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Reinforcement Learning for Trading Strategies

 3.7 145 ratings • 37 reviewsJack Farmer [+1 more instructor](#)[Go To Course](#)

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About this Course

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In the final course from the Machine Learning for Trading specialization, you will be introduced to reinforcement learning (RL) and the benefits of using reinforcement learning in trading strategies. You will learn how RL has been integrated with neural networks and review LSTMs and how they can be applied to time series data. By the end of the course, you will be able to build trading strategies using reinforcement learning, differentiate between actor-based policies and value-based policies, and incorporate RL into a momentum trading strategy.

To be successful in this course, you should have advanced competency in Python programming and familiarity with pertinent libraries for machine learning, such as Scikit-Learn, StatsModels, and Pandas. Experience with SQL is recommended. You should have a background in statistics (expected values and standard deviation, Gaussian distributions, higher moments, probability, linear regressions) and foundational knowledge of financial markets (equities, bonds, derivatives, market structure, hedging).

WHAT YOU WILL LEARN

- Understand the structure and techniques used in reinforcement learning (RL) strategies.
- Understand the benefits of using RL vs. other learning methods.
- Describe the steps required to develop and test an RL trading strategy.
- Describe the methods used to optimize an RL trading strategy.

SKILLS YOU WILL GAIN

- Reinforcement Learning Model Development
- Reinforcement Learning Trading Algorithm Optimization
- Reinforcement Learning Trading Strategy Development
- Reinforcement Learning Trading Algo Development



Shareable Certificate

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100% online

Start instantly and learn at your own schedule.



Course 3 of 3 in the Machine Learning for Trading Specialization



Flexible deadlines

Reset deadlines in accordance to your schedule.



Intermediate Level

Familiarization with basic concepts in Machine Learning and Financial Markets; advanced competency in Python Programming.



Approx. 12 hours to complete



English

Subtitles: English

Instructors

Instructor rating  4/5 (16 Ratings) [\(i\)](#)



Jack Farmer

Curriculum Director
New York Institute of Finance

 33,805 Learners
 7 Courses



Ram Seshadri

Machine Learning Consultant
Google Cloud Platform

 27,074 Learners
 3 Courses

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rew my mind. Each course was educational, which encouraged me

— Lisa L.



Coursera's rigorous assignments and broad range of subjects encourage me to keep up with my courses. The quality of the teachers keeps me coming back.

— Sandra O.



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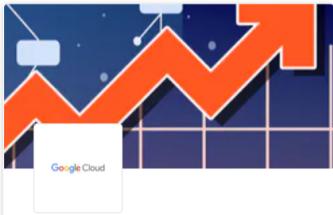
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3 COURSES



Reinforcement Learning in Finance

New York University

1 COURSE

Syllabus - What you will learn from this course

WEEK



3 hours to complete

1

Introduction to Course and Reinforcement Learning

In this module, reinforcement learning is introduced at a high level. The history and evolution of reinforcement learning is presented, including key concepts like value and policy iteration. Also, the benefits and examples of using reinforcement learning in trading strategies is described. We also introduce LSTM and AutoML as additional tools in your toolkit to use in implementing trading strategies.



10 videos (Total 64 min), 1 reading, 1 quiz [SEE LESS](#)

10 videos

Introduction to Course 2m

What is Reinforcement Learning? 9m

History Overview 2m

Value Iteration 9m

Policy Iteration 6m

TD Learning 8m

Q Learning 6m

Benefits of Reinforcement Learning in Your Trading Strategy 6m

DRL Advantages for Strategy Efficiency and Performance 7m

Introduction to Qwiklabs 3m



1 reading

Idiosyncrasies and challenges of data driven learning in electronic trading 10m

WEEK



5 hours to complete

2

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.



9 videos (Total 39 min) [SEE LESS](#)

9 videos

TD-Gammon 3m

Deep Q Networks - Loss 2m

Deep Q Networks Memory 2m

Deep Q Networks - Code 3m

Policy Gradients 4m

Actor-Critic 3m

What is LSTM? 7m

More on LSTM 4m

Applying LSTM to Time Series Data 7m

WEEK



4 hours to complete

3

Portfolio Optimization

In this module we discuss the practical steps required to create a reinforcement learning trading system. Also, we introduce AutoML, a powerful service on Google Cloud Platform for training machine learning models with minimal coding.



10 videos (Total 54 min) SEE LESS



10 videos

How to Develop a DRL Trading System 1m

Steps Required to Develop a DRL Strategy 7m

Final Checks Before Going Live with Your Strategy 5m

Investment and Trading Risk Management 4m

Trading Strategy Risk Management 4m

Portfolio Risk Reduction 4m

Why AutoML? 13m

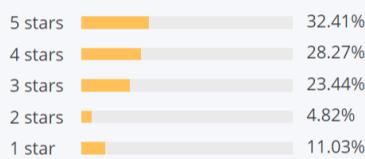
AutoML Vision 2m

AutoML NLP 3m

AutoML Tables 7m

Reviews

3.7 ★★★★☆
37 reviews



TOP REVIEWS FROM REINFORCEMENT LEARNING FOR TRADING STRATEGIES

★★★★☆

by JM Jul 19, 2020

perhaps an applied trading notebook would have been nice...I understand that liability issues might have arisen, but there might have been a reasonable avenue with repeat disclaimers, etc

★★★★☆

by SA Mar 11, 2020

The course covers broad and important topics on using AI for trading, but one will need to dig more quite extensively on alternative sources to deepen one's understanding



by MS Mar 6, 2020

It was easy to follow but not easy. I learned a lot and I now have the confidence to implement Reinforcement learning to my own FX trading strategies. Thank you so much.



by RA Feb 3, 2021

After the first two courses, this one grabs you into the reinforcement learning spectrum. This topic has been revealing to me and its applications to trading

[View all reviews](#)

About the Machine Learning for Trading Specialization

This 3-course Specialization from Google Cloud and New York Institute of Finance (NYIF) is for finance professionals, including but not limited to hedge fund traders, analysts, day traders, those involved in investment management or portfolio management, and anyone interested in gaining greater knowledge of how to

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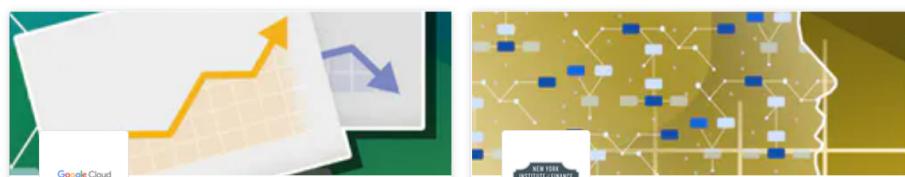
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1 COURSE

Using Machine Learning in Trading and Finance

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1 COURSE

Frequently Asked Questions

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› What will I get if I subscribe to this Specialization?

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