Python/Jupyter Crash Course

Lecture 01

Computer Vision for Geosciences

2021-02-26

Overview

1. Software installation
   Anaconda installation
   Jupyter environment
2. Access CV4GS's Binder environment
3. Jupyter crash course
4. Python crash course

Anaconda installation

1. Follow installation instructions:
   https://docs.anaconda.com/anaconda/install/
2. After installation, check out the installed packages from your terminal:

```
$ conda list
```

3. (To install other packages):

```
$ conda install package_name  # installation from default channel
$ conda install -c conda-forge jupyter_contrib_nbextensions
```

4. (To launch Anaconda Navigator from terminal)

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$ anaconda-navigator
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Jupyter

https://jupyter.org/

Jupyter notebook

The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text.

1. Open Jupyter notebook from your terminal

   NB: root directory in Jupyter will be that from where Jupyter is launched

```
$ jupyter notebook
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2. In Jupyter, open a "Python 3 notebook", upload basic libraries

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import numpy as np
from matplotlib import pyplot as plt
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Jupyter

3. (optional) Install jupyter extensions
   https://jupyter-contrib-nbextensions.readthedocs.io/en/latest/install.html

   3.1 Install extensions

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$ conda install -c conda-forge jupyter_contrib_nbextensions
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   3.2 Enable extensions

   - From GUI:
     A new tab "Nbextensions" will appear in Jupyter, from which extensions can be enabled.
     Enable "Table of Contents (2)".
   - From Command Line:

```
$ jupyter nbextension enable toc2/main
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Jupyter lab: Jupyter's Next-Generation Notebook Interface
JupyterLab is a web-based interactive development environment for Jupyter notebooks, code, and data.

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Access CV4GS's Binder's environment

Access CV4GS's Binder's[1] environment:

1. Go to www.gitlab.com
2. Click "Explore"
3. In "Filter by name" text box, search for "CV4GS"
4. Should find the repository Sébastien Valade / CV4GS, click on it
   ⇒ this is the Gitlab repository of our course "Computer Vision for Geosciences"
5. In the the README.md file displayed, click on the launch binder icon
   ⇒ will open CV4GS's Binder environment, allowing you to interact with the Jupyter notebooks used in this course

[1] Binder is a cloud environment where Jupyter notebooks can be shared

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Jupyter crash course

In Binder:

⇒ Open CV4GS_01_python/CV4GS_01_jupyter-tutorial.ipynb

Python crash course

In Binder:

⇒ Open CV4GS_01_python/CV4GS_01_python-tutorial.ipynb