Week 2

Reinforcement Learning for Trading Strategies

Week 2

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Neural Network Based Reinforcement Learning

In the previous module, reinforcement learning was discussed before neural networks were introduced. In this module, we look at how reinforcement learning has been integrated with neural networks. We also look at LSTMs and how they can be applied to time series data.

Less

Learning Objectives

- Understand how neural networks are used in reinforcement learning.
- Understand the loss function used in Deep Q Learning.
- See how Deep Q Networks are implemented in code.
- Understand the Actor-Critic model.
- Differentiate between the Actor-Critic model and Deep Q Networks.
- Describe LSTMs and how they apply to time series.
- Apply LSTMs to time series data.

Less

Q-Networks

Video: TD-Gammon 3 min — Resume

Video: Deep Q Networks - Loss 2 min

Video: Deep Q Networks Memory 2 min

Video: Deep Q Networks - Code 3 min

Graded External Tool: Reinforcement Learning DQN 2h — Due Mar 1, 1:59 AM CST

Policy Gradients

Video: Policy Gradients 4 min

Video: Actor-Critic 3 min

Graded External Tool: Policy Gradients and Actor-to-Critic 2h 30m — Due Mar 1, 1:59 AM CST

What is LSTM and How to Apply It

Video: What is LSTM? 7 min

Video: More on LSTM 4 min

Video: Applying LSTM to Time Series Data 7 min