Computational anatomy: from MRI to clinical morphological metrics

Instructors: Esther Puyol, Eric Kerfoot and Pablo Lamata

Timetable

Monday 10 June:

- Introduction to Python and deep learning

Tuesday 11 June:

- Case study using deep learning
  - Automatic segmentation of clinical images
  - Diagnosis and prognosis of cardiac disease

Wednesday 12 June and Thursday 13 June:

- Build a statistical shape models
- Interpretation of PCA space and it’s use for diagnosis

Material

Code and data for the summer school workshop.

https://github.com/ericspod/VPHSummerSchool2019

Visualization of the notebooks:

https://nbviewer.jupyter.org/format/slides/github/ericspod/VPHSummerSchool2019/tree/master/

Anaconda

Open source, package and environment management system for **Python**

It ships with:

- Spyder IDE
- Jupyter Notebooks

Preinstalled packages

- Numpy
- Scipy
- Scikit-learn
- Matplotlib

Installing Anaconda

Before the workshop install Anaconda:

- Download Anaconda 3.7 from:
  - https://docs.conda.io/en/latest/miniconda.html

- For MacOs, Windows or Linux:
  - Windows: https://docs.anaconda.com/anaconda/install/windows/
  - Mac: https://docs.anaconda.com/anaconda/install/mac-os/
  - Linux: https://docs.anaconda.com/anaconda/install/linux/

If you are using local desktop

On Anaconda Prompt (Windows → All programs → Anaconda3 → Anaconda Prompt)

Type:

- conda update conda
- conda update anaconda
- conda install python>=3.6
- conda install pytorch scikit-learn