, input\_shape=(MAX\_STEPS,10), return\_sequences=True))

model.add(LSTM(64, return\_sequences = True))

model.add(LSTM(64))

model.add(Dropout(0.2))

model.add(Dense(32))

model.add(Activation('relu'))

model.add(Dense(nb\_actions))

model.add(Activation('linear'))

print(model.summary())

from rl.core import Processor

class CustomProcessor(Processor):

'''

acts as a coupling mechanism between the agent and the environment

'''

def process\_state\_batch(self, batch):

'''

Given a state batch, I want to remove the second dimension, because it's

useless and prevents me from feeding the tensor into my CNN

'''

return np.squeeze(batch, axis=1)

processor = CustomProcessor()

memory = SequentialMemory(limit=50000, window\_length=1)

policy = BoltzmannQPolicy()

dqn = DQNAgent(model=model, nb\_actions=nb\_actions, memory=memory, nb\_steps\_warmup=500,

target\_model\_update=1e-2, policy=policy, processor = processor)

dqn.compile(Adam(lr=1e-4), metrics=['mae'])

profit=[]

history = dqn.fit(env, nb\_steps=100000, visualize=True, verbose=0)

print('Done!')

plot(profit, 100)

pd.DataFrame(history.history)[["episode\_reward", "nb\_episode\_steps"]].plot(figsize=(7,5));

dqn.save\_weights('saves/dqn\_FXenv\_weights.h5f', overwrite=True)

print('saved')

dqn.test(env, nb\_episodes=5, visualize=False)

#Dueling DQN:

memory = SequentialMemory(limit=50000, window\_length=1)

policy = BoltzmannQPolicy()

dqn2 = DQNAgent(model=model, nb\_actions=nb\_actions, memory=memory, nb\_steps\_warmup=500,

target\_model\_update=1e-2, policy=policy, processor = processor)

dqn2.compile(Adam(lr=1e-4), metrics=['mae'])

profit=[]

history2 = dqn2.fit(env, nb\_steps=100000, visualize=True, verbose=0)

print('Done!')

plot(profit, 100)

pd.DataFrame(history2.history)[["episode\_reward", "nb\_episode\_steps"]].plot(figsize=(7,5));

dqn2.save\_weights('saves/duel\_dqn\_FXenv\_weights.h5f', overwrite=True)

print('saved')

dqn2.test(env, nb\_episodes=5, visualize=False)