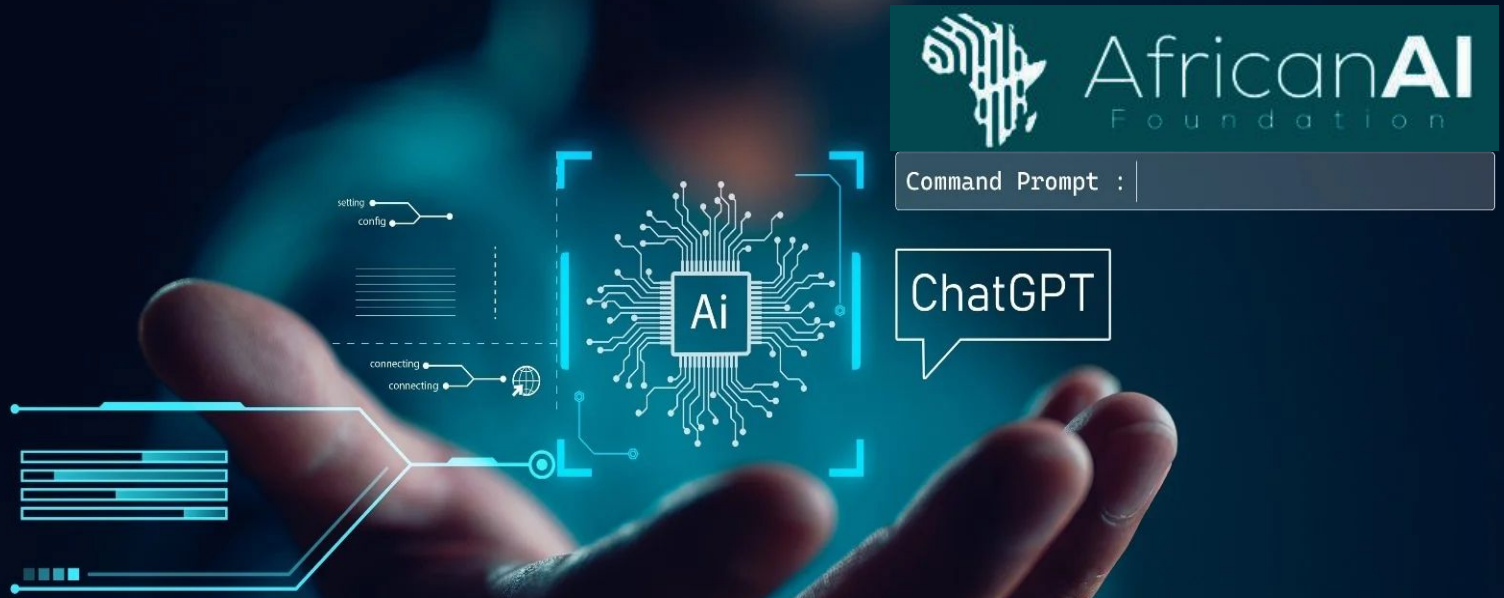
Hands On: Applied Machine Learning



Tolulope Odetola

About the Tutor (Me)

Education:

Bachelors
Obafemi Awolowo University (OAU)
Electrical and Electronic Engineering

Masters
Tennessee Technological University (TTU)
Electrical and Computer Engineering

Doctorate (Ph.D.)
Tennessee Technological University (TTU)
Electrical and Computer Engineering

Experience:

VentureGarden GROUP

Boston Scientific

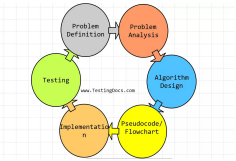
Whirlpool CORPORATION

Specialization:

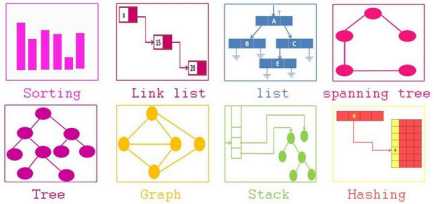
- Deployment of machine learning algorithms on resource constrained devices
- Machine learning explainability and security

Prerequisite Packages/Libraries/Knowledge

Python
programming Language



Algorithms



Data Structures

pandas

jupyter

Exploratory Data Analysis

scikit learn

TensorFlow

PyTorch

Caffe
Machine Learning

Machine Learning
Training and Testing

Prerequisite Resources

kaggle

https://www.javatpoint.com/how-to-get-datasets-for-machine-learning

Data

colab

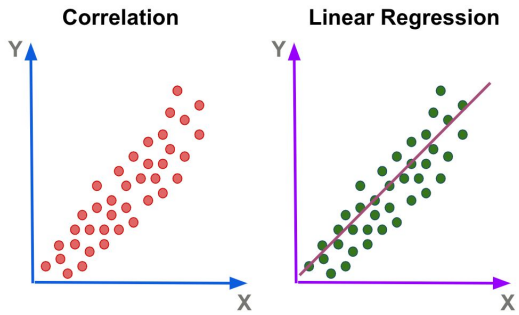
Development

Hugging Face

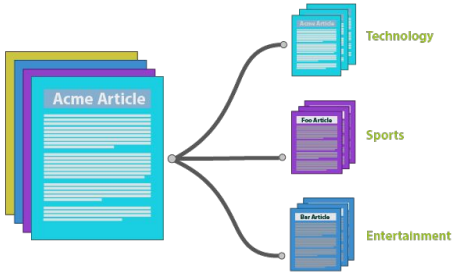
https://stats.stackexchange.com/questions/327068/where-to-find-pre-trained-models-for-transfer-learning#:~:text=Many%20pretrained%20models%20for%20various,pretrained%20models%20themselves%2C%20e.g.%20ResNeXt.

Models

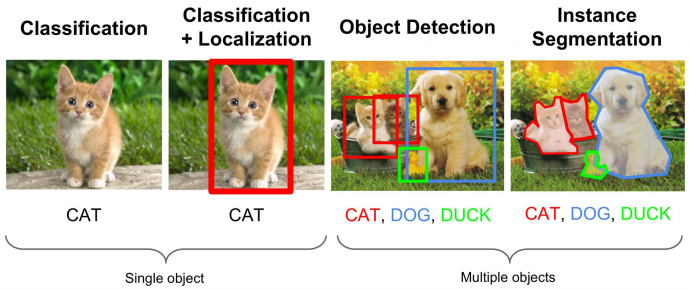
About the Class: The Flow



Regression



Text Classification

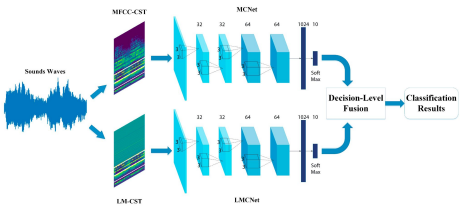


Computer Vision:

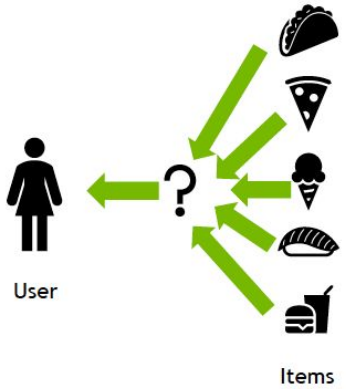
Image classification, Object detection, Image Segmentation

and so on

… if time permits



Audio Classification



Recommender Systems

Lets Wet Our Appetite: The Possibilities

https://www.linkedin.com/jobs/search/?currentJobId=3656649961&f_E=2&f_WT=2&keywords=machine%20learning%20engineer

https://www.google.com/search?q=google+jobs+machine+learning+engineer+remote&sca_esv=557804163&rlz=1C5GCEM_enUS1020US1020&sxsrf=AB5stBiAYiEM5RHKSn5FysDCGYNEzIcM7Q:1692295658729&ei=6mHeZPqGLLSrqtsP1KOUyAs&uact=5&oq=google+jobs+machine+learning+engineer+remote&gs_lp=Egxnd3Mtd2l6LXNlcnAaAhgCIixnb29nbGUgam9icyBtYWNoaW5lIGxlYXJuaW5nIGVuZ2luZWVyIHJlbW90ZTIFECEYoAEyBRAhGKsCSNc3UIMBWN82cAF4AZABAJgBeaABhA-qAQQxMC45uAEDyAEA-AEBwgITEAAYRxjWBBiwAxiLAxioAximA8ICChAAGEcY1gQYsAPCAgoQABiKBRiwAxhDwgINEAAYigUYsAMYQxiLA8ICCxAAGIAEGLEDGIMBwgIFEAAYgATCAggQABiABBixA8ICChAAGIoFGLEDGEPCAgcQABiKBRhDwgIKEAAYgAQYFBiHAsICCBAAGIoFGJECwgIGEAAYFhgewgIIEAAYigUYhgPCAggQIRgWGB4YHeIDBBgAIEGIBgGQBgo&sclient=gws-wiz-serp&ibp=htl;jobs&sa=X&ved=2ahUKEwjm5vTRpOSAAxWfCTQIHQ4yDW8QutcGKAF6BAgTEAY#htivrt=jobs&htidocid=Prkh9WGuYpMAAAAAAAAAAA%3D%3D&fpstate=tldetail

Before We Start
(Pep-Talk: Motivationals)

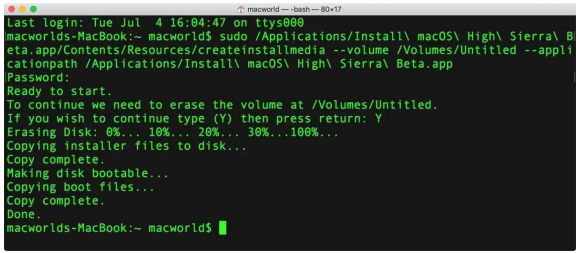
What is Python

A snake?

Commands for Installation

!pip install numpy
!pip install pandas
!pip install pandas-profiling
(for Auto EDA)

Has pre-installed libraries
Has Auto EDA
!pip install numpy
!pip install pandas



pip install numpy
pip install pandas

With Windows you will need to first install Python/Anaconda environment

Resources: PyPi, Stack Overflow, Google, Bard, ChatGPT etc

What is Python 

Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems

10 mins Python Run Through:

https://colab.research.google.com/drive/1WSqTTccSQ7-PoCix32V_xd-gtk3DdOEy#scrollTo=Rdz5Dnoa59NY

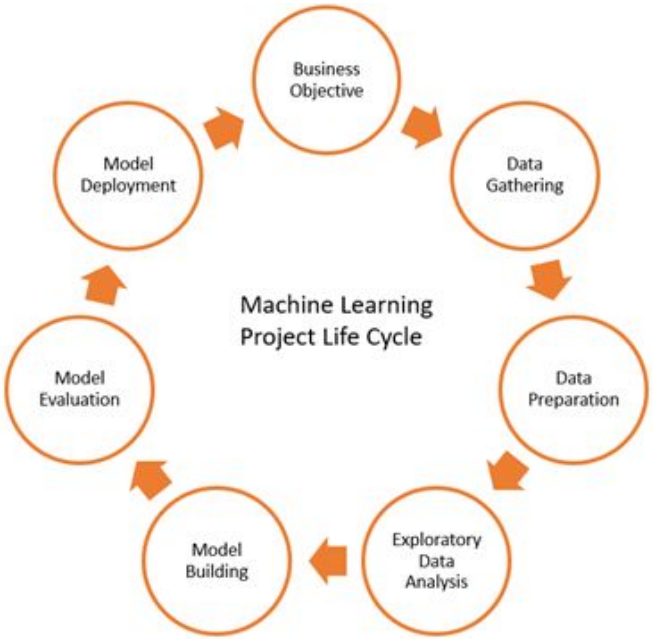
Some Exploratory Data Analysis Using Pandas

Exploratory Data Analysis (EDA) is an approach to analyzing data sets to identify patterns, outliers, and other unexpected features. EDA is often used to extract features and trends for machine learning and deep learning models.

10 mins Pandas Run Through:

https://colab.research.google.com/drive/1sdbJ0jSrf_TnATCKjrdB8d_IAaVBXpRJ#scrollTo=-ewNprCkQUDX

Machine Learning



Applied Machine Learning with SKlearn

Sklearn Classifiers:
https://colab.research.google.com/drive/1vBnOWfJK61pxA93w7e_tR7HopGcQ72oD#scrollTo=KWlSMPV4oLDw

Applied Machine Learning with SKlearn

Case Study: https://www.kaggle.com/datasets/uciml/red-wine-quality-cortez-et-al-2009

Colab: https://colab.research.google.com/drive/12YwW8_fJsH6v4Gl5uOACmOiMyy-hF22m#scrollTo=3i2fYGex9OsN