

Installation - Python 2.6.6-2.6.9 (not necessary 2.7, do not v.3!)

[python-2.6.6:](#) [Windows x86 MSI Installer \(2.6.6\) \(sig\)](#)
[SciPy](#) : [scipy-0.10.0b2-win32-superpack-python2.6.exe](#)
[NumPy](#) : [numpy-1.6.1-win32-superpack-python2.6.exe](#)
[matplotlib](#) : [matplotlib-1.1.0.win32-py2.6.exe](#)

My collection of installations of [2.6x files for Windows](#)

Links

SW

- <http://www.python.org/>
 - <http://www.scipy.org/>
 - <http://numpy.scipy.org/>
 - <http://matplotlib.sourceforge.net/>
 - <http://pypi.python.org/pypi/xlrd>
 - <http://github.enthought.com/mayavi/mayavi/mlab.html>
 - <http://www.scipy.org/Cookbook/Matplotlib/mplot3D>
-
- <http://pybrain.org/>
 - <http://packages.python.org/neurolab/>
 - <http://pyneurgen.sourceforge.net/>
-
- <http://notepad-plus-plus.org/>
 - <http://npppythonscript.sourceforge.net/>
-
- http://www.annedawson.net/Python_Editor_ConTEXT.htm

Tutorials

- <http://matplotlib.sourceforge.net/>
- <http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-00-introduction-to-computer-science-and-programming-fall-2008/video-lectures/> (with subtitles)
- <http://www.python-excel.org/>
- <http://docs.python.org/library/os.html> (<http://docs.python.org/library/os.html#os-file-dir>)
- <http://stackoverflow.com/questions/tagged/python>
- <http://zetcode.com/wxpython/>

Data

- <http://archive.ics.uci.edu>

- i. <http://archive.ics.uci.edu/ml/datasets/Wine>
 - ii. <http://archive.ics.uci.edu/ml/datasets/Iris>
 - iii. ...
- <http://www.imf.org/external/data.htm#data>
 - <http://www.signaldb.com/new/>
 - <http://www.kdnuggets.com/datasets/>

References

Python

- [1] Guido van Rossum: Scripting the Web with Python. In "Scripting Languages: Automating the Web", World Wide Web Journal, Volume 2, Issue 2, Spring 1997, O'Reilly.
- [2] Aaron Watters, Guido van Rossum, James C. Ahlstrom: Internet Programming with Python. MIS Press/Henry Holt publishers, New York, 1996.
- [3] Guido van Rossum: Python Library Reference. May 1995. CWI Report [CS-R9524](#).
- [4] Guido van Rossum: Python Reference Manual. May 1995. CWI Report [CS-R9525](#).
- [5] Guido van Rossum: Python Tutorial. May 1995. CWI Report [CS-R9526](#).
- [6] Guido van Rossum: Extending and Embedding the Python Interpreter. May 1995. CWI Report [CS-R9527](#).
- [7] Guido van Rossum, Jelke de Boer: Linking a Stub Generator (AIL) to a Prototyping Language (Python). Spring 1991 EurOpen Conference Proceedings (May 20-24, 1991) Tromso, Norway.

Pybrain

- [8] Tom Schaul, Justin Bayer, Daan Wierstra, Sun Yi, Martin Felder, Frank Sehnke, Thomas Rückstieß, Jürgen Schmidhuber (2010). PyBrain. Journal of Machine Learning Research.

Data

- [9] Frank, A., Asuncion, A.: UCI Machine Learning Repository. University of California, Irvine, CA (October 2011), <http://archive.ics.uci.edu/ml/>

Some Reading on Python

- [10] Kaukič, M.: "[PYTHON ako prvý programovací jazyk na VŠ](#)", konference "Otvorený softvér vo vede a vzdelávaní 2008" (Aplimat'08)

Example

PSD – power spectral density

```
7% PSD_example.py · D:/RESEARCH/2012/Python/PSD_example.py
File Edit Format Run Options Windows Help
from numpy.random import rand
from numpy import dot, exp, arange, sin, zeros
from scipy import *

from matplotlib.pyplot import plot, show, subplot, xlabel, ylabel, title

def length(a):
    # return(len(a))

t=arange(0,1000)
x=sin(t)
y=phi(x)
plot(t,x,t,y)
plot(t,y)
show()

###logistic equation (chaos)
a=4
z=zeros(1000)
z[0]=0.001
for k in arange(0,999,1):
    z[k+1]=a*z[k]*(1-z[k])

###sinusoidal quasiperiodic signal
t=arange(0,1000,1)
v=.5*sin(.15*t)+1*sin(.07*t)

### their sum vZ=v+z
vZ=zeros(1000,1)
for k in range(len(z)):
    vZ[k]=v[k]+z[k]
###fft of their sum

afft=fft(vZ[:,0])
psda=abs(afft)
### plotting
subplot(411)
plot(v);xlabel('k',fontsize="small");ylabel('v',fontsize="small");title('v(k)',fontsize="small")
subplot(412)
plot(z);xlabel('k',fontsize="small");ylabel('z',fontsize="small");title('z(k)',fontsize="small")
subplot(413);xlabel('k',fontsize="small");ylabel('vz',fontsize="small");title('vz(k)=v(k)+z(k)',fontsize="small")
plot(vZ)
subplot(414)
plot(psda);xlabel('-freq',fontsize="small");ylabel('PSD',fontsize="small");title('PSD Power Spectral Density = abs(fft)',fontsize="medium")
show()
```

7% Figure 1

zoom rect

Ln: 38 Col: 64

```

### PSD
from numpy.random import rand
from numpy import arange,sin,zeros
from scipy import *

from matplotlib.pyplot import plot,show,subplot,xlabel,ylabel,title

#def length(a):
# return(len(a))

#t=arange(0,1000)
#x=sin(t)
#y=phi(x)
#plot(t,x,t,y)
#plot(t,y)
##show()

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subplot(411)
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subplot(413);xlabel('k',fontsize="small");ylabel('vz',fontsize="small");title('vz(k)=v(k)+z(k)',f
ontsize="small")
plot(vz)
subplot(414)
plot(psda);xlabel('~freq',fontsize="small");ylabel('PSD',fontsize="small");title('PSD Power
Spectral Density = abs(fft)',fontsize="medium")
show()

```
