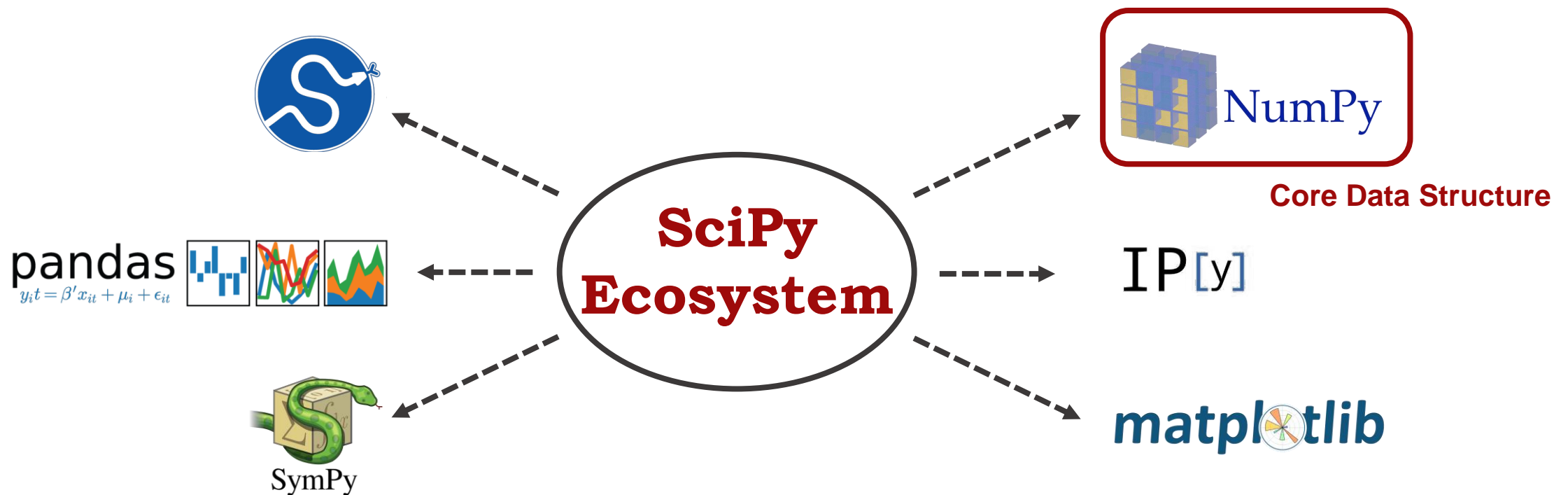




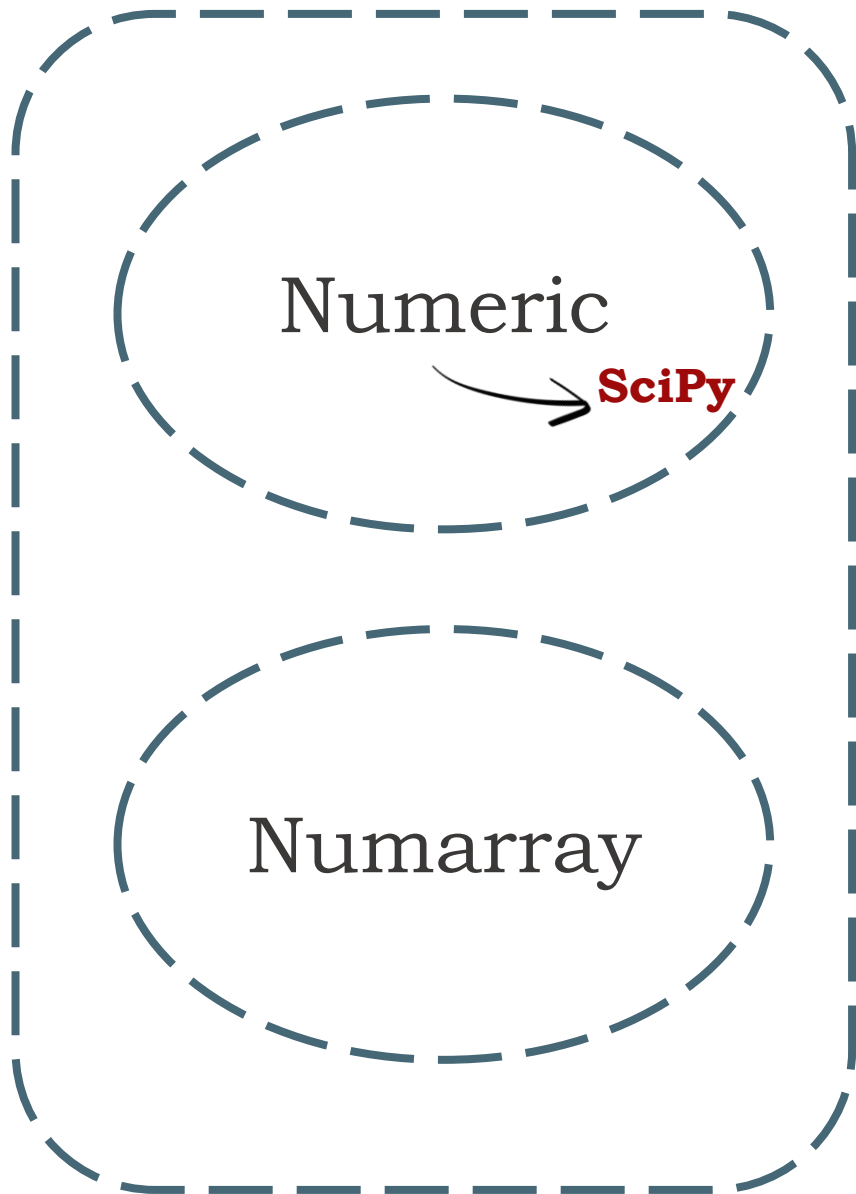
SciPy Ecosystem

Python based ecosystem of open-source software for **mathematics, science, and engineering**



When you search for scipy on google, you will get two different yet related results. The first is the Scipy ecosystem, which is a python based ecosystem of open source software for mathematics, science, and engineering. These libraries are built on top of NumPy (and its core data structure array), and many more are built on top of these core libraries (such as the machine learning package sklearn).

SciPy History

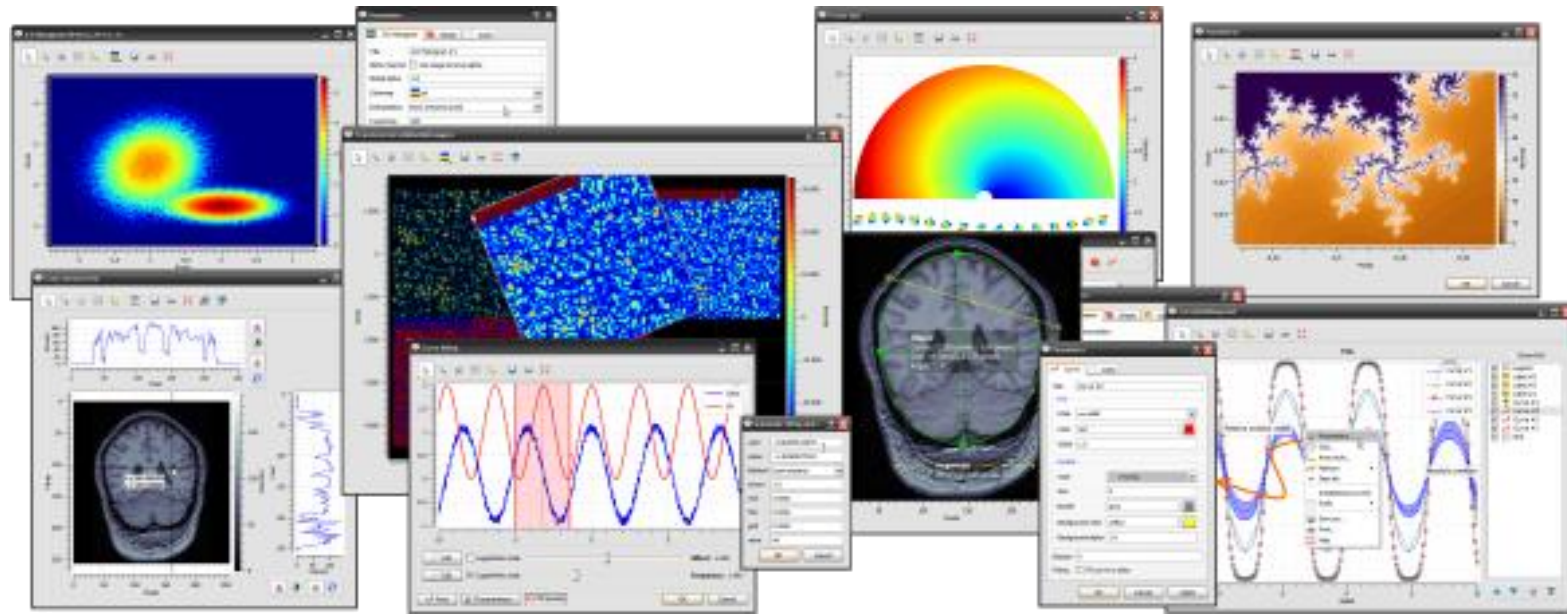


SciPy Core
(Later NumPy)



Travis Oliphant

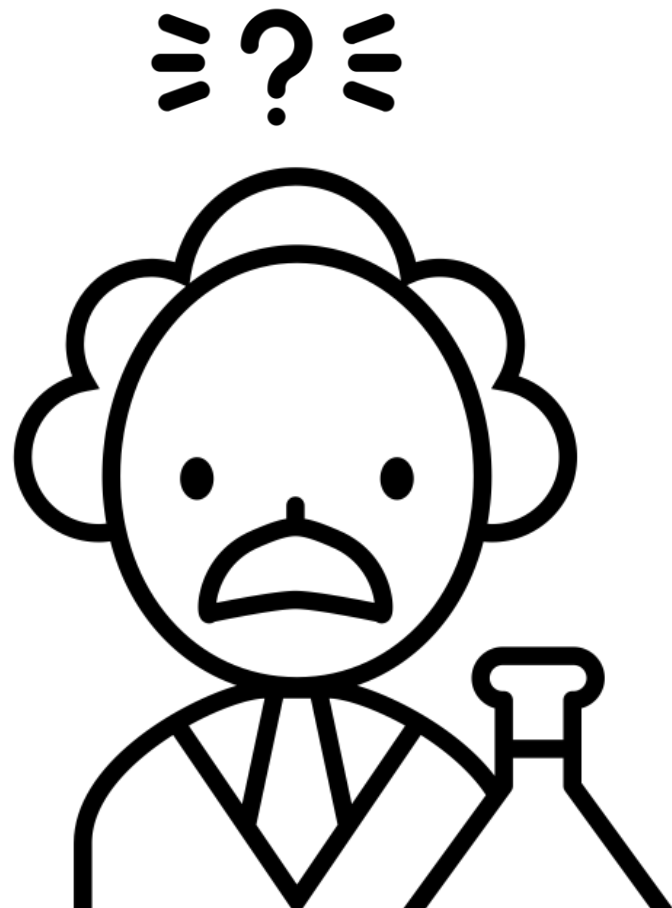
SciPy Library



Toolbox for researchers and scientists

A collection of mathematical algorithms and convenience functions built on top of the **NumPy** **multidimensional array**.

Composed of different **sub-modules** that are catered towards specific mathematical or scientific needs such as statistics, integration solvers, linear algebra, optimization etc.



SciPy vs Matlab



No need to load module

Reliable toolboxes with clear and consistent documentation

Science and math specific functionalities

Widely adopted by researchers and research institutions

Hard to customize functions or create functions for that matter

Expensive – commercial!



Open-Source and free

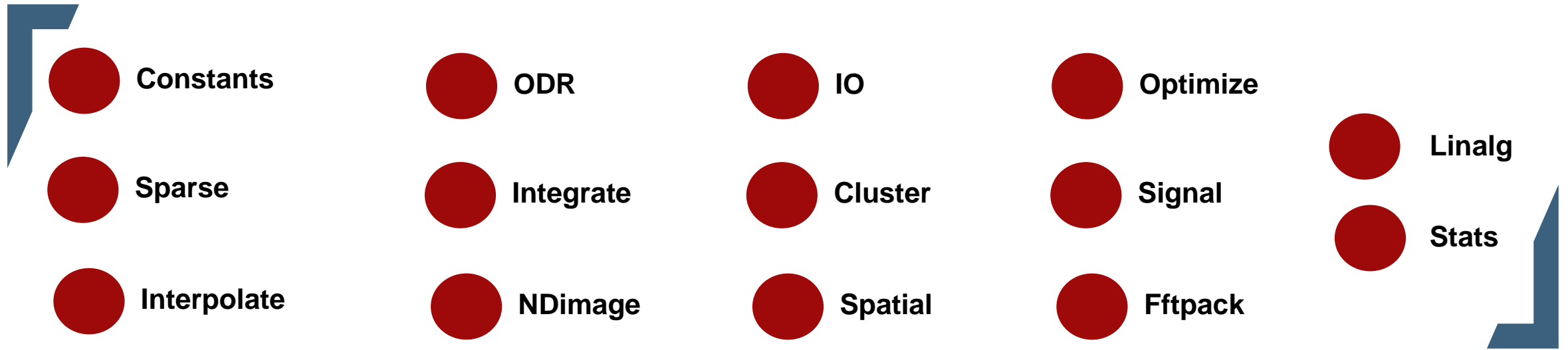
Continuously growing with new modules and functions added

Real programming language, more flexible

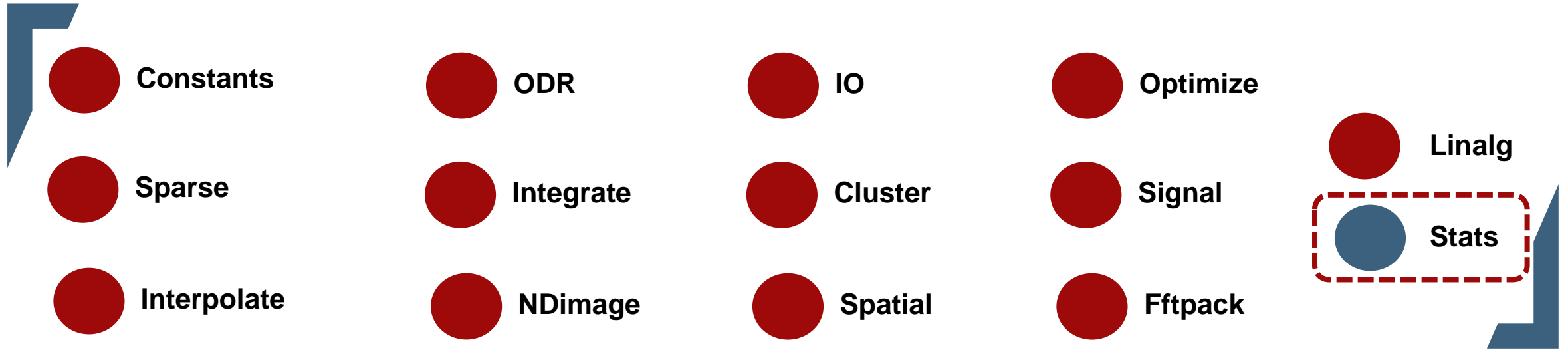
Object-oriented, good for reusing the code

Together with Numpy and Matplot, could replace Matlab.

SciPy Modules



SciPy Modules



SciPy supports other libraries

It can be considered as a bridge between NumPy and machine learning or neural network libraries like **scikit learn**.

Another example: **Statsmodels**, a library used for conducting statistical tests and data exploration uses it as a dependency.

So when you will use Scikit-Learn and Statsmodel in the future, remember that the real magic happens here, in Scipy!



START CODING