

# 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.
- ...

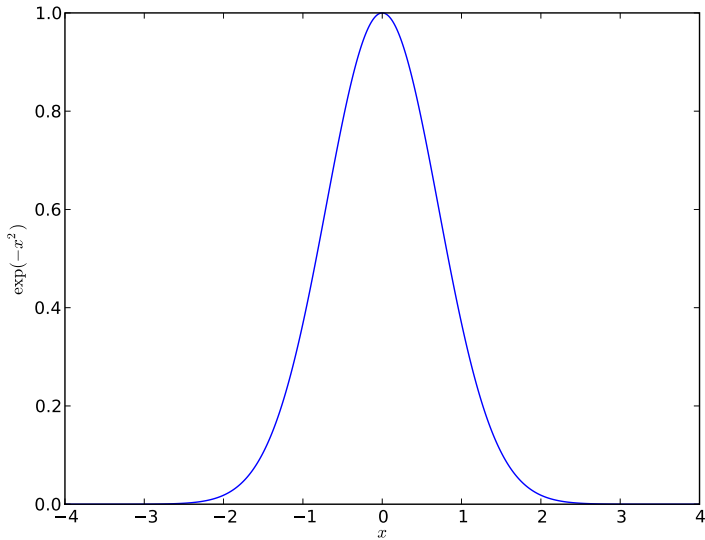
# Matplotlib

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



# Projects

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.
- Nostest tests.