PyTorch

What is?

PyTorch is an open source machine learning framework based on the Torch library, used for applications such as computer vision and natural language processing, primarily developed by Facebook's AI Research lab. It is free and open-source software released under the Modified BSD license.

Wikipedia…..

1. Level of API

TensorFlow	**K** Keras	ⓞ PyTorch
High- and Low-Level API	High Level API	Low Level API

2. Speed

TensorFlow	Keras	PyTorch
Very Fast, used for high performance	Slower than TensorFlow as it works on top of TensorFlow	Same speed as TensorFlow

3. Architecture

TensorFlow	Keras	PyTorch
Has a complex architecture and is hard to use	Has a simpler architecture as abstraction is used to make it simple to use	Has a complex architecture

5. Ease of Development

TensorFlow	**K Keras**	**ᗣ PyTorch**
Hard to develop and write code	Easy to develop and is best for newbies	Easier to learn than TensorFlow

6. Ease of Deployment

TensorFlow	Keras	PyTorch
Easy to deploy with 'TensorFlow Serving'	Model deployment can be done with TensorFlow serving or Flask	'Pytorch Mobile' makes deployment easy, but not as much as in TensorFlow

Which framework should you use?

TensorFlow has implemented various levels of abstraction to make implementation easy. This also makes debugging easy

It is simple and easy, but not as fast as TensorFlow. It is more user-friendly than any other deep learning API

It is the preferred deep learning API for teachers but is not as widely used in production as TensorFlow. Faster, but lower GPU utilization

PyTorch Basics: Tensors and Gradients

- Intro to Jupyter & data science in Python

- Creating vectors, matrices and tensors

- Tensors operations and gradient computation

- Interoperability with numpy, pandas etc.

Linear Regression & Gradient Descent

- Linear regression from scratch (using tensor operations)

- Gradient descent & model training using `autograd`

- PyTorch built-ins `nn.Linear`, `opt` etc.
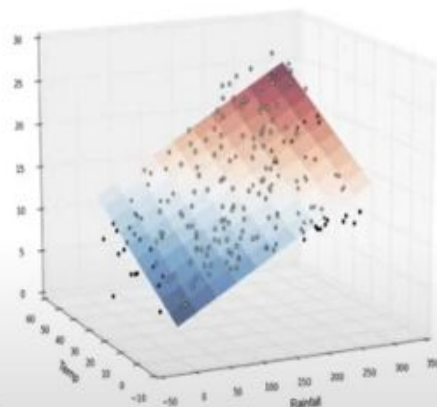
Prerequisites

- Basic Programming with Python (variables, data types, loops, functions etc.)
- Some high school mathematics (vectors, matrices, derivatives and probability)
- No prior knowledge of data science or deep learning is required