Version control management and research collaboration using git and github

An introduction

APSIS group

MCC Berlin

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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 ...)

Why use version control in research?

- getting some order in the mess
  - data
  - software code/scripts
  - manuscripts for papers

- sharing your code or
- collaborating

What is git and github?

Why should I use it?

How can I use it?

Starting a repository

```
git init
git clone
```

Managing the repository

```
git status
git diff
```
staging:
```
git add [--all]
git commit [-a]
```

Interacting with remote repositories

```
git pull
git push
```

Branches and merges

explain what branches are
git branch
git merge *branchname*

Further useful commands and tools

.gitignore file
GUIs: e.g. gitg, SourceTree, etc.
https://rogerdudler.github.io/git-guide/

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