



NHERI SIMCENTER PROGRAMMING BOOTCAMP

JULY 30 THROUGH AUGUST 3, 2018, AT UC BERKELEY'S RICHMOND
FIELD STATION

- **Using GitHub**

REVISION CONTROL / SHARED DEVELOPMENT

■ Problem:

■ You develop software:

- Using office computer and home computer
- Want to try a new feature without breaking the code
- Want to incorporate help from colleagues; share with advisor; ...
- Need to reuse portions in other projects
- Want to keep backups of all changes
- Need to review changes

■ Solution:

- Use a Revision control system

REVISION CONTROL: GITHUB

■ GitHub

- Get your free account on <http://github.com>

■ Basic Idea (simplified):

- Store change sets (do not copy files or directory trees)
- Preserve and make every stage of your development accessible
- Store those change sets on the cloud (backup of everything 😊)

■ Key Features:

- Automated merging (push/pull/fetch/merge)
- Branching: try something without breaking the main development
- Integrate or share changes by others without manual work

REVISION CONTROL: GITHUB

The screenshot displays a GitHub profile for Peter Mackenzie-Helnwein (pmackenz). The profile includes a bio, affiliation with the University of Washington, and a list of pinned repositories. A green box highlights the 'Pinned repositories' section, which contains six projects: AgaveClientInterface, AgaveExplorer, CWE-Simulation-Tool, PileGroupTool, PyPCFD, and SimCenterCommon. A second green box highlights the '1,310 contributions in the last year' section, which features a contribution graph showing activity over time. Arrows point from the 'Projects' and 'Activity' labels to these respective sections.

Overview Repositories 15 Stars 0 Followers 1 Following 0

Pinned repositories Customize your pinned repositories

- AgaveClientInterface**
Forked from NHERI-SimCenter/AgaveClientInterface
Qt Library for HTTPS communication with SimCenter agave. Not a standalone program, but can be used by Qt applications.
C++
- AgaveExplorer**
Forked from NHERI-SimCenter/AgaveExplorer
UI program for accessing Agave resources
C++
- CWE-Simulation-Tool**
Forked from NHERI-SimCenter/CWE-Simulation-Tool
SimCenter CFD Agave Client Program for NHERI
C++
- PileGroupTool**
Forked from NHERI-SimCenter/PileGroupTool
An Application for Understanding Behaviour of Laterally Loaded Piles
C++
- PyPCFD**
Particle flow formulation for incompressible flow.
Python 2
- SimCenterCommon**
Forked from NHERI-SimCenter/SimCenterCommon
C++

1,310 contributions in the last year Contribution settings ▾

Learn how we count contributions. Less More

Projects

Activity

REVISION CONTROL: GITHUB

The screenshot shows the GitHub repository page for 'pmackenz / PileGroupTool'. The repository is a fork of 'NHERI-SimCenter/PileGroupTool'. The page includes a search bar, navigation tabs (Code, Pull requests, Projects, Wiki, Insights, Settings), and repository statistics (470 commits, 3 branches, 0 releases, 5 contributors). A list of files and folders is displayed, including 'FEA', 'build-qwt-Desktop_Qt_5_10_1_MS...', 'dialogs', 'docs', 'help', 'images', 'imagesCommon', 'includes', 'lib-deprecated', 'mainWindow', 'ops', and 'plots'. Annotations include a blue arrow pointing to the repository name, a green box around the file list, and a green box around the repository description.

Project

Files And Folders

pmackenz / PileGroupTool
forked from NHERI-SimCenter/PileGroupTool

Unwatch 1 Star 0 Fork 11

Code Pull requests 0 Projects 0 Wiki Insights Settings

An Application for Understanding Behaviour of Laterally Loaded Piles

Add topics

470 commits 3 branches 0 releases 5 contributors

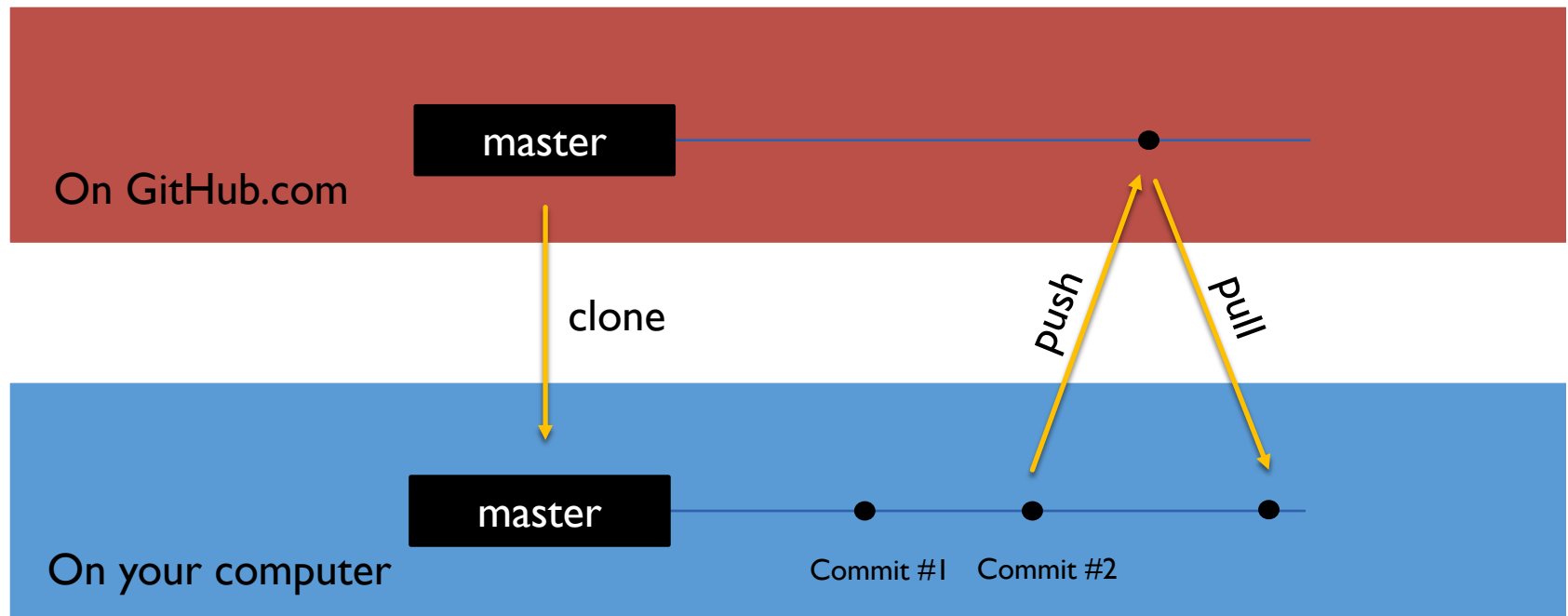
Branch: develop New pull request Create new file Upload files Find file Clone or download

This branch is 2 commits ahead, 12 commits behind NHERI-SimCenter:develop.

pmackenz Adjustment for renaming the widget packet Latest commit 4622f42 20 days ago

FEA	Fixing load placement to center of pile cap	2 months ago
build-qwt-Desktop_Qt_5_10_1_MS...	Fixing Windows fonts and other style features	2 months ago
dialogs	simplifying version check for model file	2 months ago
docs	Adding images for documentation	3 months ago
help	get rid of mac-generated indeces	2 months ago
images	get rid of mac-generated indeces	2 months ago
imagesCommon	Adding the SimCenter layout	a year ago
includes	Completed and tested recorder	3 months ago
lib-deprecated	marked blas.lib and lapack.lib as deprecated.	3 months ago
mainWindow	simplifying version check for model file	2 months ago
ops	Far into generating an OpenSees input file	3 months ago
plots	Fixing Windows fonts and other style features	2 months ago

GITHUB (SIMPLE)



REVISION CONTROL: GITHUB

The screenshot shows the GitHub repository page for **pmackenz / PileGroupTool**, which is forked from **NHERI-SimCenter/PileGroupTool**. The repository description is "An Application for Understanding Behaviour of Laterally Loaded Piles". The statistics show 470 commits, 3 branches, 0 releases, and 5 contributors. The file list includes:

File/Folder	Description	Last Commit
FEA	Fixing load placement to center of pile cap	2 months ago
build-qwt-Desktop_Qt_5_10_1_MS...	Fixing Windows fonts and other style features	2 months ago
dialogs	simplifying version check for model file	2 months ago
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Project

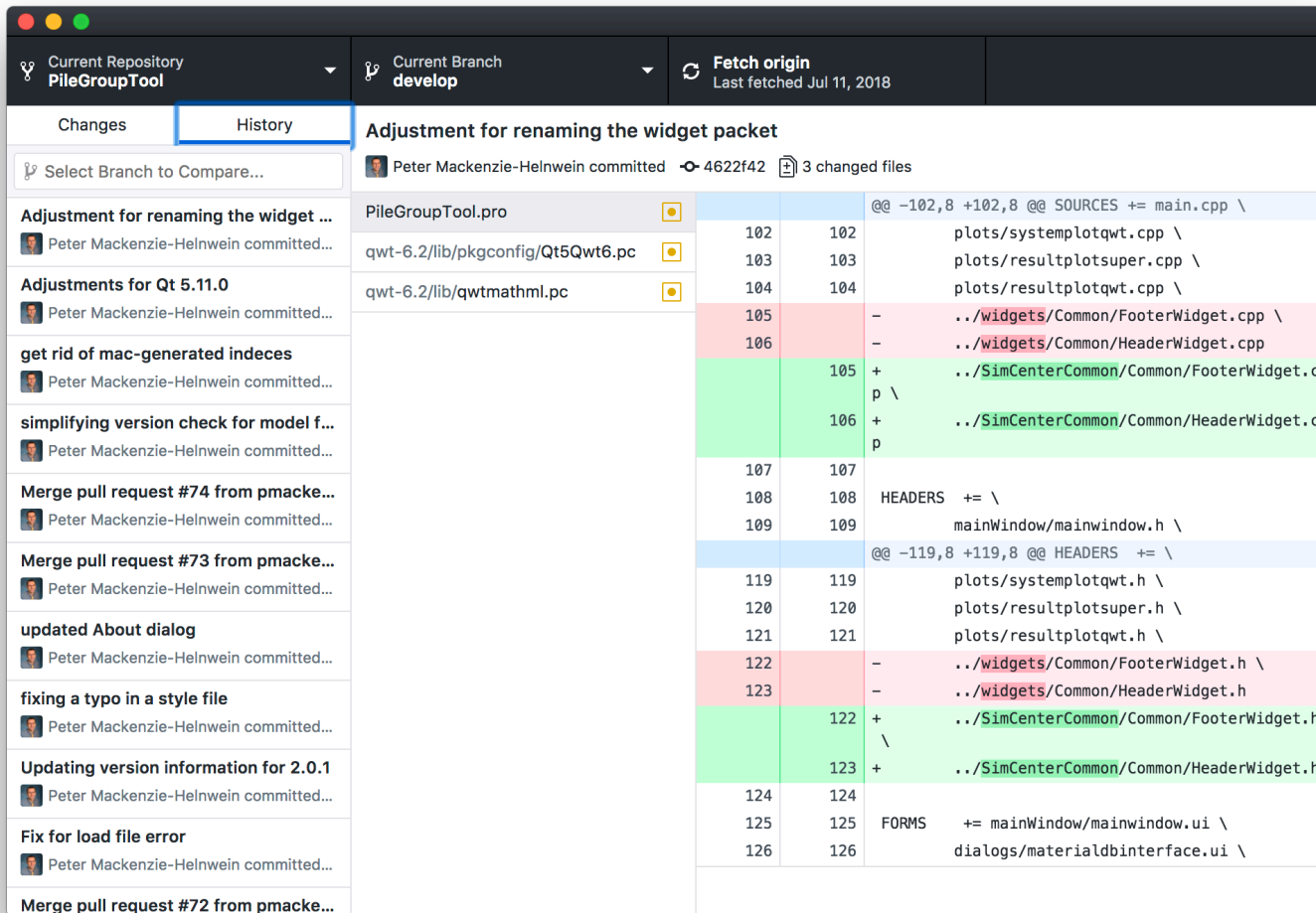
Clone
(fetch a
local copy)

Files
And
Folders

REVISION CONTROL: GITHUB

- What goes on GitHub?
 - Everything needed to build/compile your code
 - .c, .cpp, .h, .pro, .tex
 - documentation
- What does NOT go onto GitHub?
 - Everything the compiler generates
 - .o, .aux, .log, .pdf

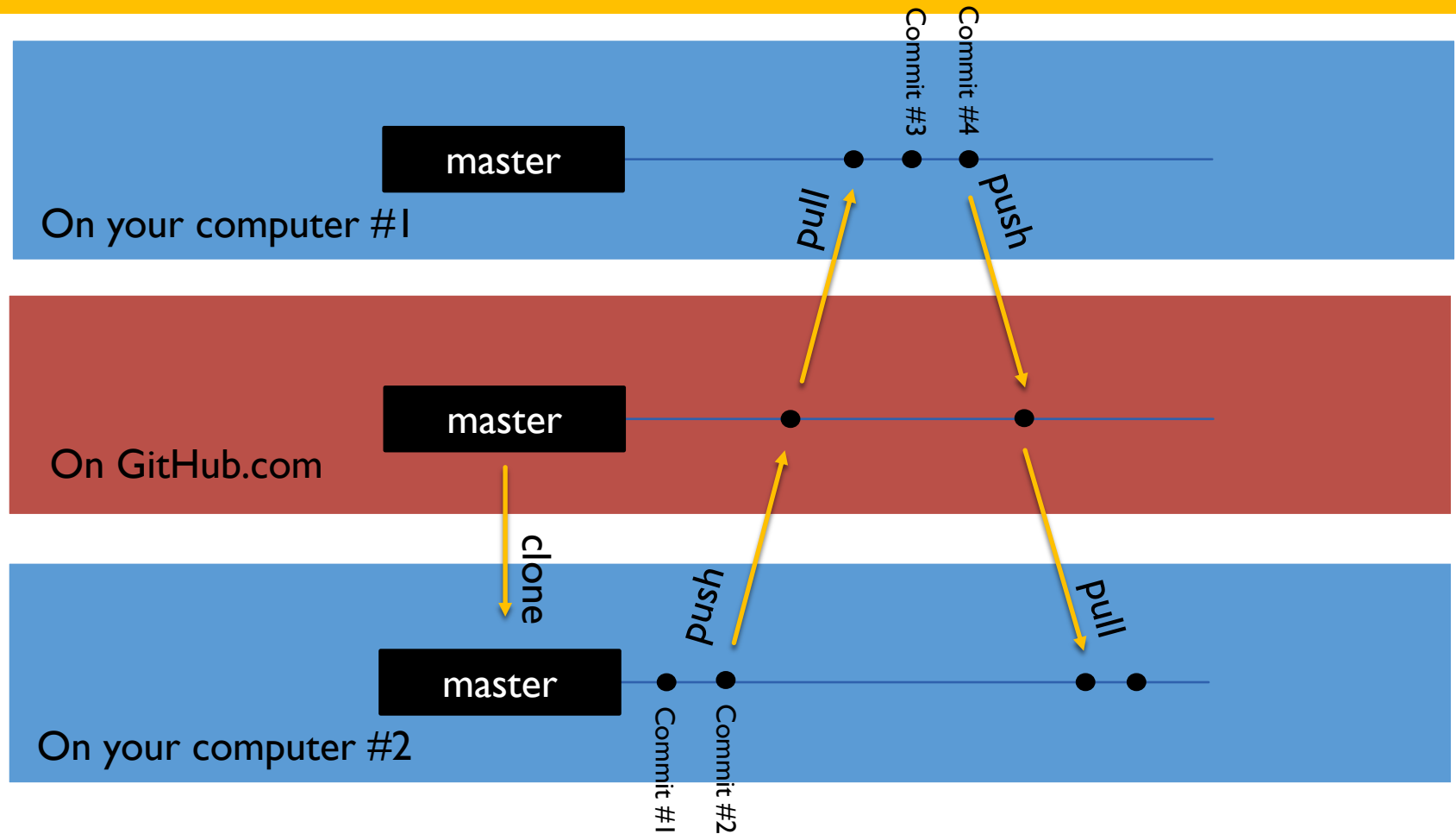
GITHUB DESKTOP



Performs most functions to communicate between your local computer and github.com

Guides you through the process and enforces comments on commit 😊

GITHUB (2 COMPUTERS)



REVISION CONTROL: GITHUB

NHERI-SimCenter / PileGroupTool

alborzgh / QtPile

aschellenberg74 / QtPile

chrshffmn / QtPile

fmckenna / QtPile

m4xwellNo4h / QtPile

ming91915 / PileGroupTool

parduino / PileGroupTool

pmackenz / PileGroupTool

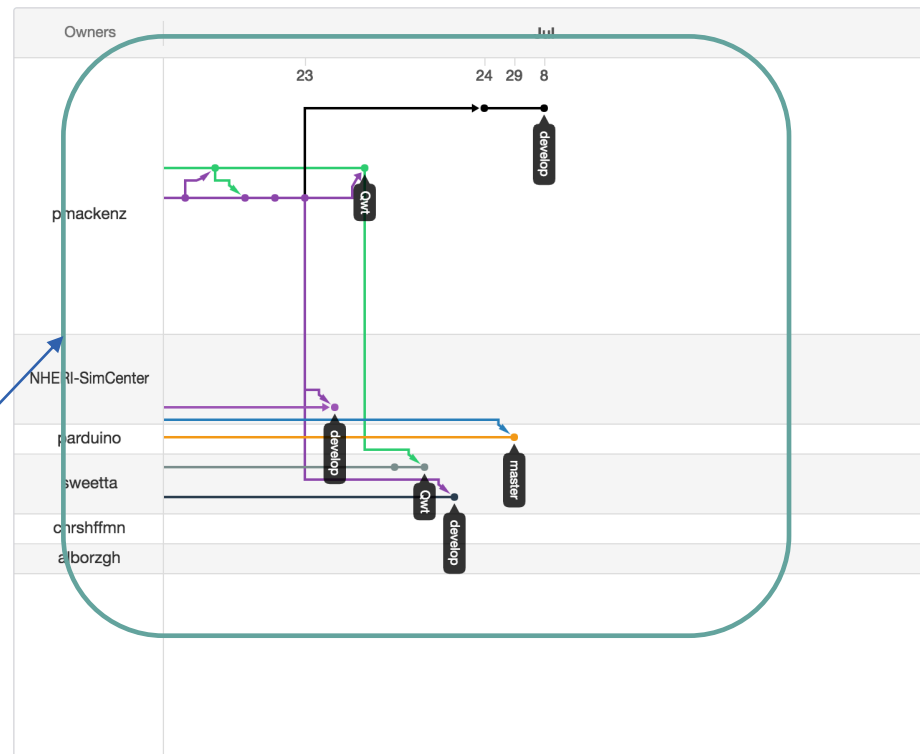
QingleCheng / PileGroupTool

sweetta / PileGroupTool

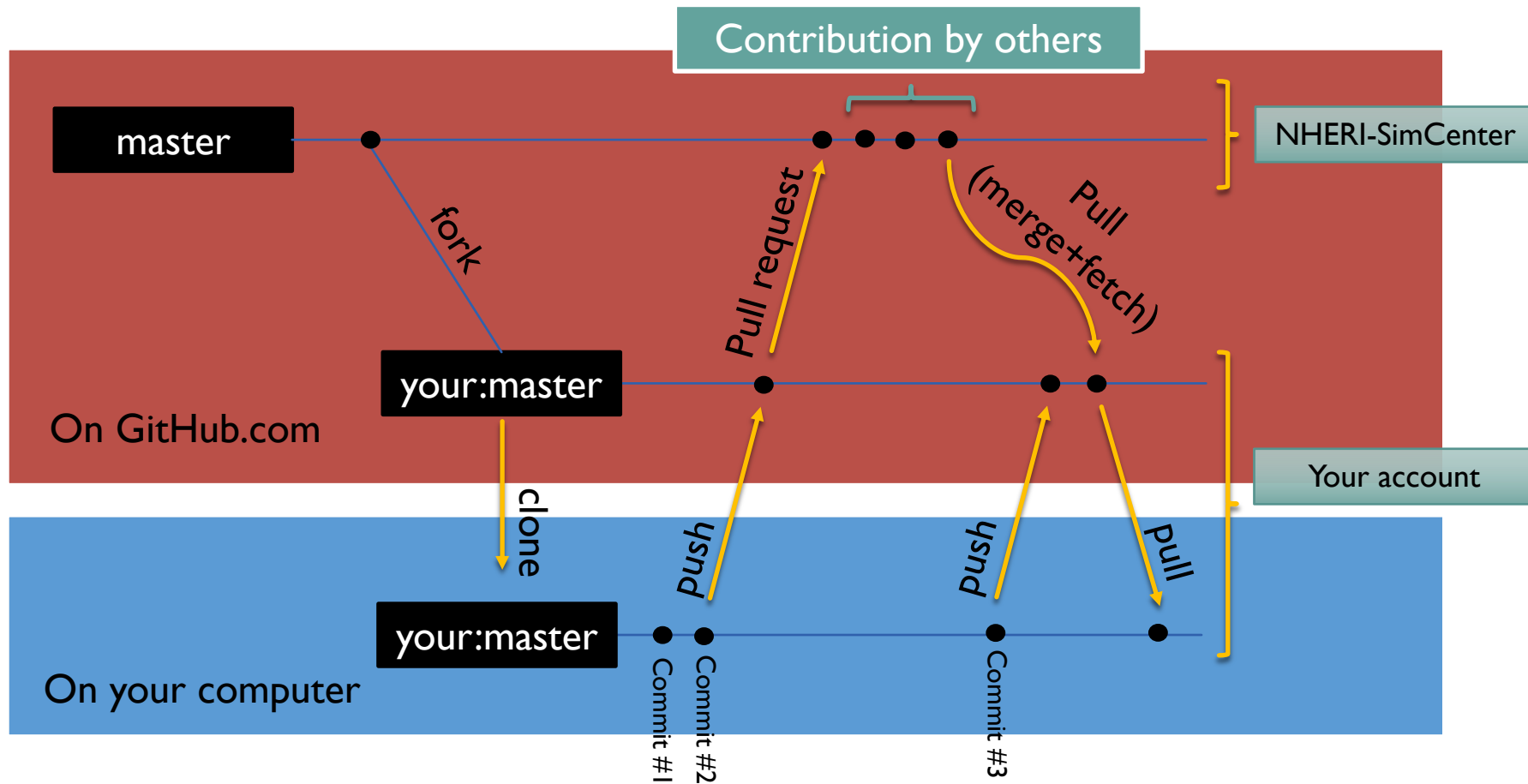
xiaogh98 / PileGroupTool

Developers

Development
tree



GITHUB (MONITORED PROJECT)



REVISION CONTROL: GITHUB

The screenshot shows the GitHub repository page for 'PileGroupTool' by user 'pmackenz'. The repository is forked from 'NHERI-SimCenter/PileGroupTool'. The page includes a header with navigation links (Pull requests, Issues, Marketplace, Explore), a search bar, and repository statistics (470 commits, 3 branches, 0 releases, 5 contributors). A list of files and folders is displayed, including 'FEA', 'build-qwt-Desktop_Qt_5_10_1_MS...', 'dialogs', 'docs', 'help', 'images', 'imagesCommon', 'includes', 'lib-deprecated', 'mainWindow', 'ops', and 'plots'. Annotations with arrows point to specific elements: 'Project' points to the repository name, 'Fork (create a private fork)' points to the 'Fork' button, and 'Files And Folders' points to the file list.

pmackenz / PileGroupTool
forked from NHERI-SimCenter/PileGroupTool

Unwatch 1 Star 0 Fork

Code Pull requests 0 Projects 0 Wiki Insights Settings

An Application for Understanding Behaviour of Laterally Loaded Piles

Add topics

470 commits 3 branches 0 releases 5 contributors

Branch: develop New pull request Create new file Upload files Find file Clone or download

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Fork
(create a
private fork)

Files
And
Folders

REVISION CONTROL: GITHUB

■ Collaboration Guidelines

- In the code: **Comments, comments, comments**
- **Commit frequently** and sync frequently to avoid conflicts
- Every commit deserves a proper description. **NO commit without comments!**
- Only **commit IF code compiles** (or use private branch)
- **WHO BREAKS THE CODE HAS TO HANG A RUBBER CHICKEN OVER THE DOOR TILL BUG IS FIXED** (blame game)
- Unstable development belongs into a branch
- Branches need to be reintegrated into main development once stable and compatible.



GITHUB.COM

- When to use the web interface?
 - Creating pull requests to the monitored project
 - Submitting and reviewing issues
 - Statistics
 - Viewing revision tree details
- Other options:
 - Use the git command line tool (most powerful but most complex)

EXERCISE

1. Create a private fork of <https://github.com/NHERI-SimCenter/SimCenterBootcamp>
2. Clone to your machine
3. Add a folder (your_name_without_spaces) to your branch
4. Add a README.txt file to this folder
5. Commit (locally)
6. Push to your fork on github.com