Software Installation Tutorials

PYTHON INSTALLATION

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Python

https://www.python.org/

- Python is an dynamic object-oriented programming language that can be compared with Java and .NET languages as a general-purpose substrate for software development. It offers strong support for integrating with other technologies, higher programmer productivity throughout the development life cycle, and is well suited for complex projects.
- Python is the most rapidly growing open source programming language. According to InfoWorld its user base nearly doubled in 2004, and currently includes about 14% of all programmers.
- Python is being used in mission critical applications in the world's largest stock exchange, forms the basis for high end newspaper websites, runs on millions of cell phones, and is used in industries as diverse as ship building, feature length movie animation, and air traffic control.
- Python is available for most operating systems, including Windows, UNIX, Linux, and Mac OS.

Python Installation

Go Python!!!

1. Python Interpreter
2. PyDev
3. plugins, add-on’s, and site-packages

Python Editing with PyDev on Eclipse

INSTALL NEW SOFTWARE/PLUGINS/PATH

Setup Idle Environment

1. Idle.py
2. Use notepad++ with python interpreter

PyDev Configuration

1. Create a new workspace if you want to share a same Eclipse with Java but different workspace. (Cross-language project can still have another workspace)

2. set the text file property (UTF-8, Unix)

3. Make sure the PyDev plugin has been installed.

4. set perspective.

5. set interpreter path.

6. try first python program

Basic Graphics

HTTP://MCSP.WARTBURG.EDU/ZELLE/PYTHON/GRAPHICS.PY

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Basic GUI package

- Tkinter and (TTK) included in Python 3.x
- Pillow (Advanced PIL)
- PyGame
- Pyglet

```
12/23/2016  08:11 AM           133,120 pythonw_d.exe
12/23/2016  08:11 AM           372,736 pythonw_d.pdb
12/23/2016  08:11 AM           135,168 python_d.exe
12/23/2016  08:11 AM           372,736 python_d.pdb
03/13/2017  07:13 PM                46 python_idle.bat
12/23/2016  07:10 AM             8,434 README.txt
03/13/2017  04:29 PM    <DIR>          Scripts
03/13/2017  04:29 PM    <DIR>          tcl
03/13/2017  04:29 PM    <DIR>          Tools
06/09/2016  10:53 PM            87,888 vcruntime140.dll
              19 File(s)     30,230,162 bytes
              10 Dir(s)  1,586,190,761,984 bytes free

C:\Python\Python36>pip install pillow
Collecting pillow
  Downloading Pillow-4.2.1-cp36-cp36m-win_amd64.whl (1.5MB)
    100% |████████████████████████████████| 1.5MB 9.0kB/s
Collecting olefile (from pillow)
  Downloading olefile-0.44.zip (74kB)
    100% |████████████████████████████████| 81kB 13kB/s
Installing collected packages: olefile, pillow
  Running setup.py install for olefile ... done
Successfully installed olefile-0.44 pillow-4.2.1

C:\Python\Python36>
```

Installation of Pillow C:> pip install pillow

pyglet: a cross-platform windowing and multimedia library for Python.

home | download | documentation | contribute

current release

The current stable version of pyglet is **1.2.4**.

Releases are hosted on PyPI. To install the latest version:

```
pip install pyglet
```

Alternatively you can download from bitbucket.

To play compressed audio and video files, you will also need AVbin.

Pygame Installation

Pygame requires Python; if you don't already have it, you can download it from python.org. **Use python 3.6.1** or greater, because it is much friendlier to newbies, and additionally runs faster.

The best way to install pygame is with the pip tool (which is what python uses to install packages). Note, this comes with python in recent versions. We use the --user flag to tell it to install into the home directory, rather than globally.

```
python3 -m pip install pygame --user
```

To see if it works, run one of the included examples:

```
python3 -m pygame.examples.aliens
```

If it works, you are ready to go! Continue on to the tutorials.

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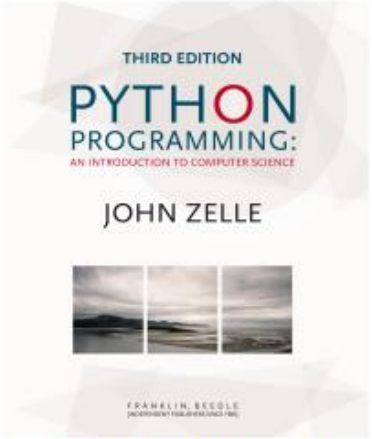
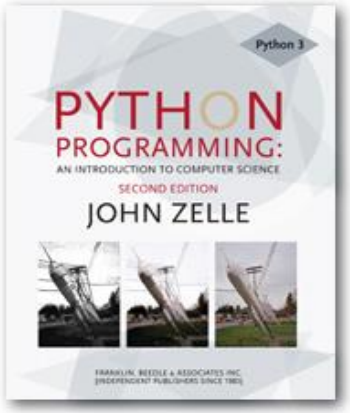
Python Programming: An Introduction to Computer Science

by John M. Zelle, Ph.D.

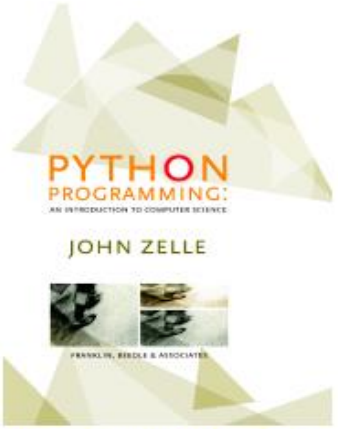
I have written an introductory CS textbook using Python. It is published by Franklin, Beedle & Associates. If you are interested in reviewing or adopting this textbook, contact Tom Sumner at FBA. Instructor resources including problem solutions and exam questions are available from the publisher. Click an edition below to access edition-specific public resources.



Third Edition (Python 3.x)



Second Edition (Python 3.x)



First Edition (Python 2.x)

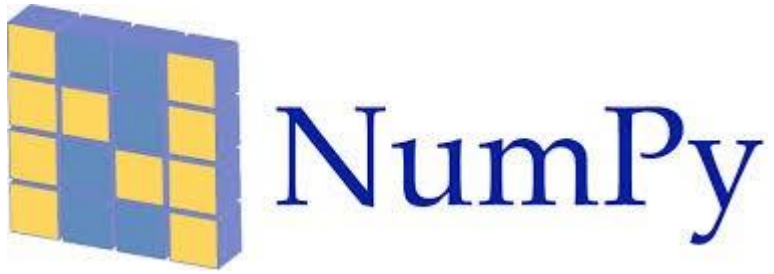
Simple Graphics Library: graphics.py

I have developed an easy-to-use graphics library to introduce object-oriented concepts. The library is released under the GPL, so it is freely available for use and modification.

graphics.py	The simple graphics module used in textbook examples. This is version 5.0, and will work with both Python 2.x and 3.x. This is the latest version of the graphics library can be used with any edition of the book. It is known to work under Linux, Windows, and Mac OSX.
Graphics Reference (HTML)	Browseable reference documentation for the graphics package
Graphics Reference (PDF)	Downloadable/printable documentation for the graphics package

Numerical Packages NumPy/SciPy/Matplotlib

HTTP://WWW.NUMPY.ORG/



NumPy

- **NumPy** is the fundamental package for scientific computing with **Python**. It contains among other things:
  - a powerful N-dimensional array object
  - sophisticated (broadcasting) functions
  - tools for integrating C/C++ and Fortran code
  - useful linear algebra, Fourier transform, and random number capabilities
- Besides its obvious scientific uses, **NumPy** can also be used as an efficient multi-dimensional container of generic data. Arbitrary data-types can be defined. This allows **NumPy** to seamlessly and speedily integrate with a wide variety of databases.

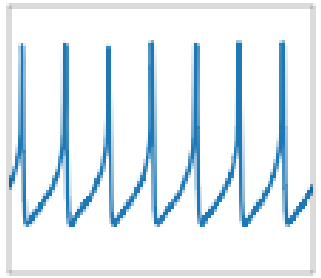
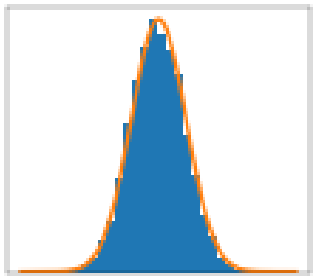
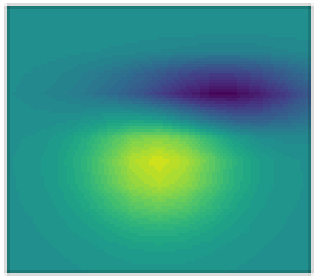
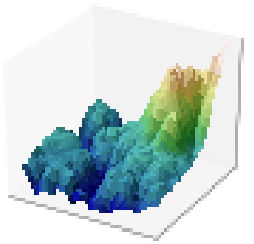
SciPy

CURRENT PACKAGES

- Special Functions (scipy.special)
- Signal Processing (scipy.signal)
- Image Processing (scipy.ndimage)
- Fourier Transforms (scipy.fftpack)
- Optimization (scipy.optimize)
- Numerical Integration (scipy.integrate)
- Linear Algebra (scipy.linalg)
- Input/Output (scipy.io)
- Statistics (scipy.stats)
- Fast Execution (scipy.weave)
- Clustering Algorithms (scipy.cluster)
- Sparse Matrices (scipy.sparse)
- Interpolation (scipy.interpolate)
- More (e.g. scipy.odr, scipy.maxentropy)

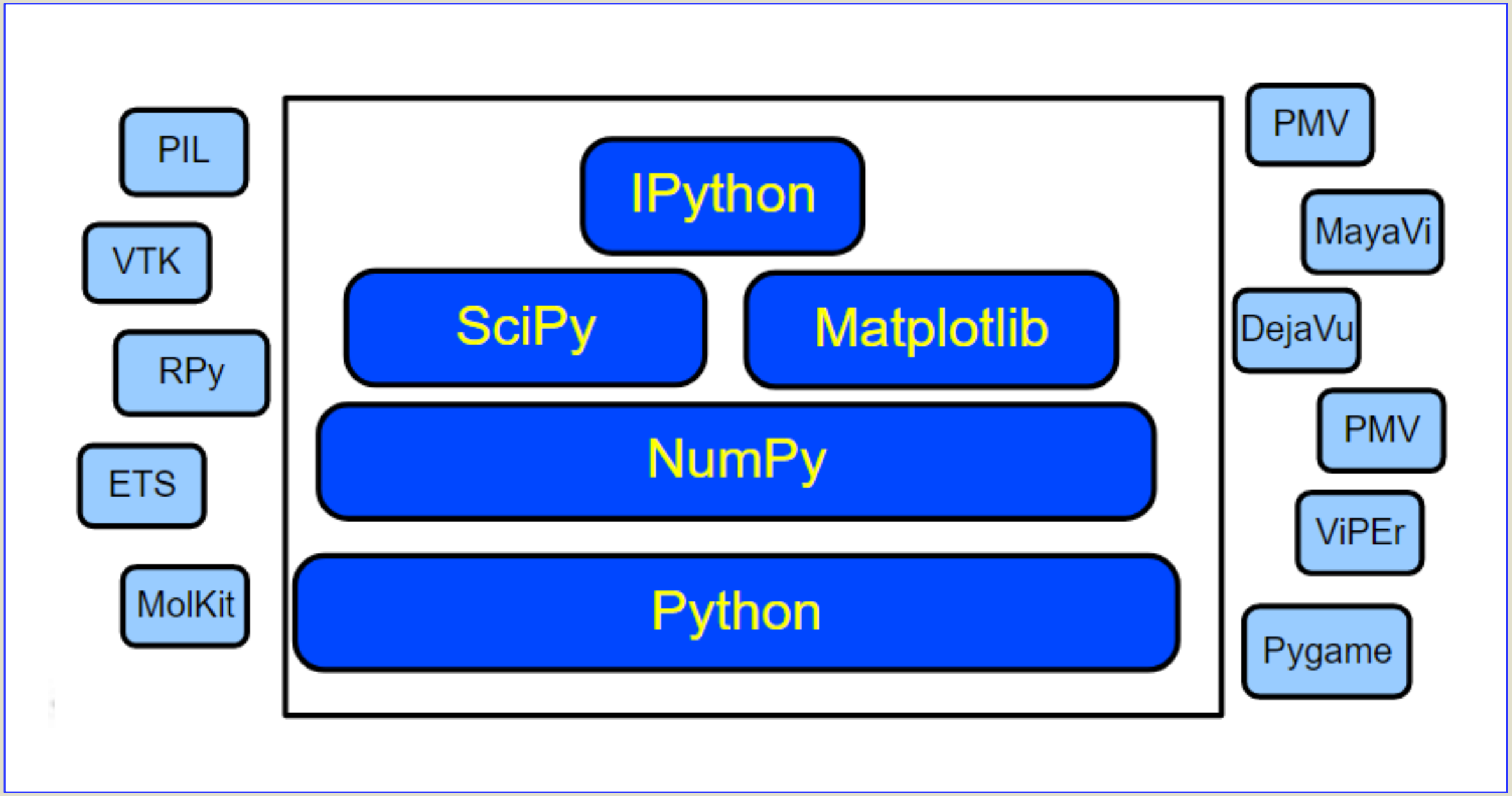
Matplotlib

- Matplotlib is a Python 2D plotting library which produces publication quality figures in a variety of hardcopy formats and interactive environments across platforms.
- Matplotlib can be used in Python scripts, the Python and IPython shell, the jupyter notebook, web application servers, and four graphical user interface toolkits.

Matplotlib

- Matplotlib tries to make easy things easy and hard things possible. You can generate plots, histograms, power spectra, bar charts, errorcharts, scatterplots, etc., with just a few lines of code. For a sampling, see the screenshots, thumbnail gallery, and examples directory
- For simple plotting the **pyplot** module provides a MATLAB-like interface, particularly when combined with **IPython**.
- For the power user, you have full control of line styles, font properties, axes properties, etc, via an object oriented interface or via a set of functions familiar to MATLAB users.


PIL
VTK
RPy
ETS
MolKit
IPython
SciPy
Matplotlib
NumPy
Python
PMV
MayaVi
DejaVu
PMV
ViPEr
Pygame

OpenCV

HTTP://OPENCV.ORG/

PyOpenGL

HTTPS://WWW.OPENGL.ORG/

PyQt5

WWW.RIVERBANKCOMPUTING.COM

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py2exe

HTTP://WWW.PY2EXE.ORG/

SIP/six/datautil/pyparsing

Scikit (Scientific Kits

HTTPS://WWW.SCIPY.ORG/SCIKITS.HTML

Jupyter and IPython

HTTP://JUPYTER.ORG