Complete Python Libraries to Master for AI and ML

Core Python

- math, statistics, random
- collections, itertools, functools
- os, sys, pathlib
- re, json, pickle
- datetime, logging, argparse

Numerical Computing

- NumPy – arrays, vectorization, linear algebra
- SciPy – optimization, statistics, sparse matrices

Data Handling & Analysis

- Pandas – data cleaning, aggregation, time-series
- Dask – parallel & large-scale data processing

Data Visualization

- Matplotlib – basic plotting
- Seaborn – statistical visualization
- Plotly – interactive dashboards

Machine Learning

- Scikit-learn – regression, classification, clustering
- Model evaluation, pipelines, feature engineering

Deep Learning

- TensorFlow – deep learning & deployment
- Keras – high-level neural networks
- PyTorch – dynamic deep learning framework

Computer Vision

- OpenCV – image & video processing

- Pillow – image manipulation
- TorchVision – pretrained vision models

Natural Language Processing

- NLTK – text preprocessing
- spaCy – industrial NLP
- Hugging Face Transformers – LLMs

Deployment & MLOps

- Flask, FastAPI – model serving
- Docker, Kubernetes – containerization
- MLflow, Weights & Biases – experiment tracking