



# Computação científica com Python

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Programando Ciência

# Configurando seu sistema



[www.continuum.io/downloads](http://www.continuum.io/downloads)

```
$ bash Anaconda3-2.3.0-Linux-  
x86_64.sh
```

```
$ conda install  
<pacote>
```



# Escolhendo um ambiente

```
$ conda install  
spyder
```



Spyder (Python 3.4)

File Edit Search Source Run Debug Consoles Tools View Help

Editor - /home/jaguar/.spyder2-py3/temp.py

```
1 # -*- coding: utf-8 -*-
2
3 Spyder-Editor
4
5 This is a temporary script file.
6
7
8 |
```

Object inspector

Source Console Object

Usage

Here you can get help of any object by pressing **Ctrl+I** in front of it, either on the Editor or the Console.

Help can also be shown automatically after writing a left parenthesis next to an object. You can activate this behavior in *Preferences > Object Inspector*.

New to Spyder? Read our [tutorial](#)

Object inspector Variable explorer File explorer

IPython console

Console 1/A

```
Python 3.4.3 |Anaconda 2.3.0 (64-bit)| (default, Jun  4 2015, 15:29:08)
Type "copyright", "credits" or "license" for more information.

IPython 4.0.0 -- An enhanced Interactive Python.
?                -> Introduction and overview of IPython's features.
%quickref        -> Quick reference.
help             -> Python's own help system.
object?         -> Details about 'object', use 'object??' for extra details.
%quickref        -> A brief reference about the graphical user interface.

In [1]:
```

Console History log IPython console

Permissions: RW End-of-lines: LF Encoding: UTF-8 Line: 8 Column: 1 Memory: 11 %

**(até segunda ordem)**



```
$ conda install  
jupyter
```



## Parte 1 - Interpolação

### 1.1 Pacotes e funções necessários

```
In [ ]: from scipy.interpolate import interp1d # funções lineares e splines
        from scipy.interpolate.rbf import Rbf # funções de base radial

import matplotlib.pyplot as plt
import numpy as np
%matplotlib inline
```

### 1.2 Obtendo e estudando os dados

```
In [ ]: """
        Vamos baixar a tabela .csv na qual trabalharemos.
        Endereço dos dados: http://goo.gl/h94Mqk
        """

        data_petro = np.genfromtxt('table.csv', delimiter=',', dtype=None)
```

```
In [ ]: # Vendo o tamanho dos dados.
        print('A tabela tem {0} linhas e {1} colunas.'.format(np.shape(data_petro)[0],
                                                                np.shape(data_petro)[1]))
```

```
In [ ]: # Vendo o cabeçalho.
        data_petro[0:4,0:]
```

```
In [ ]: """
        Tanto a primeira linha quanto a primeira coluna representam os rótulos dos dados.
        Para obter os dados, começamos da segunda linha/coluna:
        """

        data_petro = data_petro[1:,1:]
```

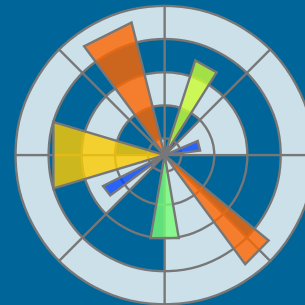
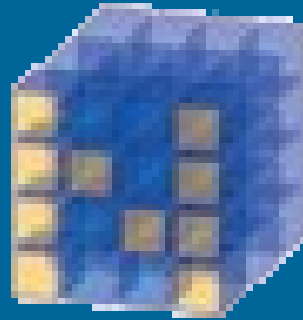
```
In [ ]: data_petro
```

```
In [ ]: """
```

**(também até segunda ordem)**

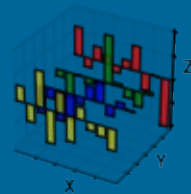
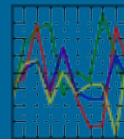
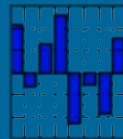
**Vamos às ferramentas!**

- o básico



# pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



- estadística

# seaborn

- **matemática  
simbólica**



(...)

<http://goo.gl/KZCOCx>

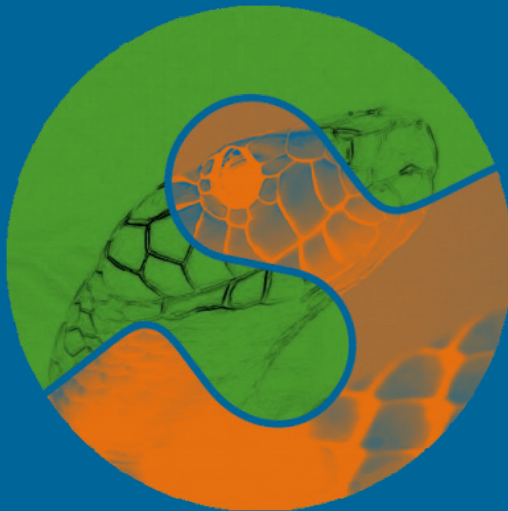


**Os sci-kits**

**<http://scikits.appspot.com/scikits>**

# SCIKIT-BIO

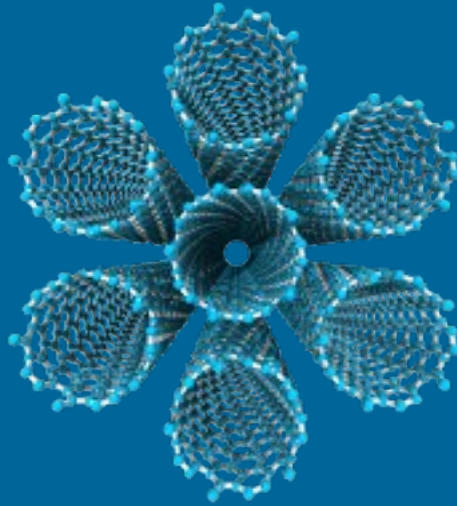
- <http://scikit-bio.org/>
- skbio cookbook
- intro to applied bioinformatics



- <http://scikit-image.org/>
- `skimage` examples



- <http://scikit-learn.org/stable/>
- sklearn examples

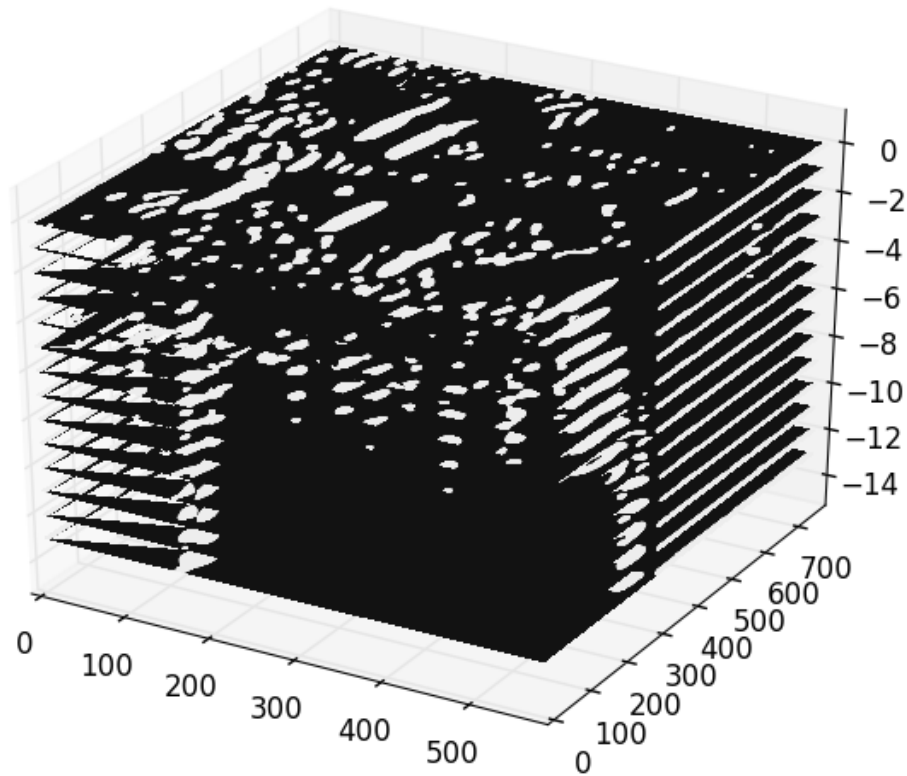
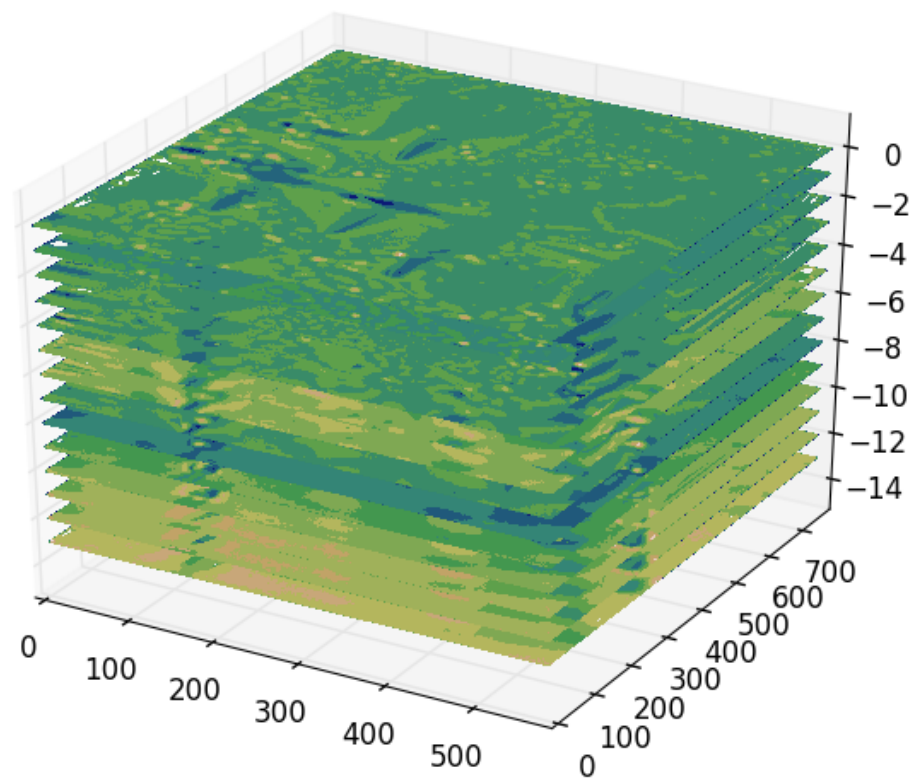


- <http://scikit-nano.org/doc/>



- <http://scikit-rf-web.readthedocs.org/>
- skrf examples

# Minha experiência atual





**E a sua?**

**Alguns recados:**

**1) Ajude os scikits a crescerem!**

**2) Topa uma Science Hackathon?**



CUTTING EDGE

# Science hackathons for developing interdisciplinary research and collaborations

**Abstract** Science hackathons can help academics, particularly those in the early stage of their careers, to build collaborations and write research proposals.

**DEREK GROEN AND BEN CALDERHEAD**

# Obrigado!

- contato: [www.programandociencia.com/sobre](http://www.programandociencia.com/sobre)