Laboratory Notebook

Silvio Peroni

silvio.peroni@unibo.it – https://orcid.org/0000-0003-0530-4305 – @essepuntato

Open Science (A.Y. 2021/2022)
Second Cycle Degree in Digital Humanities and Digital Knowledge
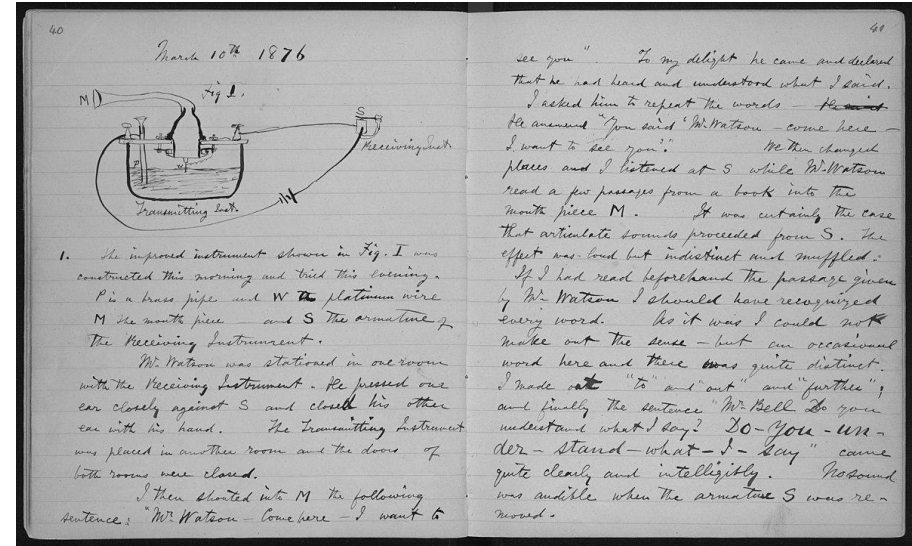Alma Mater Studiorum - Università di Bologna

What is a laboratory notebook

A laboratory notebook (also known as lab notebook) is a primary record of research, usually used in hard sciences laboratories (chemistry, biology, etc.)

It is where scholars document their research, and represents a sort of memory aid of the whole organisation of a research before publication in a research article

Two pages from a laboratory notebook by Alexander Graham Bell

Schnell, S. (2015). Ten Simple Rules for a Computational Biologist's Laboratory Notebook. PLOS Computational Biology, 11(9), e1004385. https://doi.org/10.1371/journal.pcbi.1004385

Project Jupyter

Project Jupyter is an open-source project that supports interactive data science and scientific computing across all programming languages – even if it has been originally conceived for Python

It allows one to create computational notebooks (Jupyter Notebooks) through a Web-based interface called JupyterLab – it can be installed with
```
pip install jupyterlab
```

Once installed, you can run it locally on your machine (starting from a folder of your preference) with
```
python -m jupyterlab
```

There are zillion of introductory guides for Jupyter Notebooks on the Web

Action item: each of you must maintain your personal Jupyter Notebook (being the notebook of your research done for the course project) on the folder of the GitHub repository reserved to your group, and you must to keep it up-to-date

Installing libraries from Jupyter Notebooks

Each Jupyter Notebook is organised in cells that, in the default configuration, may have one of the following types:

- Code, where you can specify a Python code to execute
- Markdown, which contains text formatted according to [Markdown](#)
- Raw, which contains raw text

In case you need to install a new library from a Jupyter Notebook, it is necessary to use the `pip` command in a Code cell preceded by the character `!` and then to run the code, e.g.:

```
!pip install networkx
```

GitHub and Jupyter Notebooks

You can [add your Jupyter Notebook in GitHub](#), and it will be rendered as a static HTML file

Of course, interactive features of the notebook, such as custom Javascript, do not work – e.g. see [example](#)

In case you want to render your Jupyter Notebook with Javascript content you need to use [nbviewer](#), by specifying the URL of the notebook to render – e.g. see the same example introduced before but [shown in nbviewer](#)

Making the notebook working well with GitHub is usually a wise choice, when possible

EGI Notebooks

EGI Notebooks is an environment based on Jupyter and the EGI cloud computing service, which provides users with JupyterLab instances

Each Jupyter lab instance is provided with 1 CPU, 1GB RAM and 10GB of persistent storage per user (warning: backup your data anyway – it is a good practice to follow in all the situations!)

You can directly login using the UNIBO email and password

Check-in

Choose your academic/social account

bologna

IRCCS Istituto delle Scienze Neurologiche - Bologna

Università di Bologna

End

Laboratory Notebook

Silvio Peroni

silvio.peroni@unibo.it – https://orcid.org/0000-0003-0530-4305 – @essepuntato

Open Science (A.Y. 2021/2022)
Second Cycle Degree in Digital Humanities and Digital Knowledge
Alma Mater Studiorum - Università di Bologna