

Version control management and research collaboration using git and github

An introduction

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What is git and GitHub?

Why should I use it?

How can I use it?

What is version control management?

Software to keep track of the history and different versions of files within project folders

What is git?

- git is a program for version control
- designed for distributed software development
- created by Linus Torvalds for his work on the Linux kernel

Explain idea of a git repository

What is GitHub?

Explain the idea of a remote repository

Explain github (and providers of remote repositories like gitlab, bitbucket, SourceForge, Launchpad ...)

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Why use version control in research?

- getting some order in the mess
 - data
 - software code/scripts
 - manuscripts for papers
- sharing your code or
- collaboration and attribution of work

What is git and GitHub?

Why should I use it?

How can I use it?

Starting a repository

Command line vs. GUIs (gitg, SourceTree, GitHub Desktop etc.)

Starting a repository

```
git init  
git clone
```

Managing the repository

```
git status
```

```
git diff
```

staging:

```
git add [--all]
```

```
git commit [-a]
```

Branches and merges

explain what branches are

git branch

git merge *branchname*

git checkout

Interacting with remote repositories

git pull

git push

Warning: careful with copyrighted materials in public repositories
forking and pull request for working on repository for which you are
no collaborator

Further useful commands and tools

.gitignore file

create doi for citations:

<https://guides.github.com/activities/citable-code/>

Questions?

Practice / task

- clone remote repository with
git clone
<https://github.com/mcc-apsis/git-intro.git>
- add some question or feedback to the presentation in the file
- add and commit changes
- pull changes already made by other
- push your own changes