

Anaconda (Python Environment)

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Anaconda



- A freemium open source distribution of the Python and R programming languages
- Target:
 - Large-scale data processing,
 - Predictive analytics, and
 - Scientific computing,
- Objective:
 - Simplify package management (conda)
 - Deployment



Why Anaconda



- We use Anaconda to prototype the image processing workflow
 - An easy prototype is python environment
- For image processing workflow, the necessary libraries are:
 - opencv 3.3.0
 - Qt 5.6.2 (Abian will teach)
 - Numpy (Abian will teach)
 - Scipy
 - Matplot (Abian will teach)
 - VTK (Abian will teach)
 - Pydicom
 - SimpleITK + Elastix



Install Miniconda



- There are two Anaconda versions:
 - Anaconda: all packages
 - Miniconda: few packages
 - You install the package when you need (This tutorial)
- [Download](#)
 - Python 3.6 (for this tutorial)
 - Python 2.7
- Run the downloaded files to install the miniconda



Python environment



- Creating an environment with the most of necessary libraries (opencv 3.3.0, qt 5.6.2, numpy, scipy, matplotlib, vtk, pydicom)
 - the “ImgWorkFlow” from an environment file.
(Download file [link](#))
- Run “Anaconda prompt”
 - Navigate to the file path
 - Execute the command line
 - `conda env create -f ImgWorkFlow.yml`



SimpleITK + Elastix



- You need to build the package
 - [Instructions](#)
- I build the package for x64 Windows
 - [Download](#)



Setup SimpleITK+ Elastix



- Unzip the file
- In the file `/your path/unzipped file/SimpleITK_Elastix_Python_Install/Packaging/setup.py`, the variables `ext_modules` and `package_dir` should be updated with the path of the unzipped file: For example
 - `ext_modules = [Extension('SimpleITK.SimpleITK', [r'/your path/unzipped file/SimpleITKElastix_Python_Install/_SimpleITK.pyd'])]`
 - `package_dir = {'SimpleITK': r'\your path\unzipped file\SimpleITK_Elastix_Python_Install'}`
- Save the changes



Install SimpleITK+ Elastix



- Run anaconda prompt
- Activate your environment
 - activate ImgWorkFlow
- Navigate to path of the unzipped file
/SimpleITK_Elastix_Python_Install/Packaging
- Run the command line
 - python setup.py install
- If all is ok, you can see SimpleITK in the package list
 - conda list



IDEs



- Spyder
 - In Anaconda Prompt to install
 - `conda install -c anaconda spyder`
 - I recommend this IDE
- Eclipse
- Visual studio code + Python plugin

See more IDE: <https://www.datacamp.com/community/tutorials/data-science-python-ide>

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