Deep Learning

FinTech

Lesson 14.2

Class Objectives

- Explain the difference between neural networks and deep neural networks.
- Build deep learning models using Keras.
- Save trained deep learning models built in Keras for further usage.
- Deploy models in the cloud using Google Colaboratory

Installation for Unit 15

Please install the following before the start of Unit 15 (Sept 15)

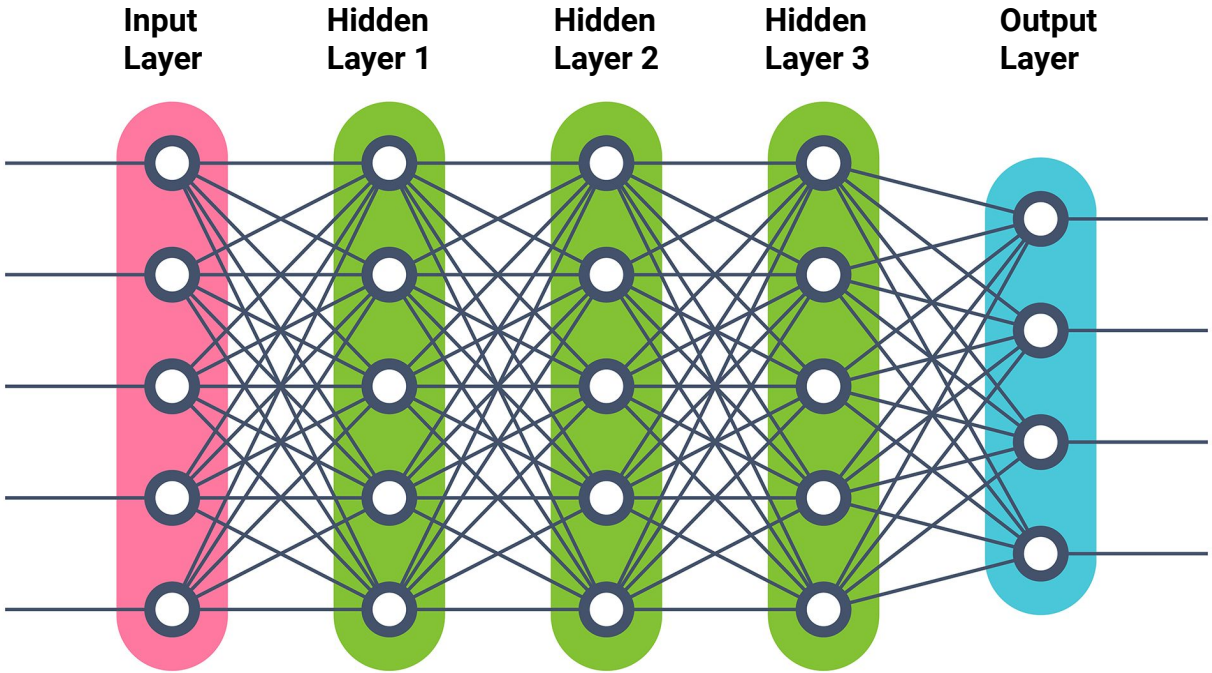
CCXT

Asyncio

What is deep learning?

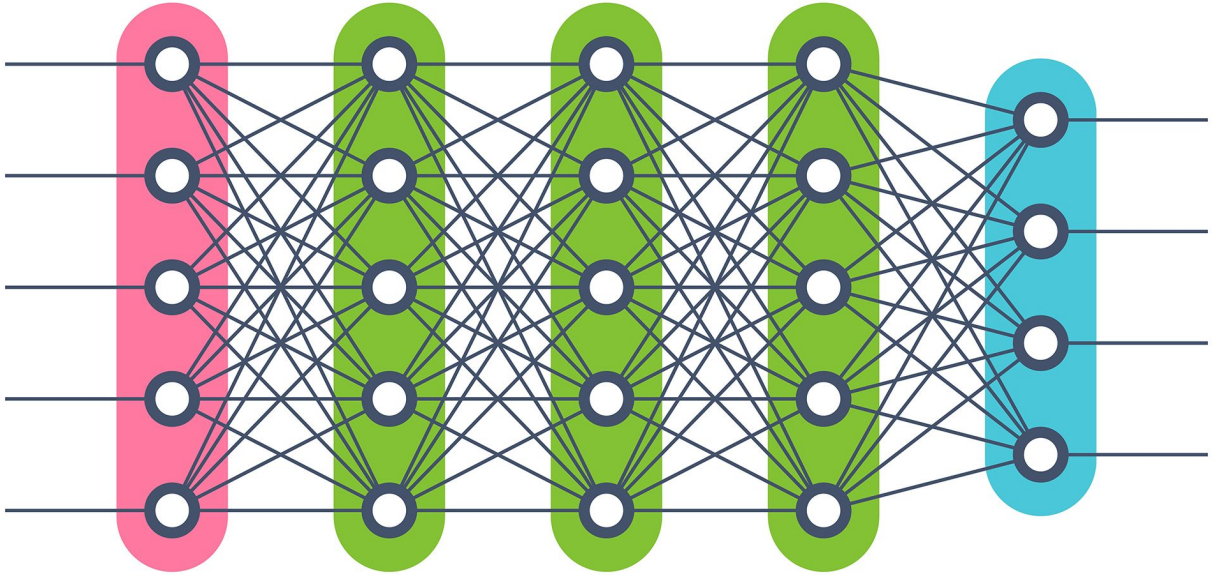
Deep Learning

Deep learning models are neural networks with more than one hidden layer.



Deep Learning

In image recognition, each layer is able to identify different features of an input image to decide what is it about.



Input layer

Edges

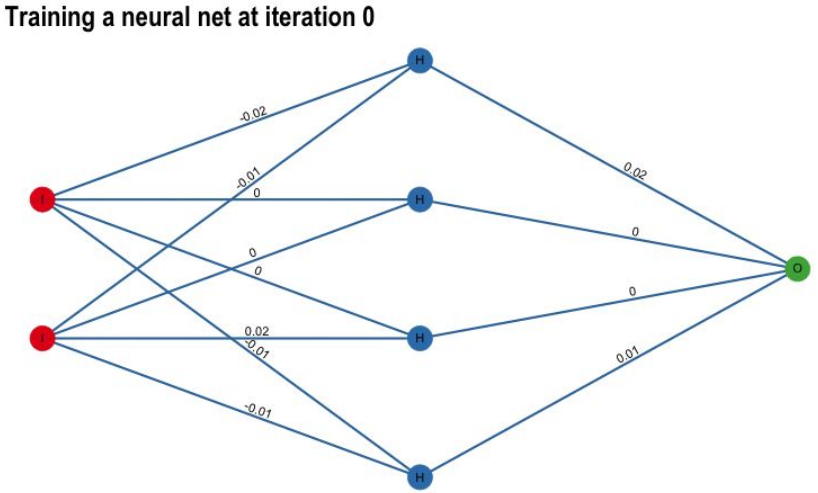
Combination of edges

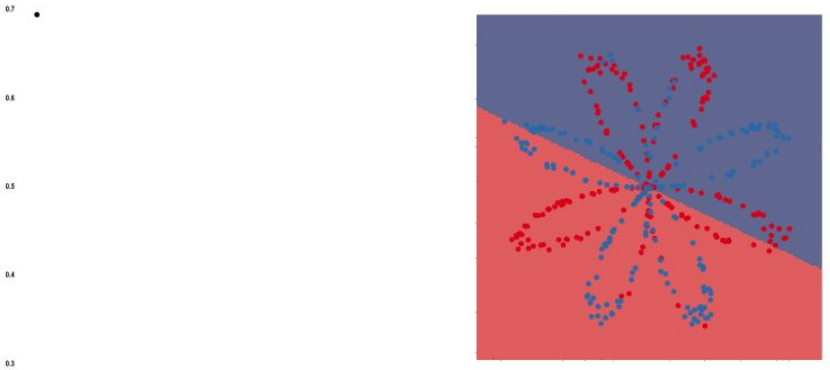
Object models

Understanding Deep Learning

Understanding Deep Learning

Neural networks work by calculating the weights of various input data and passing them on to the next layer of neurons.

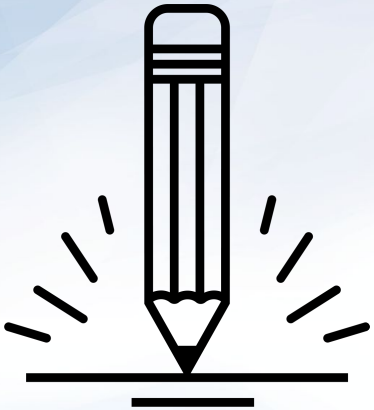




Understanding Deep Learning

The number of layers included in a neural network model determine whether it is a “deep” learning model or not.

Generally, networks with more than one "hidden" layer can be classified as "deep."



Activity:

Deep Learning with Keras

In this activity, we will build a deep learning model to predict the quality score of different wines.

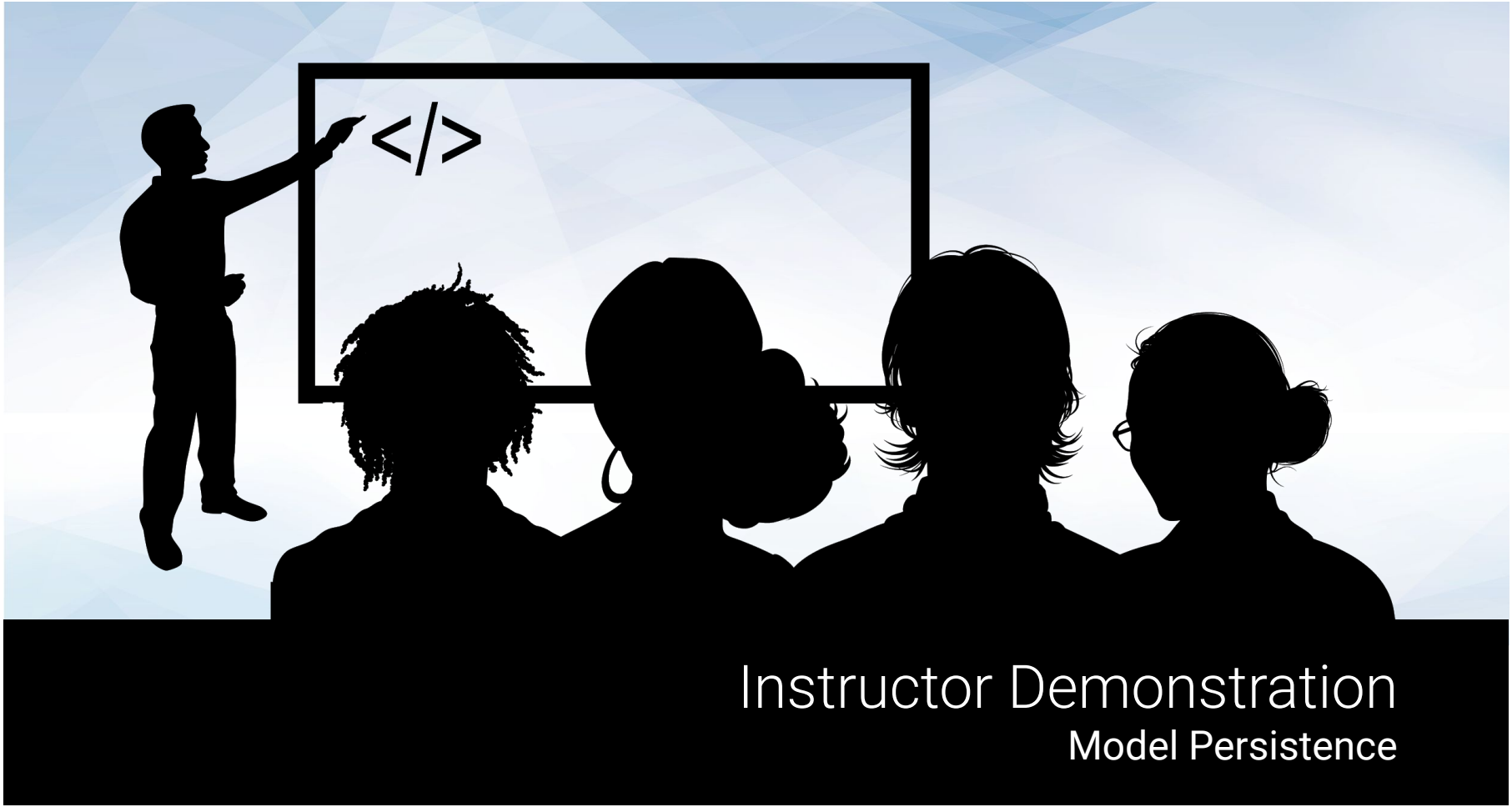
Suggested Time:
15 minutes

Challenge: Sound of Music

In this challenge, you will build a deep learning model to predict the geographical origins of a musical composition.

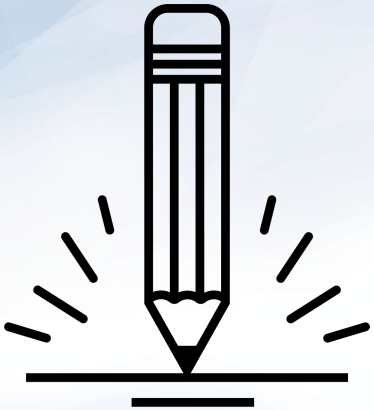
Suggested Time:
20 minutes

Time’s Up! Let’s Review.



Instructor Demonstration

Model Persistence



Activity: After Training

In this activity, you will create a deep learning model from the music geographies data, save it, and load it to evaluate its performance on unseen data.

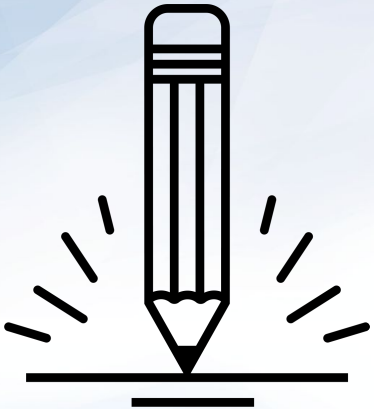
Suggested Time:
15 minutes

Time’s Up! Let’s Review.


Break

Google Collab

Introductory Video



Activity: Colaboratory, a Cloud-based Environment for Sharing ML Projects

In this activity, we will learn how to create and share Jupyter notebooks on Google Colaboratory, a cloud platform oriented toward machine learning.

Suggested Time:
20 minutes

Challenge:

Deep Learning on the Web

In this challenge, you will use the text classification demo notebook to understand and modify a deep learning classification model with Colab.

Suggested Time:
30 minutes

Time’s Up! Let’s Review.

Questions?


The End