GIT FOR SCIENTISTS

An essential tool for research

Daan van Vugt, daanvanvugt@gmail.com

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Eindhoven University of Technology

VERSION CONTROL

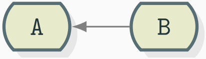
- Absolute necessity when collaborating on code
- Extremely useful for personal projects also
- Avoid files like analysis_v3_Daan_FINAL_2.m
- Use history to find bugs faster
- Automatic external backup when using remotes

GIT

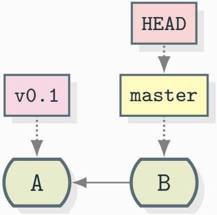
- Most popular version control system
- Git manages changes to a tree of files over time
- Excellent integration with many sites and services (Github, GitLab, Bitbucket)

HOW DOES IT WORK?

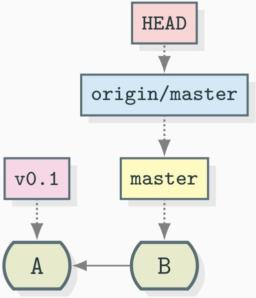
CREATING COMMITS



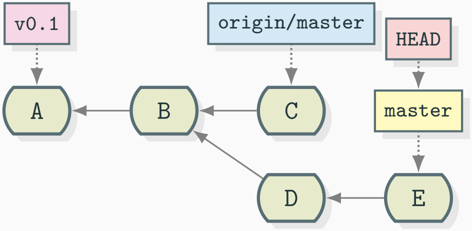
BRANCHES AND TAGS



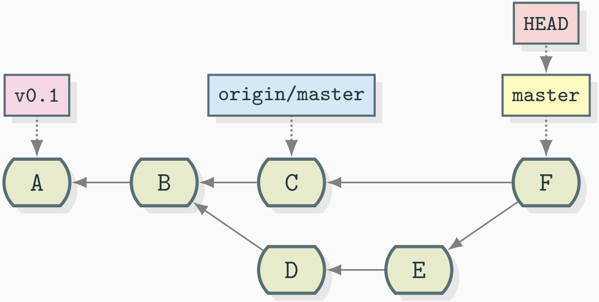
REMOTES AND COLLABORATION



CONFLICTS



MERGING



WHAT CAN I USE IT FOR?

Anything text-based!

- Code (MATLAB example follows)
- Papers (Example with Overleaf later)
- Presentations (like this one, see source at `https://github.com/exteris/git-for-scientists`)

HOW TO USE GIT WITH YOUR MATLAB PROJECT

- Install git, `https://git-scm.com/downloads`
- Include git.m in your project, `https://github.com/slayton/matlab-git`
- Create a repository with `git init`
- Stage your files with `git add *.m`
- Create your first commit with `git commit -m "Commit message"`

HOW TO USE GIT TO COLLABORATE ON PAPERS

Using Overleaf (only free online editor with unlimited private projects)

1. Create a Project on Overleaf
2. Find the Git Link for your Project (share link, www → git)
3. Clone your Project with Git
4. Edit your Project and Commit your Changes
5. Push your Changes to Overleaf

Steps from `https://www.overleaf.com/blog/195`

HOW CAN I LEARN IT?

1. 15 minute tutorial: `https://try.github.io`
2. Just Try It™ and google or ask if you have any problems

Other resources:

- `http://nyuccl.org/pages/gittutorial/`
- A Quick Introduction to Version Control with Git and GitHub, PLoS Computational Biology, doi:10.1371/journal.pcbi.1004668 (copies available after the talk)

Questions?