Python For Machine Learning: A Beginner's Workshop

UE19EC353: Machine Learning

Jan - May 2022

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Date: 17/01/2022 - 21/01/2022

Overview & Purpose

This is a beginner workshop for learning to use Python for machine learning. This workshop is an introductory one to teach students the building blocks of ML projects. It is a part of the course UE19EC353: Machine Learning for the Jan-May 2022 session for students of the 6th sem of the ECE Dept of PES University (RR and EC Campus).

Objectives

1. Learning Python for ML
2. Understand the tools and techniques
3. Numerical python
4. Reading data and visualization
5. An introduction to building ML programs with scikit learn
6. An introduction to building Dl programs with Tensorflow

Requirements

1. A personal PC/Laptop with Windows/Linux/Mac
2. Python 3.5+ installed
3. Windows : Install Anaconda Navigator (for Jupyter notebook); Else for linux/Mac : install jupyter notebook using pip.
4. Have a google account: Needed for using Google colab.
5. Have the following packages installed using the below commands:

```
$ pip install numpy
$ pip install pandas
$ pip install matplotlib
$ pip install scikit-learn
$ pip install opencv-python
$ pip install --user --upgrade tensorflow
```

Note: This is the simplest method to install packages. If you are comfortable installing using any other methods, please do so.

6. An internet connection

Verification

Steps to check for student understanding if they have installed

```
>>> import numpy
>>> import pandas
>>> import matplotlib
>>> import sklearn
>>> import cv2
>>> import tensorflow
2022-01-15 13:24:39.032958: I
tensorflow/stream_executor/platform/default/dso_loader.cc:48]
Successfully opened dynamic library cudart64_101.dll
```

Note : If you come across any errors in reaching up to this point, please mail to venkatramnank@pesu.pes.edu.

Activity

- **Day 1 :**
  - Introduction to Machine Learning Workshop.
  - Chapter 1 : Starting off with Numpy: Numerical Python
- **Day 2 :**
  - Chapter 2 : Playing with tabular Data: Pandas
  - Chapter 3 : Visualizing with Matplotlib
- **Day 3 :**
  - Chapter 4 : Learning Scikit Learn: The Machine Learning Python tool
  - Chapter 5 : Jumping Into Images: OpenCV
- **Day 4 :**
  - Chapter 6 : Going Deep : Tensorflow

Materials

All the Jupyter notebooks and other material will be uploaded on the End of Day Basis in the following github repo :https://github.com/venkatramnank/PythonForMLWorkshop

The books for further study are uploaded in the google drive link which will be shared later.

Contact

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