Scipy & co

This lesson gives a brief introduction to SciPy library and the additional packages that it offers.

WE'LL COVER THE FOLLOWING

If there are several additional packages for NumPy, there are a trillion additional packages for SciPy. In fact, every domain of science probably has its own package and most of the examples we've been studying until now could have been solved in two or three calls to a method in the relevant package.

But of course, that was not the goal and programming things yourself is generally a good exercise if you have some spare time. The biggest difficulty at this point is to find these relevant packages. Here is a very short list of packages that are well-maintained, well-tested and may simplify your scientific life (depending on your domain). There are, of course, many more and depending on your specific needs, chances are you do not have to program everything by yourself. For an extensive list, have a look at the Awesome python list.

scikit-learn

scikit-learn is a free software machine learning library for the Python

programming language. It features various classification, regression and clustering algorithms including support vector machines, random forests, gradient boosting, k-means and DBSCAN, and is designed to inter-operate with the Python numerical and scientific libraries NumPy and SciPy.

scikit-image

scikit-image is a Python package dedicated to image processing, and using natively NumPy arrays as image objects. This chapter describes how to use scikit-image on various image processing tasks, and insists on the link with other scientific Python modules such as NumPy and SciPy.

SymPy

SymPy is a Python library for symbolic mathematics. It aims to become a full-featured computer algebra system (CAS) while keeping the code as simple as possible in order to be comprehensible and easily extensible. SymPy is written entirely in Python.

Astropy

The Astropy project is a community effort to develop a single core package for astronomy in Python and foster interoperability between Python astronomy packages.

Cartopy

Cartopy is a Python package designed to make drawing maps for data analysis and visualization as easy as possible. Cartopy makes use of the powerful PROJ.4, NumPy and shapely libraries and has a simple and intuitive drawing interface to matplotlib for creating publication quality maps.

Brian

Brian is a free, open source simulator for spiking neural networks. It is written in the Python programming language and is available on almost all platforms. We believe that a simulator should not only save the time of processors, but also the time of scientists. Brian is therefore designed to be easy to learn and use, highly flexible and easily extensible.

Glumpy

Glumpy is an OpenGL-based interactive visualization library in Python. Its goal is to make it easy to create fast, scalable, beautiful, interactive and dynamic visualizations.

Solve this Quiz!

1 Which of the following python library has built in machine learning algorithm ?

COMPLETED 0%

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