Lab: 1

Exploring Deep learning Platforms

Aim

To explore deep learning Platforms

object:

To explore various deep learning tools such as tinsor flow, Pytorch Keras & google colab and understand their key features Installation -> setup usability for implementing deep learning models.

Platforms upload:

1.) Jupyter Notebook :- Interaction code execution visulation supports many languages via kernels Data science visualization model testing

2) Keras :- A high level API that runs top of Tensor flow easy to use for beginners

3) Google colab : cloud based Jupyter notebook with free access to GPUs, support tensorflow and Pytorch out of the box

4) Pytorch : developed by Facebook, offers dynamic computational graphs, more flexible and Pythonic.

Platform	creator	Features	Popular case
Google colab	google	Free GPU/TPU Browser based, no setup needed	Education experiment training DL models
Jupyter notebook	Project Jupyter (open source)	Interactive code execution, visualization support many language	datascience visualization model testing
Pytorch	Facebook	Dynamic computation graph	research, academic project
Keras	Initially independent now Part of tensorflow	High level API easy model building runs on backend	quick Prototype

Graph types:

1) Google colab = N/A (Platform not framework)
2) Jupyter Notebook = N/A (IDE/interface)
3) Tensorflow = static
4) Pytorch = Dynamic
5) Keras = Abstracted

Key learnings :-

* understand the difference between static & dynamic graphs

* explored advantages of google colab for free GPU usage without local setup

* learned how keras simplifies deep learning model creation

conclusion :-

exploring different DL Platforms helped understand their features setup & usage. Running basic scripts in Tensorflow & Pytorch gave hands on experience with model building.

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