

Version control using Git and Plotting Tutorial

Oliver Thomas

Quantum Engineering CDT
University of Bristol

May 7, 2018

Why you should use version control

- Does this seem familiar?

```
finalx.tex, finalxFORREAL.tex, finalxIPromise.tex  
finalx!yespickme.tex
```

What is Git?

- Git is the most used version control software in the world ¹
- Git is cross-platform and easy to use.

What is GitHub?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- Github is a cloud service for git which lets you store your repository online
- Why would you store your repository online?
 - Collaborative work
 - Working remotely
 -
 -

Making a repository

- You can do this online on the Github website
- Create a new repository
- Then click clone to get the url, open git on your computer and type: `git clone url`

Making a repository

- Make a new repository, then go to the website and make a new folder
- Go to the folder and right click git with bash
- You are now able to use bash for the rest of the talk!

Basic Git commands

- There are four² important commands you will need for git:
- `git pull`
- `git add`
- `git commit`
- `git push`

¹I cheat here and write a bash script which does these in order so I only have to run 1 command.

Advanced Git commands

- The git man page is very useful, especially `man gittutorial`:
-

¹I cheat here and write a bash script which does these in order so I only have to run 1 command.

Why Python?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- Python is popular, multi-platform and becoming a standard language³
- It is a good high level language to know, it is very flexible

²standard on most of the popular linux distributions

Python syntax

- As with every programming language we should figure out how to do *Hello, world!*

Open python and type:

```
print 'Hello, world!'
```

Plotting

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- Python requires the `numpy` library⁴ for a lot of basic maths functions and arrays.
- We are going to use the `matplotlib` library⁵ for the remainder of this talk.

³<http://www.numpy.org/>

⁴[https:](https://matplotlib.org/api/_as_gen/matplotlib.pyplot.plot.html)

[//matplotlib.org/api/_as_gen/matplotlib.pyplot.plot.html](https://matplotlib.org/api/_as_gen/matplotlib.pyplot.plot.html)

Example 1, Plotting functions

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- Go to the `src` folder and open `ex1functions.py`
-

Example 1, Plotting functions

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- figure
-

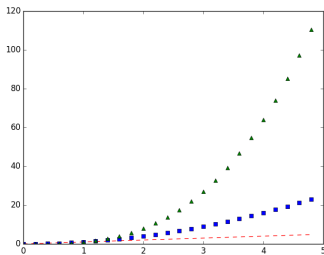


Figure: function plotting

Example 2, Complicated functions!

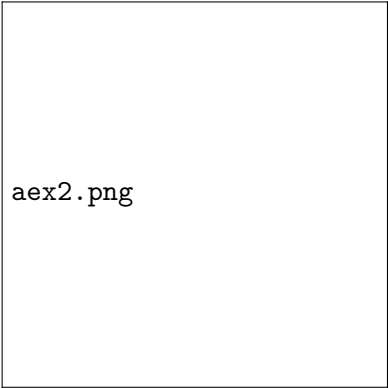
Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- In the src folder open `ex2compfunctions.py`
-

Example 2, Complicated functions!

- Figures!



aex2.png

Figure: function plotting

Example 3, Plotting data!

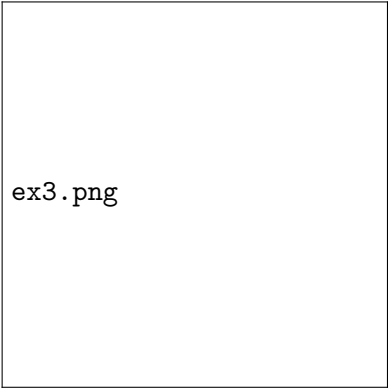
Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- once again, in the src folder open `ex3data.py`
-

Example 3, Plotting data!

- figure



ex3.png

Figure: function plotting

Example 4, Histograms!

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- once again, in the src folder open `ex4hist.py`
-

Example 4, Histograms!

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- figure
-

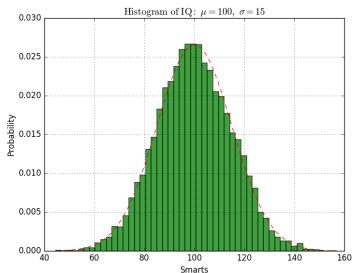


Figure: function plotting

Example 5, Subplots!

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- In the src folder open `ex5subplots.py`
-

Example 5, Subplots!

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- Figures!
-

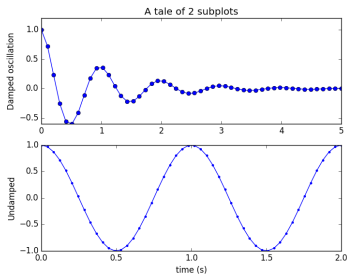


Figure: function plotting

Example 6, Art!

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

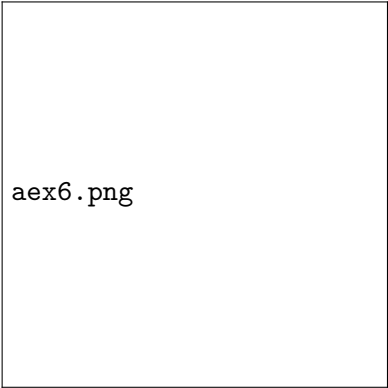
- In the `src` folder open `ex6art.py`
-

Example 6, Art!

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

- Figures!



aex6.png

Figure: function plotting

What is Git?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas



What is Git?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas



What is Git?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas



What is Git?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas



What is Git?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas



What is Git?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas



What is Git?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas



What is Git?

Version
control using
Git and
Plotting
Tutorial

Oliver Thomas

