Some of the most important python libraries used for AI and Machine learning

1) The [SciPy](https://www.scipy.org/) stack: NumPy, SciPy, Matplotlib, pandas, Sympy and IPython

Almost every data manipulation, analysis, and computation is handled by libraries in these stack, with NumPy being the most prominent for mathematical computation, pandas the dominant for data analysis (due to their DataFrame class), IPython for an interactive console and matplotlib for visualizations.

2) [Tensorflow](https://www.tensorflow.org/), [Keras](https://keras.io/)

Google’s open-sourced machine learning framework is a high performance library stepping on C/C++ optimized code and is most widely used for Neural Networks. Keras is a high-level wrapper around Tensorflow (also Theano, CNTK, and even MXNet).

3) [PyTorch](https://pytorch.org/)

Possibly the biggest and strongest rival for Tensorflow, PyTorch is another Deep Learning library with blazing speed sitting atop “strong GPU accelation”. Quoting their website:

“PyTorch is not a Python binding into a monolothic C++ framework. It is built to be deeply integrated into Python. You can use it naturally like you would use numpy / scipy / scikit-learn etc. You can write your new neural network layers in Python itself, using your favorite libraries and use packages such as Cython and Numba.”

4) [Sci-Kit Learn](http://scikit-learn.org/)

The go-to library for Machine Learning, their primary focus is on building an accessible and simple –in a word, *pythonic*– interface. Training a Random Forest model is as simple as this: RandomForestClassifier().fit(x,y)

5) [Plotly](https://plot.ly/)

Interactive visualizations for humans? Plotly has got you covered! And it gets better! Take a look at [Cufflinks](https://plot.ly/ipython-notebooks/cufflinks/) for working directly with pandas.

6) [Seaborn](https://seaborn.pydata.org/)

Want some awesomely-styled graphs with as few lines of code as possible? Do you also want to customize them freely using your much beloved matplolib? Season does just that, and it also works greatly with pandas DataFrames!

7) cv2 ([OpenCV](https://opencv.org/))

With Computer Vision being *the* most popular subfield of Machine Learning, OpenCV is a great library with many functionalities all gathered in one place. This is also a wrapper, so expect high performance. It works using numpy arrays.

8) [Caffe](http://caffe.berkeleyvision.org/) / [Caffe2](https://caffe2.ai)

Yet another Deep Learning network, but did you know this is probably the easiest way to create models for use with Intel Movidius Neural Compute Stick? Take a look at both versions and take advantage of this highly flexible framework.

9) [Numba](https://numba.pydata.org/)

Python can be very slow compared to C++ or other languages, but Numba is a way to fix it. With a simple decorator, some annotations, and maybe a few different syntactic configurations, your Python code can be just-in-time compiled to optimized machine instructions. Remember to thank the LLVM compiler!

10) NLP stack

These are not a unified stack as was in Scipy’s case, but they share the pie of NLP. First is [nltk](https://www.nltk.org/), an extensive library with equally extensive abilities. Next comes [gensim](https://radimrehurek.com/gensim/), who’s motto is “topic modelling for humans”. A similarly rich API, with excellent documentation. Nobody could forget [Spacy](https://spacy.io/), and it’s passion for memory-efficient solutions. As their developers say, it was “written from the ground up in carefully memory-managed Cython.”

Of course there are many, many, more. A few honorable mentions that I cannot get into more detail due to space restrictions, including much smaller projects: basemap (I think it is now included in matplotlib), imgaug (stands for IMaGe AUGmentation), tqdm (progress bars), MLXtend (extensions and cool functionalities), logpy (Logical Programming in Python), PyMC (Bayesian modelling and Monte Carlo simulations), statsmodels (Statistical modelling with a similar interface to R), CoreML (ML with Apple), dlib (Face Recognition utilities, and more). I know I’m probably forgetting some major ones, but these should keep you busy enough for a few months.