24/07/25 Exp 1 · Exploring The Deep Learning Platforms

Aim : To explore and understand various deep learning platforms, install key framework and run basic deep learning using PyTorch

Requirements / Tools :- Various Platform

- Google Colab :

  - Creator / Organization : Google
  - Main Features :
    * Free cloud - based Jupyter notebook environment
    * Provide access to GPU and TPU
    * No installation or setup required.
    * Pre installed libraries like TensorFlow and PyTorch
  - Popular Use Cases :
    * Running deep learning experiments without powerful PC.
    * Collaborative coding and educational projects.
  - Key Differences :
    * Cloud based platform ideal for beginners and those without hardware Resources.

2. TensorFlow

- Creator / Organization : Google Brain
- Main Features :
  * Uses Static Computation graph
  * Supports TensorBoard for Visualization
  * Provides TensorFlow Lite for mobile development.
  * Scalable for both Research and Production.
- Popular Use Cases
  * Image Classification
  * NLP
  * Speech Recognition
- Key Differences :
  * Static graph offers High Performance in deployment but is less flexible for debugging compared To Dynamic graph

3. PyTorch

- Creator / Organization : Facebook AI Research
- Main features :
  * Uses dynamic Computation graph
  * Pythonic and easy to use.
  * Supports GPU acceleration
- Popular Use Cases
  * Academic and industrial research
  * Computer Vision Tasks
  * NLP application
- Key Differences
  * Dynamic graph makes it easier for debugging and flexible model development compared to tensorflow

Hi Jupyter NoteBook / Lab

- Creator / Organization : Project Jupyter
- Main Features :
  * Interactive coding environment supporting multiple languages.
  * Allows mix of codes, output, visualizations
  * Highly extensible and with Plugins and Kernels
- Popular Use Cases :
  * Data Analysis and Visualization
  * Writing & Testing ML codes
  * Creating experiment reports
- Key Differences :

* Not a deep learning framework by itself but a powerful Tool to run and visualize deep learning Code Using Tensorflow & PyTorch

Result

~~Exploration~~ Explored Various Deep Learning Platforms.

1, 31/3/25