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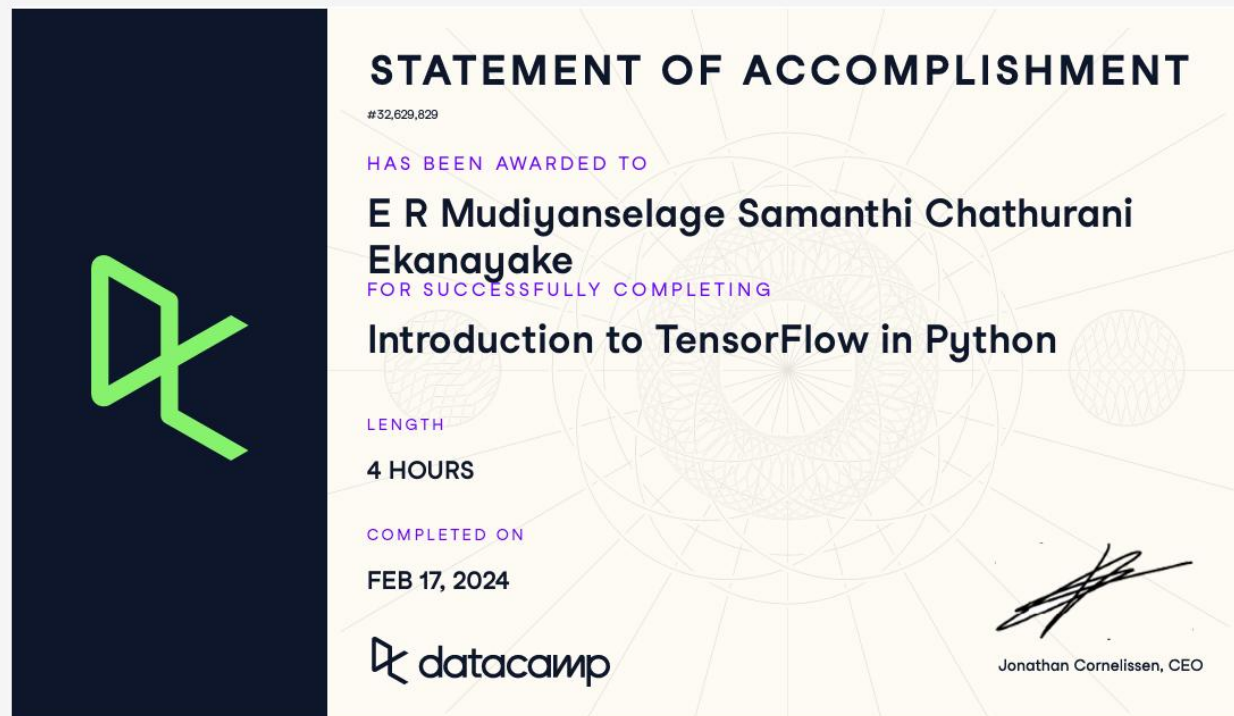
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1 Introduction to TensorFlow 100%

Before you can build advanced models in TensorFlow 2, you will first need to understand the basics. In this chapter, you'll learn how to define constants and variables, perform tensor addition and multiplication, and compute derivatives. Knowledge of linear algebra will be helpful, but not necessary.

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Complete

- Constants and variables ✓ 50 XP
- Defining data as constants ✓ 100 XP
- Defining variables ✓ 100 XP
- Basic operations ✓ 50 XP
- Performing element-wise multiplication ✓ 100 XP
- Making predictions with matrix multiplication ✓ 100 XP
- Summing over tensor dimensions ✓ 50 XP
- Advanced operations ✓ 50 XP
- Reshaping tensors ✓ 100 XP
- Optimizing with gradients ✓ 100 XP
- Working with Image data ✓ 100 XP

King County House Sales Dataset

UCI Credit Card Default Dataset

Sign Language MNIST Dataset

Isalah Hull
Economist

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2 Linear models

100%

In this chapter, you will learn how to build, solve, and make predictions with models in TensorFlow 2. You will focus on a simple class of models – the linear regression model – and will try to predict housing prices. By the end of the chapter, you will know how to load and manipulate data, construct loss functions, perform minimization, make predictions, and reduce resource use with batch training.

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Complete

- Input data 50 XP
- Load data using pandas 100 XP
- Setting the data type 100 XP
- Loss functions 50 XP
- Loss functions In TensorFlow 100 XP
- Modifying the loss function 100 XP
- Linear regression 50 XP
- Set up a linear regression 100 XP
- Train a linear model 100 XP
- Multiple linear regression 100 XP
- Batch training 50 XP
- Preparing to batch train 100 XP
- Training a linear model in batches 100 XP



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3 Neural Networks 100%


The previous chapters taught you how to build models in TensorFlow 2. In this chapter, you will apply those same tools to build, train, and make predictions with neural networks. You will learn how to define dense layers, apply activation functions, select an optimizer, and apply regularization to reduce overfitting. You will take advantage of TensorFlow's flexibility by using both low-level linear algebra and high-level Keras API operations to define and train models.


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✓ Complete


- Dense layers ✓ 50 XP
- The linear algebra of dense layers ✓ 100 XP
- The low-level approach with multiple examples ✓ 100 XP
- Using the dense layer operation ✓ 100 XP
- Activation functions ✓ 50 XP
- Binary classification problems ✓ 100 XP
- Multiclass classification problems ✓ 100 XP
- Optimizers ✓ 50 XP
- The dangers of local minima ✓ 100 XP
- Avoiding local minima ✓ 100 XP
- Training a network in TensorFlow ✓ 50 XP
- Initialization in TensorFlow ✓ 100 XP
- Defining the model and loss function ✓ 100 XP




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
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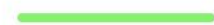
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-  Training a network In TensorFlow  50 XP
-  Initialization In TensorFlow  100 XP
-  Defining the model and loss function  100 XP
-  Training neural networks with TensorFlow  100 XP




















4 High Level APIs

 100%

In the final chapter, you'll use high-level APIs in TensorFlow 2 to train a sign language letter classifier. You will use both the sequential and functional Keras APIs to train, validate, make predictions with, and evaluate models. You will also learn how to use the Estimators API to streamline the model definition and training process, and to avoid errors.

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 Complete

-  Defining neural networks with Keras  50 XP
-  The sequential model In Keras  100 XP
-  Compiling a sequential model  100 XP
-  Defining a multiple Input model  100 XP
-  Training and validation with Keras  50 XP
-  Training with Keras  100 XP
-  Metrics and validation with Keras  100 XP
-  Overfitting detection  100 XP
-  Evaluating models  100 XP
-  Training models with the Estimators API  50 XP

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4 High Level APIs 100%

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Complete

- Defining neural networks with Keras 50 XP
- The sequential model in Keras 100 XP
- Compiling a sequential model 100 XP
- Defining a multiple input model 100 XP
- Training and validation with Keras 50 XP
- Training with Keras 100 XP
- Metrics and validation with Keras 100 XP
- Overfitting detection 100 XP
- Evaluating models 100 XP
- Training models with the Estimators API 50 XP
- Preparing to train with Estimators 100 XP
- Defining Estimators 100 XP
- Congratulations! 50 XP



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Course Description

Not long ago, cutting-edge computer vision algorithms couldn't differentiate between images of cats and dogs. Today, a skilled data scientist equipped with nothing more than a laptop can classify tens of thousands of objects with greater accuracy than the human eye. In this course, you will use TensorFlow 2.6 to develop, train, and make predictions with the models that have powered

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1 Introduction to TensorFlow

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