



Matplotlib and Mplot3d

Lightning Talk

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Matplotlib & Mplot3d

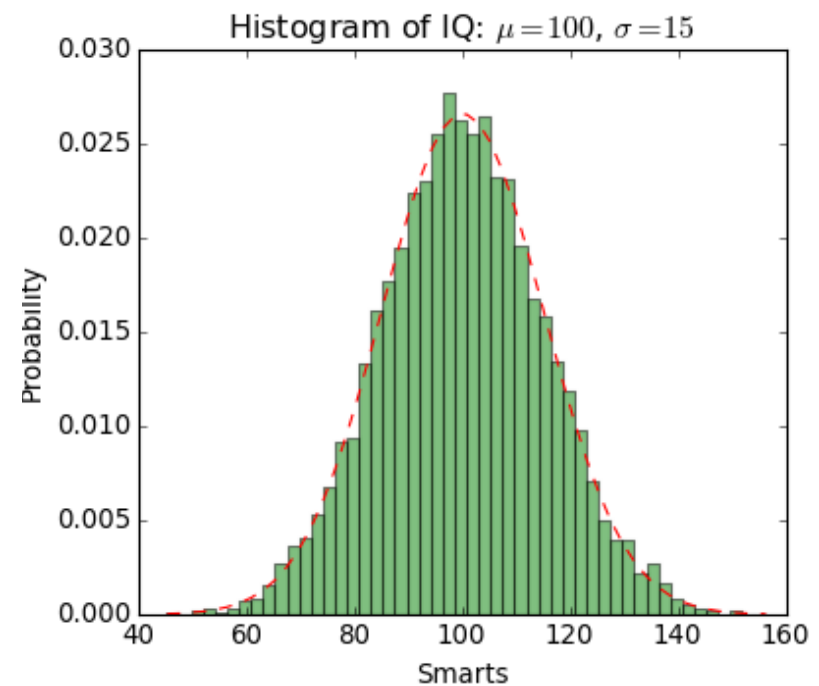
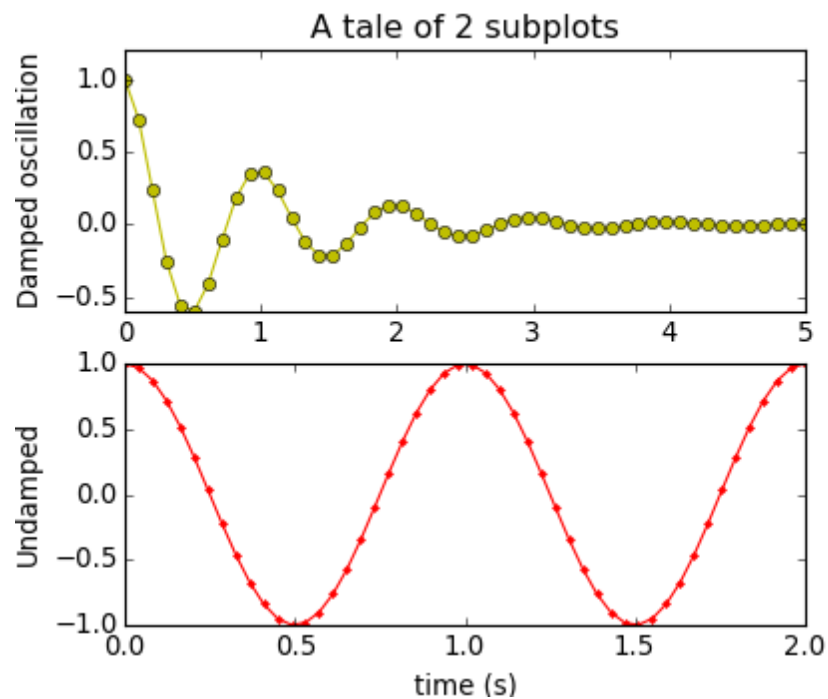
What is it:

- Matplotlib: A library for creating 1D and 2D plots
 - Mplot3D: libraries for 3D plotting

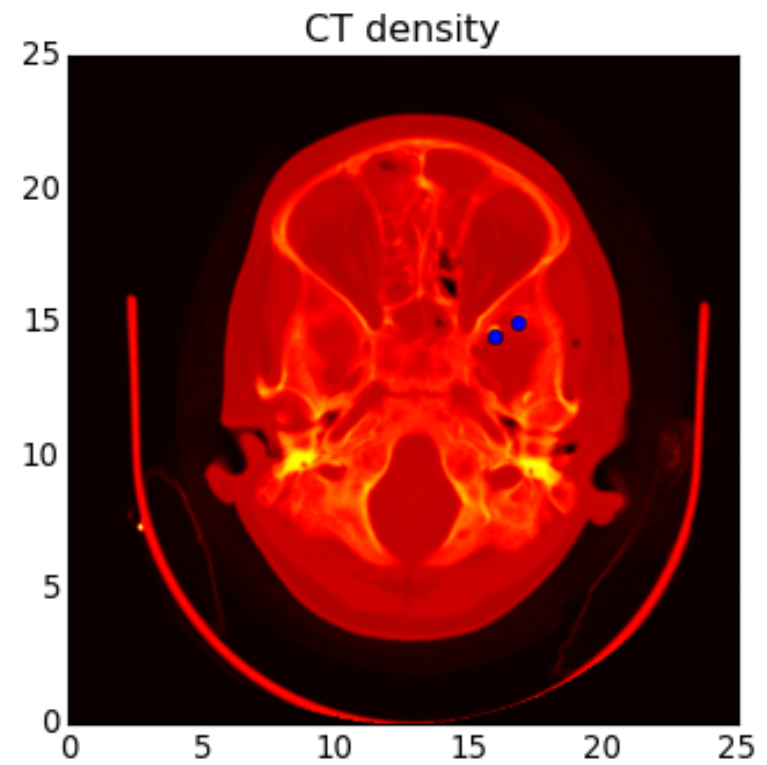
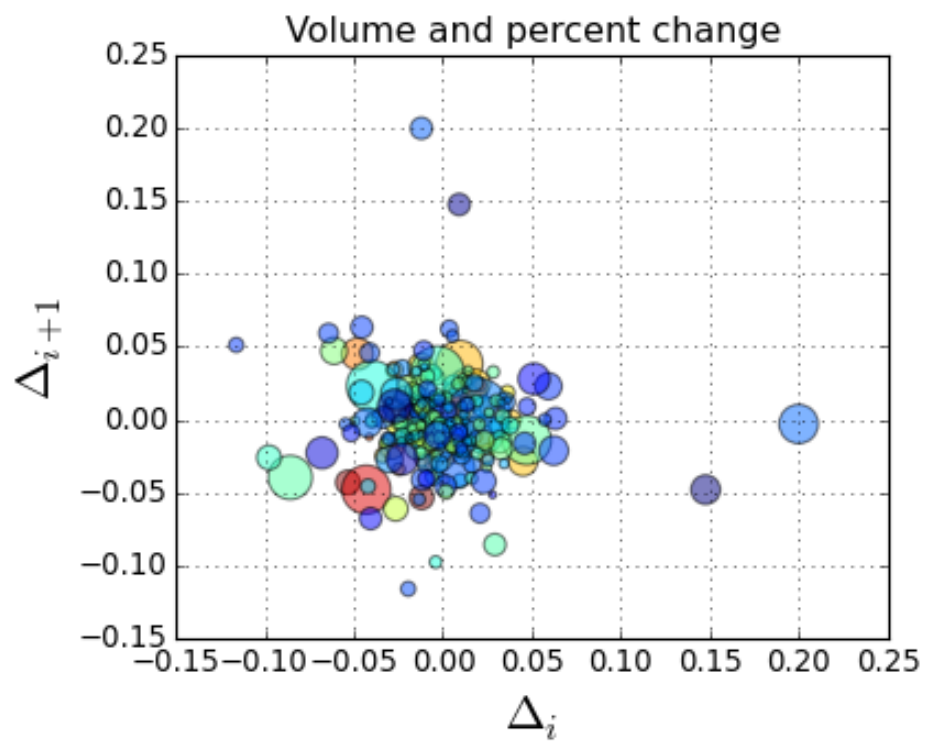
What can it do:

- Can be imported and used directly in Python scripts, Python shell, or with IPython
- Line plots, bar charts, scatter plots, surfaces, 3D stuff... more exotic things
- Animations
- Produces high quality hard copies
- Not much code required

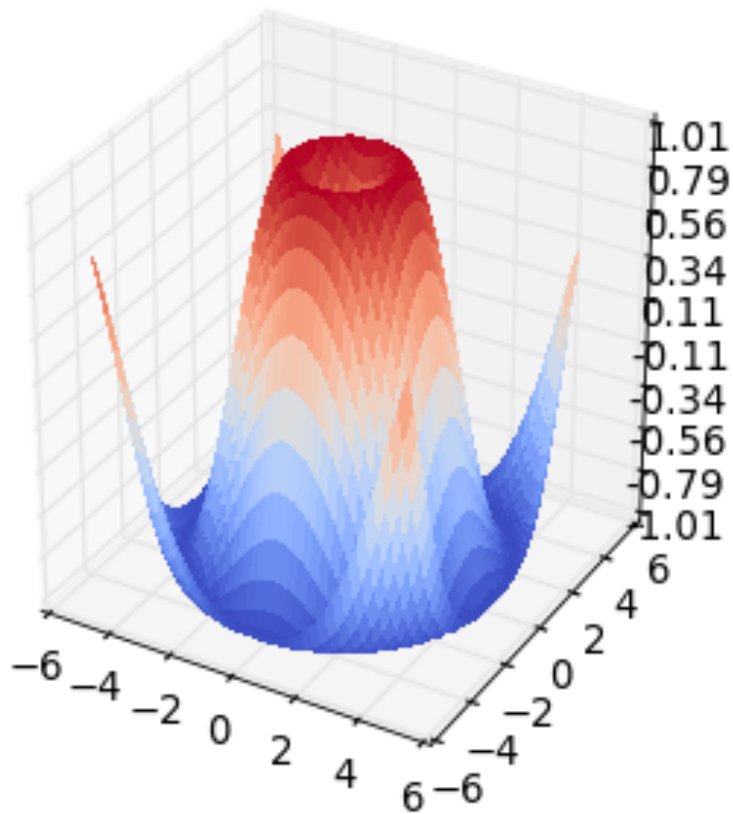
Matplotlib 1D Examples



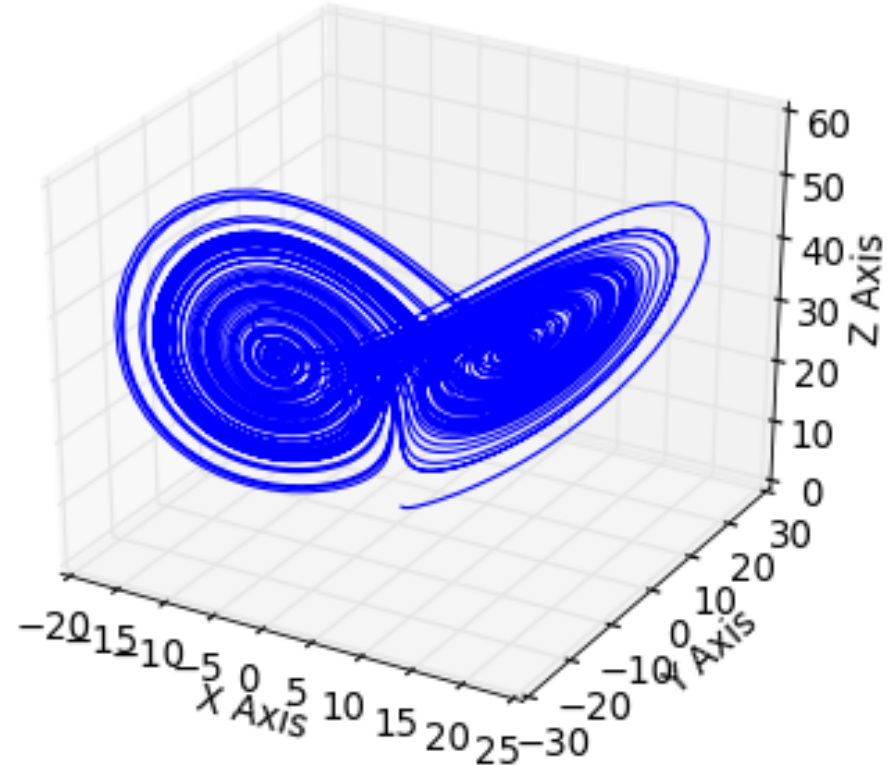
Matplotlib 2D Examples



Mplot3d 3D Examples

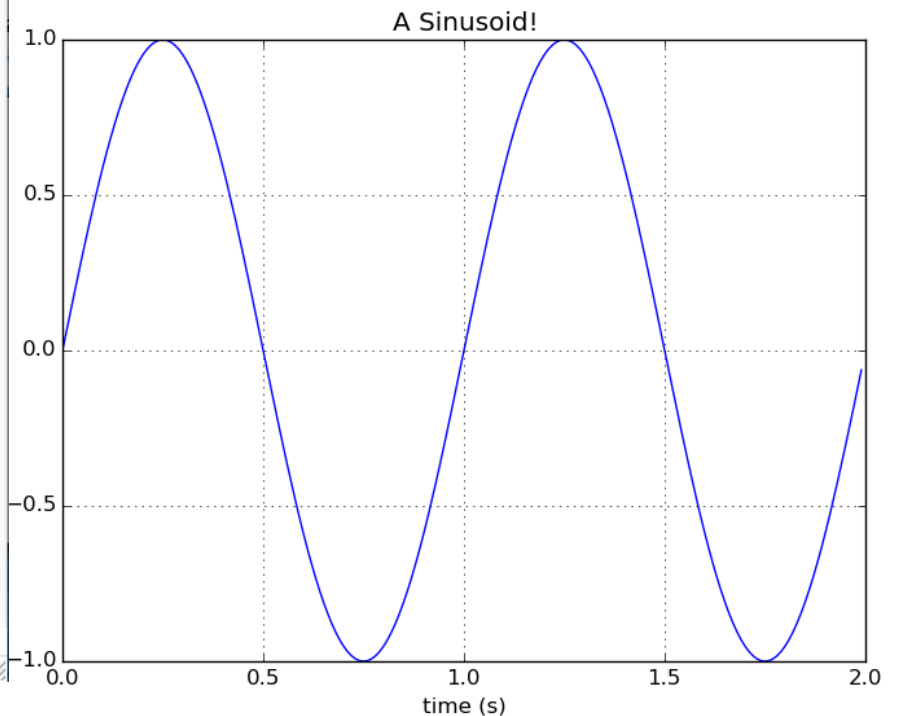


Lorenz Attractor



Matplotlib Simple Example w/Code!

```
simple_plot.py
File Path: ~/Desktop/simple_plot.py
simple_plot.py (no symbol selected)
1 from pylab import *
2
3 t = arange(0.0, 2.0, 0.01)
4 s = sin(2*pi*t)
5 plot(t, s)
6
7 xlabel('time (s)')
8 ylabel('voltage (mV)')
9 title('A Sinusoid!')
10 grid(True)
11 savefig("sinusoid.png")
12 show()
13
```



Matplotlib & Mplot3d

Usage Plans:

- As a more useful replacement for gnuplot or Excel
- Quickly produce comparisons plots of multiple data sets
- Quickly produce plots comparing to reference solution
- Look at FEA mesh cells for quality inspection
- Plot FEA solutions in 1D, 2D, and 3D