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This course is part of the **Machine Learning Engineering for Production (MLOps) Specialization**

Machine Learning Data Lifecycle in Production

★★★★★ 4.5 274 ratings • 49 reviews



Robert Crowe

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About this Course

141,719 recent views

In the second course of Machine Learning Engineering for Production Specialization, you will build data pipelines by gathering, cleaning, and validating datasets and assessing data quality; implement feature engineering, transformation, and selection with TensorFlow Extended and get the most predictive power out of your data; and establish the data lifecycle by leveraging data lineage and provenance metadata tools and follow data evolution with enterprise data schemas.

Understanding machine learning and deep learning concepts is essential, but if you're looking to build an effective AI career, you need production engineering capabilities as well. Machine learning engineering for production combines the foundational concepts of machine learning with the functional expertise of modern software development and engineering roles to help you develop production-ready skills.

Week 1: Collecting, Labeling, and Validating data

Week 2: Feature Engineering, Transformation, and Selection

Week 3: Data Journey and Data Storage

Week 4: Advanced Data Labeling Methods, Data Augmentation, and Preprocessing Different Data Types

WHAT YOU WILL LEARN

- Identify responsible data collection for building a fair ML production system.
- Implement feature engineering, transformation, and selection with TensorFlow Extended
- Understand the data journey over a production system's lifecycle and leverage ML metadata and enterprise schemas to address quickly evolving data.

SKILLS YOU WILL GAIN

ML Metadata Convolutional Neural Network TensorFlow Extended (TFX) Data Validation
Data transformation

Flexible deadlines

Reset deadlines in accordance to your schedule.

Shareable Certificate

Earn a Certificate upon completion

100% online

Start instantly and learn at your own schedule.

Course 2 of 4 in the

Machine Learning Engineering for Production (MLOps) Specialization

Advanced Level

- Some knowledge of AI / deep learning
- Intermediate Python skills
- Experience with any deep learning framework (PyTorch, Keras, or TensorFlow)

Approx. 22 hours to complete

English

Subtitles: English

Instructor

Instructor rating 4.25/5 (86 Ratings)



Robert Crowe

Instructor

TensorFlow Developer Engineer, Google

16,343 Learners

3 Courses

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DeepLearning.AI is an education technology company that develops a global community of AI talent.

DeepLearning.AI's expert-led educational experiences provide AI practitioners and non-technical professionals with the necessary tools to go all the way from foundational basics to advanced application, empowering them to build an AI-powered future.



Courses on Coursera played a major role in my career transition. I learned skills that helped me immensely during my interviews.
— Ujjwal.



When I need courses on topics that my university doesn't offer, Coursera is one of the best places to go.
— Larry W.



The Specialization I completed was an eye-opening experience. It changed my perspective on how I could help advance my field.
— [Name]



Other courses in this Specialization

 Introduction to Machine Learning in Production DeepLearning.AI 1 COURSE	 Machine Learning Modeling Pipelines in Production DeepLearning.AI 1 COURSE	 Deploying Machine Learning Models in Production DeepLearning.AI 1 COURSE
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Syllabus - What you will learn from this course

Content Rating  85% (1,668 ratings) ⓘ

WEEK

 7 hours to complete

1

Week 1: Collecting, Labeling and Validating Data

This week covers a quick introduction to machine learning production systems. More concretely you will learn about leveraging the TensorFlow Extended (TFX) library to collect, label and validate data to make it production ready.



12 videos (Total 95 min), 3 readings, 6 quizzes [SEE LESS](#)

 12 videos

Specialization overview 6m

Course Overview 2m

Overview 11m

ML Pipelines 6m

Importance of Data 8m

Example Application: Suggesting Runs 8m

Responsible Data: Security, Privacy & Fairness 11m

Case Study: Degraded Model Performance 9m

Data and Concept Change in Production ML 5m

Process Feedback and Human Labeling 11m

Detecting Data Issues 7m

TensorFlow Data Validation 6m

 3 readings

Week 1 Optional References 3m

How to Download your Notebook 10m

Partial Grading for Assignments 2m

 4 practice exercises

Intro to MLEP 12m

Data Collection 15m

Data Labeling 5m

Issues in Training Data 10m

WEEK

 7 hours to complete

2

Week 2: Feature Engineering, Transformation and Selection

Implement feature engineering, transformation, and selection with TensorFlow Extended by encoding structured and unstructured data types and addressing class imbalances



12 videos (Total 86 min), 1 reading, 4 quizzes [SEE LESS](#)

12 videos

Introduction to Preprocessing 5m

Preprocessing Operations 6m

Feature Engineering Techniques 10m

Feature Crosses 3m

Preprocessing Data at Scale 12m

TensorFlow Transform 14m

Hello World with tf.Transform 7m

Feature Spaces 5m

Feature Selection 4m

Filter Methods 6m

Wrapper Methods 5m

Embedded Methods 5m

1 reading

Week 2 Optional References 3m

3 practice exercises

Feature Engineering and Preprocessing 15m

Feature Transformation 15m

Feature Selection 8m

WEEK

3

5 hours to complete

Week 3: Data Journey and Data Storage

Understand the data journey over a production system's lifecycle and leverage ML metadata and enterprise schemas to address quickly evolving data.



8 videos (Total 42 min), 1 reading, 4 quizzes [SEE LESS](#)

8 videos

Data Journey 6m

Introduction to ML Metadata 8m

ML Metadata in Action 4m

Schema Development 4m

Schema Environments 4m

Feature Stores 6m

Data Warehouse 3m

Data Lakes 2m

1 reading

Week 3 Optional References 3m

3 practice exercises

Data Journey 5m

Schema Environments 5m

Enterprise Data Storage 8m

WEEK

4

3 hours to complete

Week 4 (Optional): Advanced Labeling, Augmentation and Data Preprocessing

Combine labeled and unlabeled data to improve ML model accuracy and augment data to diversify your training set.



6 videos (Total 31 min), 5 readings, 3 quizzes [SEE LESS](#)

6 videos

Semi-supervised Learning 4m

Active Learning 4m

Weak Supervision 5m

Data Augmentation 4m

Time Series 8m

Sensors and Signals 3m

5 readings

Feature Engineering with Weather Data 50m

Feature Engineering with Accelerometer Data 50m

Week 4 Optional References 3m

Course 2 Optional References 3m

Acknowledgements 3m

3 practice exercises

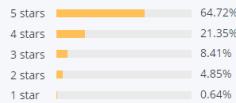
Advanced Labelling 5m

Data Augmentation 5m

Different Data Types 5m

Reviews

4.5  49 reviews



TOP REVIEWS FROM MACHINE LEARNING DATA LIFECYCLE IN PRODUCTION

 by SC Jul 3, 2021

Interesting material. There are quite a lot of typos and many code snippets are directly from the tfx manual pages however the instructions provided and logic of the course is clear.

 by WR Jul 27, 2021

It's a new course so sometimes there are mistakes in the translations or there is something off in the assignment's grading, but the content is great. :)

 by AW Oct 14, 2021

It is a very informative course. I learned a lot about data, metadata, schema and feature engineering. Also, Robert Crowe sir is a very good teacher.

 by SC Jul 21, 2021

Best course for the professionals looking to upgrade their ML skills at production level! Thanks to the brilliant and wonderful course instructor.

[View all reviews](#)

About the Machine Learning Engineering for Production (MLOps) Specialization

Understanding machine learning and deep learning concepts is essential, but if you're looking to build an effective AI career, you need production engineering capabilities as well.

Effectively deploying machine learning models requires competencies more commonly found in technical fields such as software engineering and DevOps. Machine learning engineering for production combines

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13,788 already enrolled

Frequently Asked Questions

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