

Misc Software & Projects

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Programming for Scientists

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Scipy

- A collection of libraries for scientific computing.
- Current version: 0.7 (February 2009).

Scipy: main modules

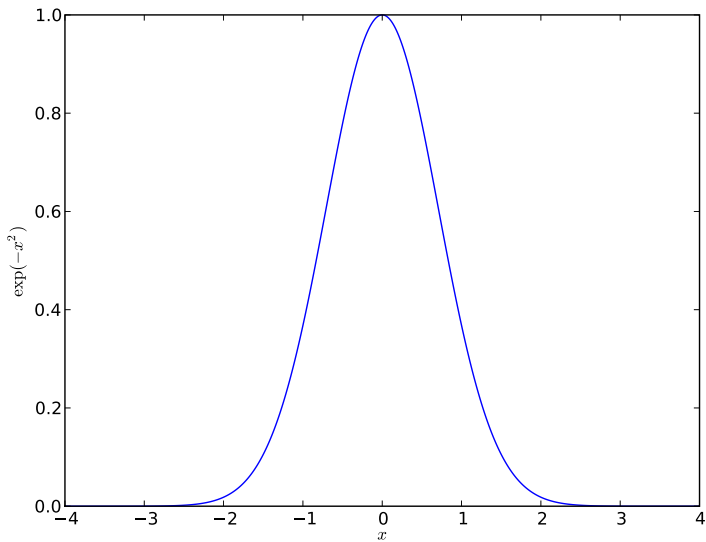
- linalg: linear algebra
- stats: probability and statistics
- ndimage: n-dimensional image processing.
- ...

Matplotlib is a **plotting library** for Python.

```
import pylab
import numpy as np
X = np.linspace(-4, +4, 1000)
pylab.plot(X, np.exp(-X**2))
pylab.xlabel(r'$x$')
pylab.ylabel(r'$\exp(-x^2)$')
pylab.savefig('gaussian.pdf')
```

<http://matplotlib.sf.net/>

Matplotlib Example



There is a small final project.

- 1 Self-proposed.
- 2 Class project.

Class Project

Let's see the motivation video (credit: Rebecca Webb and Brooke McCartney)

Simulation Project

- 1 Simulate a video
- 2 Track on the video
- 3 Compare the results

Project

- 1 Object position generator
- 2 Image generator
- 3 Object detection
- 4 Object tracking
- 5 Results visualisation
- 6 Statistics gathering

Design

I will use the project as a design “case study” for a medium sized project.

Infrastructure

- Open source (i.e., we will post the code online for others to use).
- Common Subversion repository.
- Email discussions.
- Nostetst tests.