intro_version_control (tool = “git”, origin = “github”, language = “R”)

Name	Date modified	Type
analysis_script.R	17/01/2020 16:21	R File
analysis_script_v2.R	17/01/2020 16:21	R File
analysis_script_v3.R	17/01/2020 16:21	R File
analysis_script_final.R	17/01/2020 16:21	R File
analysis_script_final_v2.R	17/01/2020 16:22	R File
analysis_script_definitely_final.R	17/01/2020 16:22	R File
analysis_script_final_for_real.R	17/01/2020 16:22	R File

Assoc. Prof. Daniel Falster
Fiona Robinson
Dr. Fonti Kar

Workshop overview

1. What’s awesome about git and github (10mins)

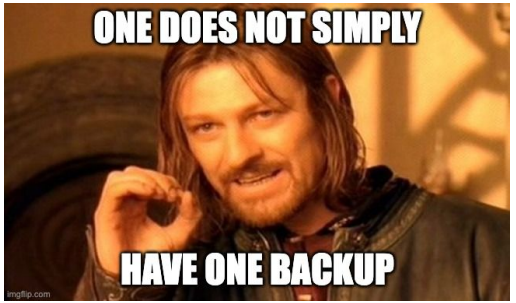
2. Key concepts (10 mins)

3. Have a go (20mins)

4. Where next

Why use version control with git?

An extra backup



Dropbox / Egernia striolata soci

Dropbox

Upload Create

Name	Modified
.git	--
data	--
doc	--
Frontiers	--
Old stuff	--
output	--
pdf	--
R	--
.gitignore	28/7/2016 2:42 pm
.RData	3/1/2017 12:28 pm
.Rhistory	3/1/2017 12:28 pm

fontikar / egerniasl Public

GitHub

Code Issues Pull requests Actions Projects Wiki Security

master 1 branch 0 tags Go to file Add file Code

fontikar Increased nitt for t2_correctonly model 367ee5e on 9 Dec 2016 44 commits

R	Increased nitt for t2_correctonly model	5 years ago
data	Removed uncessary files and removed row number column from ra...	6 years ago
doc	Some comments	5 years ago
output	Rm row numbers	5 years ago
.gitignore	Adding an ignore file for yougit add .gitignore	5 years ago
README.md	first commit	6 years ago

A better backup - Changes are meaningful

Time stamped with notes for **future self**/collaborators

Commits on Dec 9, 2016

Increased nitt for t2_correctonly model fontikar committed on 9 Dec 2016	367ee5e	<>
Increased nit and thin for coronly task 2 model fontikar committed on 9 Dec 2016	22763d0	<>
Includes batch*treatment interaction fontikar committed on 9 Dec 2016	9417f53	<>
Reduced down some ugly code to calculate significant tally and learni... fontikar committed on 9 Dec 2016	c220e1b	<>

Commits on Aug 1, 2016

Forgot to index model for function MCMC.chains fontikar committed on 1 Aug 2016	f062f57	<>

Changes are super **easy to spot!**

Showing **1 changed file** with **3 additions** and **13 deletions**.

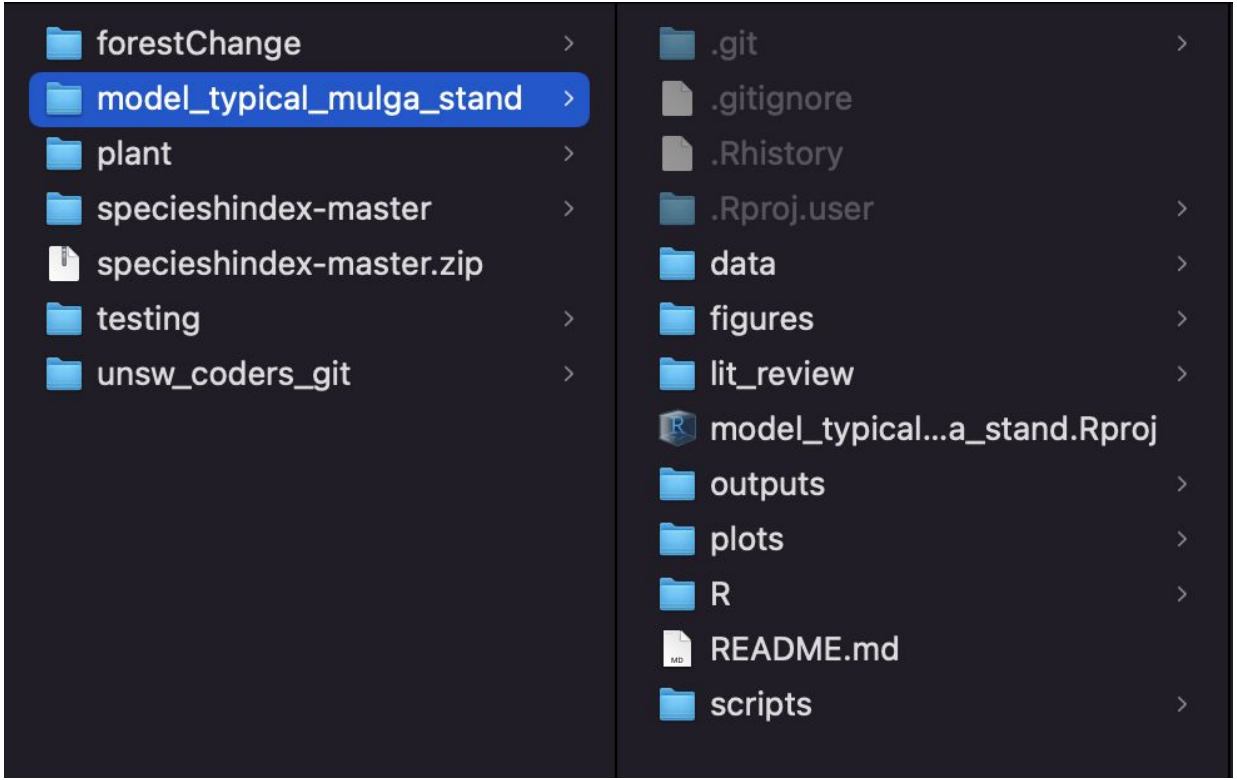
Split | Unified

16 R/t2_mcmc.R

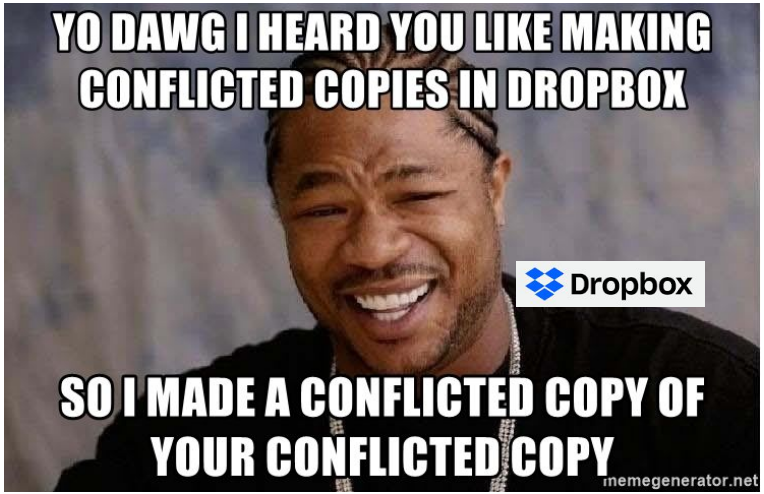
```
@@ -32,29 +32,19 @@ saveRDS(probcor.1, file="output/t2_probcormod.1")
32 32   correctonly.1 <- list()
33 33   for(i in 1:3){
34 34     set.seed(chains[i])
35    -   correctonly.1[[i]] <- MCMCglmm(Choose.only.correct.dish ~ Treatment*Trial+Batch, random = ~us(1+Trial):LizardID, family = "categorical", nitt = 11000
   35 +   correctonly.1[[i]] <- MCMCglmm(Choose.only.correct.dish ~ Treatment*Trial+Batch, random = ~us(1+Trial):LizardID, family = "categorical", nitt = 50100
36 36   }
37 37
```

A better backup - keep current workspace tidy

Code hoarding is allowed, in a very controlled way

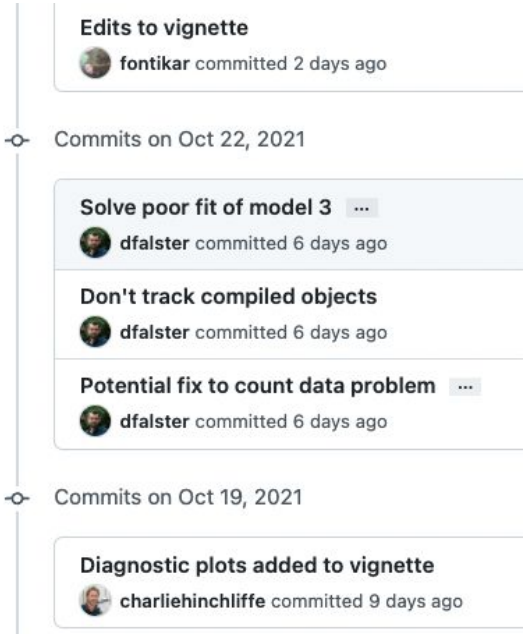


Collaboration -- makes working together easier



Collaboration -- easily combine files

Can see **WHAT** is changed by **WHO** and **WHEN**



Collaboration -- easily reconcile differences

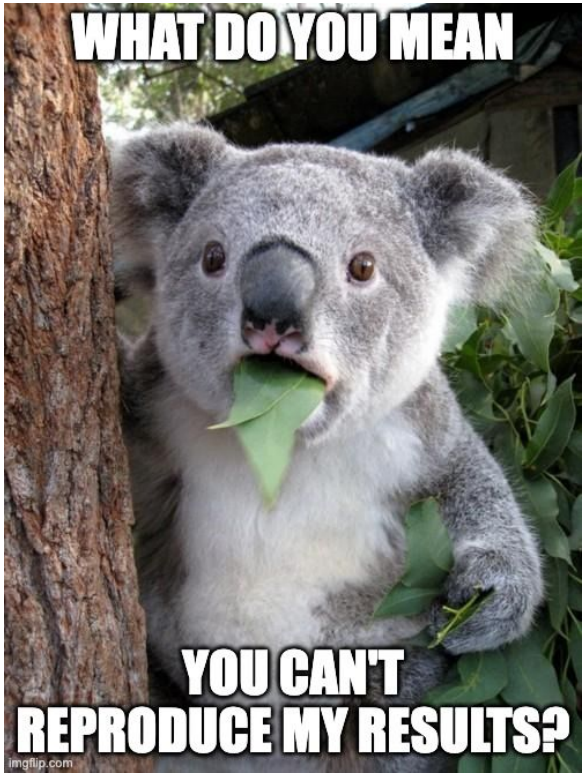
Files have a **conflict?** Git says **fix it now, not later**

```
$ git status
> # On branch main
> # Your branch and 'origin/main' have diverged,
> # and have 1 and 2 different commits each, respectively.
> #  (use "git pull" to merge the remote branch into yours)
> # You have unmerged paths.
> #  (fix conflicts and run "git commit")
> #
```

git will tell you **where** the conflict is

```
If you have questions, please
<<<<<<< HEAD
open an issue
=======
ask your question in IRC.
>>>>>>> branch-a
```

Make your work reproducible



- Hub to openly store + share your code
- Full trail from start to finish
- Instills confidence in readers/reviewers
- Enforces good habits

noise-phenomena compendium

launch binder | build passing | DOI 10.5281/zenodo.1219780

A compendium of code, data, and author's manuscript accompanying the publication:

Carl Boettiger. ***From noise to knowledge: how randomness generates novel phenomena and reveals information***. Published in *Ecology Letters*, 22 May 2018 https://doi.org/10.1111/ele.13085

Overview

This repository is organized as a reproducible research compendium. Click the launch binder button above to explore in an interactive RStudio session. Binder uses rocker-project.org Docker images to ensure a consistent and reproducible computational environment. These Docker images can also be used locally.

An `Rmd` notebook and associated pdf for Appendix A can be found in appendixA. This notebook includes explanations and code necessary for all of the numerical examples discussed in the paper. It should also provide a useful starting point for extending and exploring these models with other parameters.

Or to explore the code locally, clone or download this repository into RStudio or your preferred environment and install the compendium by running `devtools::install()`. To install additional dependencies used only in formatting the figures, use `devtools::install(dep=TRUE)`.

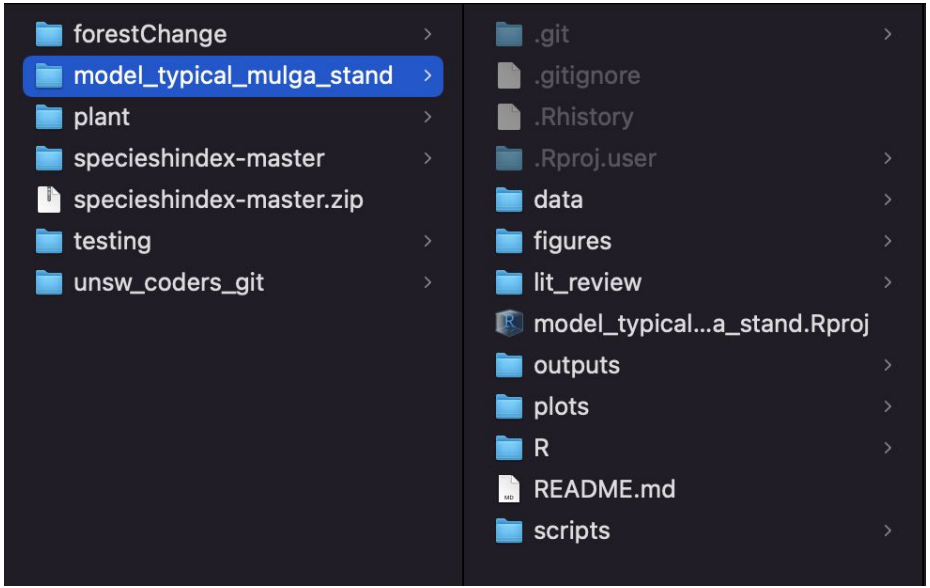
This compendium is checked by Travis-CI continuous integration. Click the build passing button for details.

https://github.com/cboettig/noise-phenomena

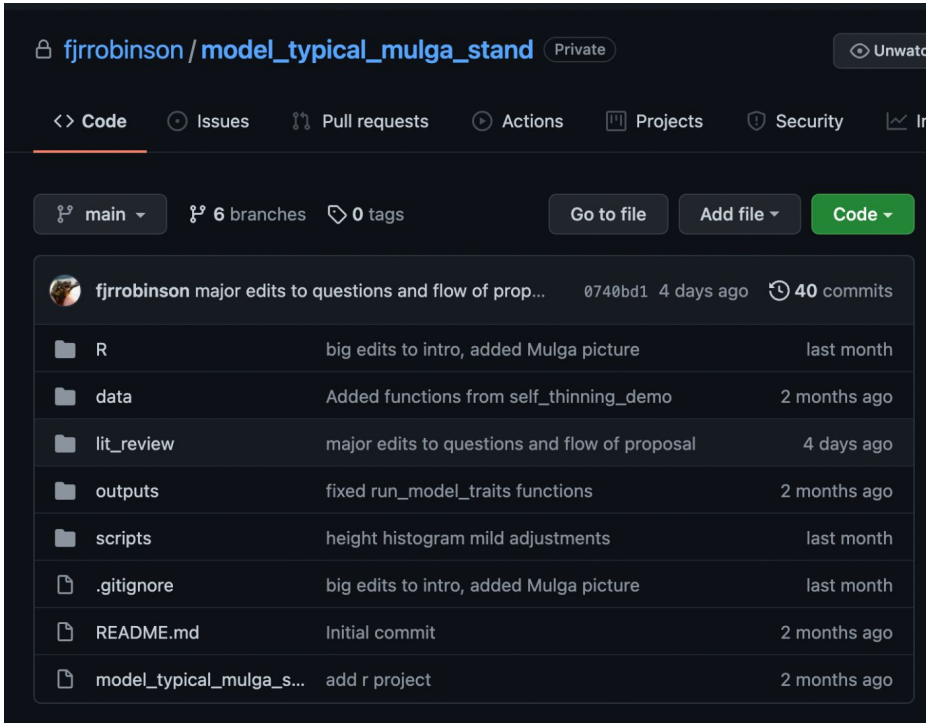
Key concepts in git

repository

Your project directory/filing system

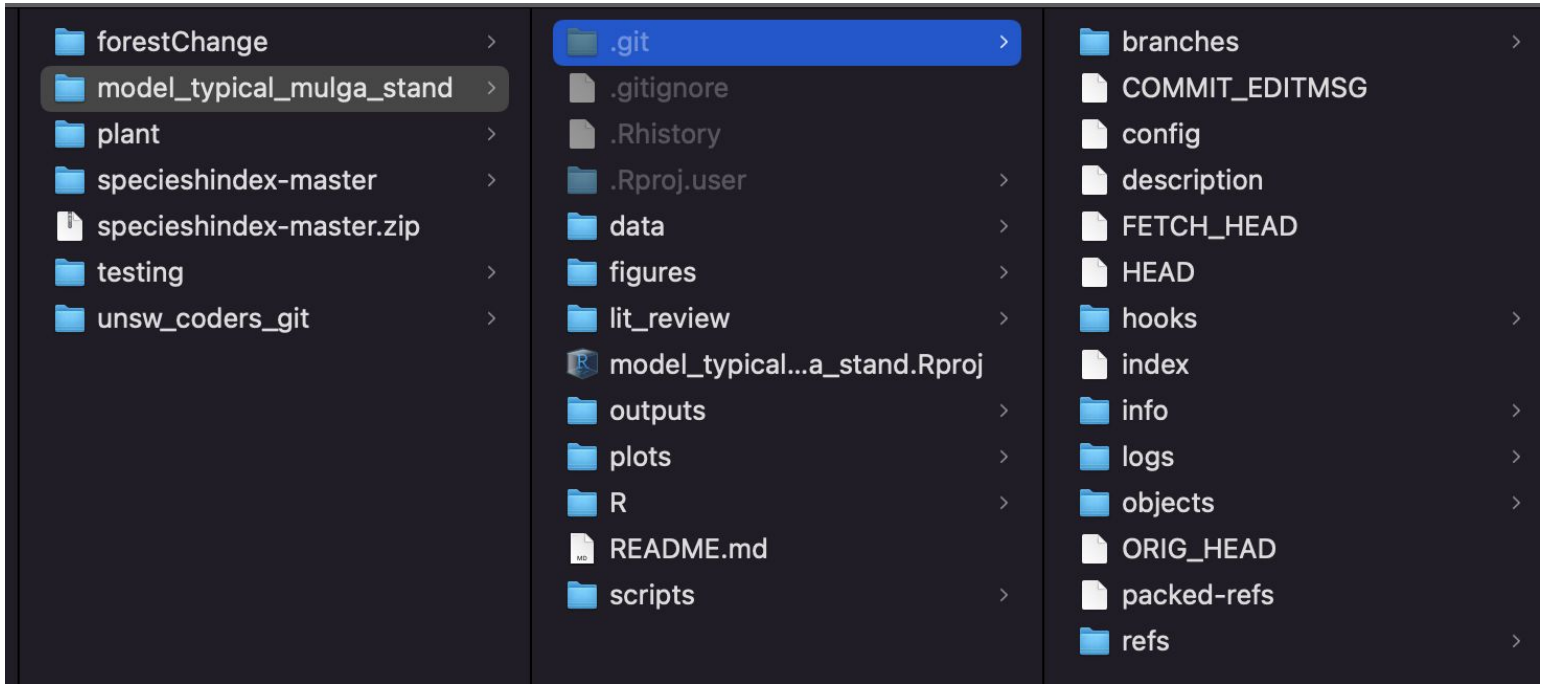


Local copy



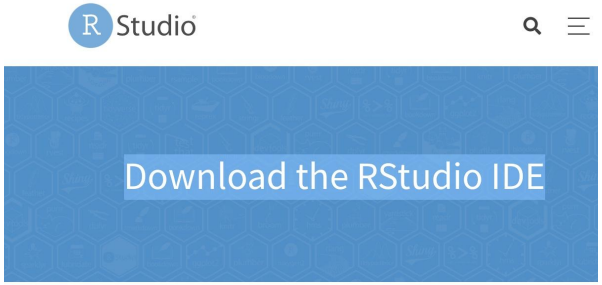
Github

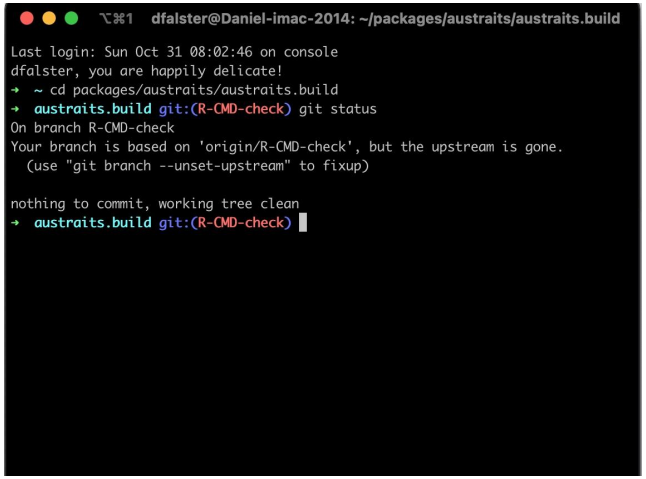
git -> .git folder



Multiple interfaces to git

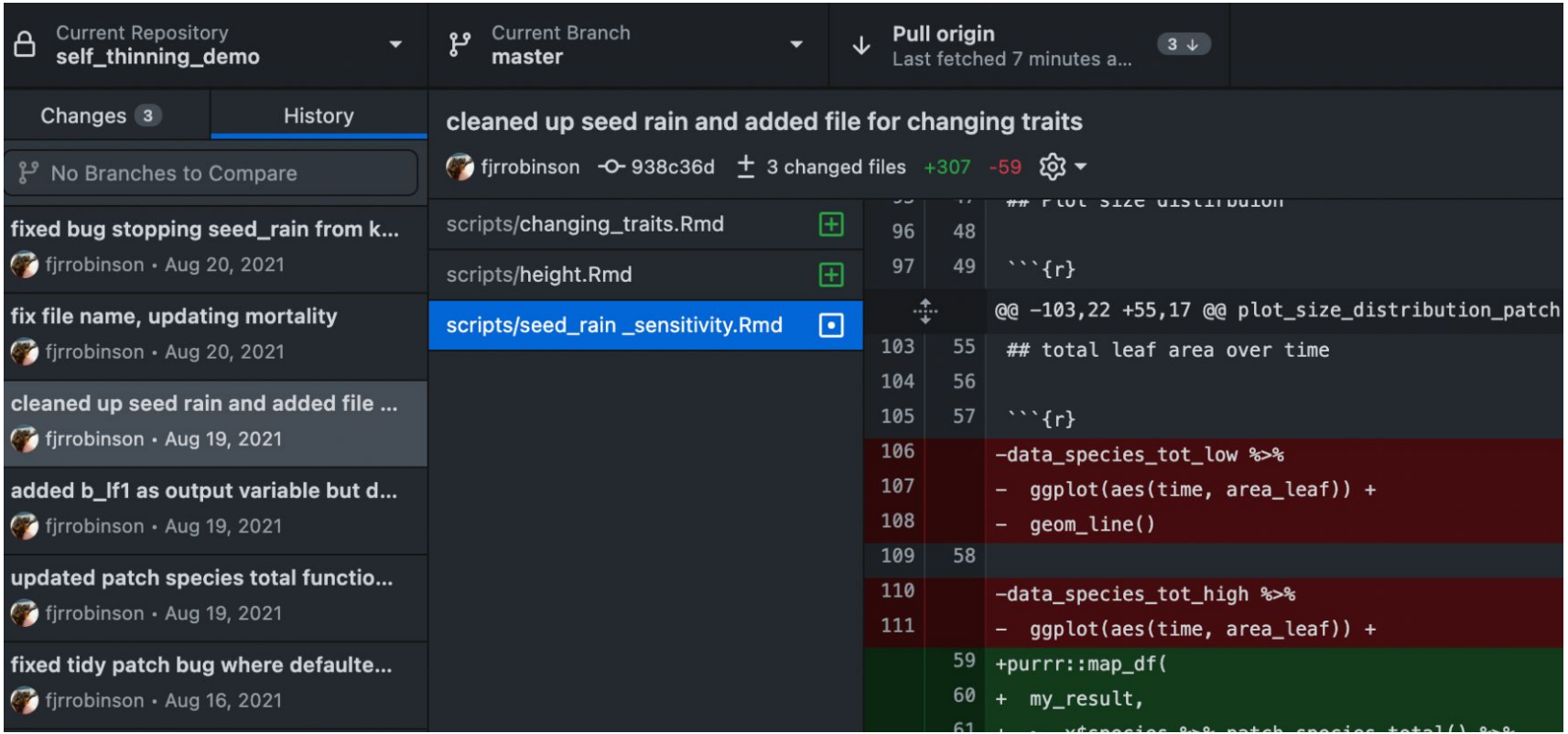
All looks different, but the concepts are the same!
Usability and number of functions available do vary



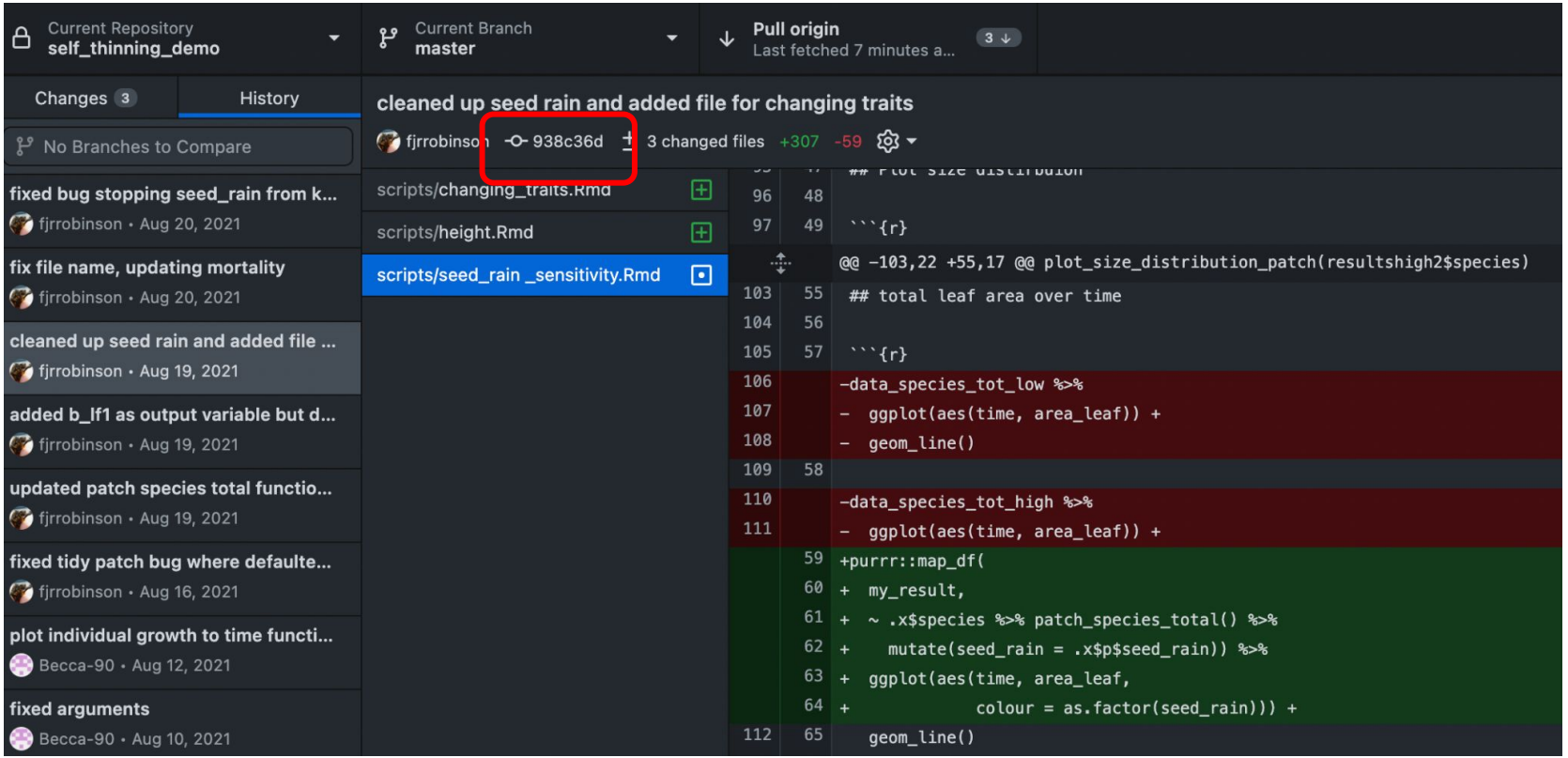


We will use this one today!

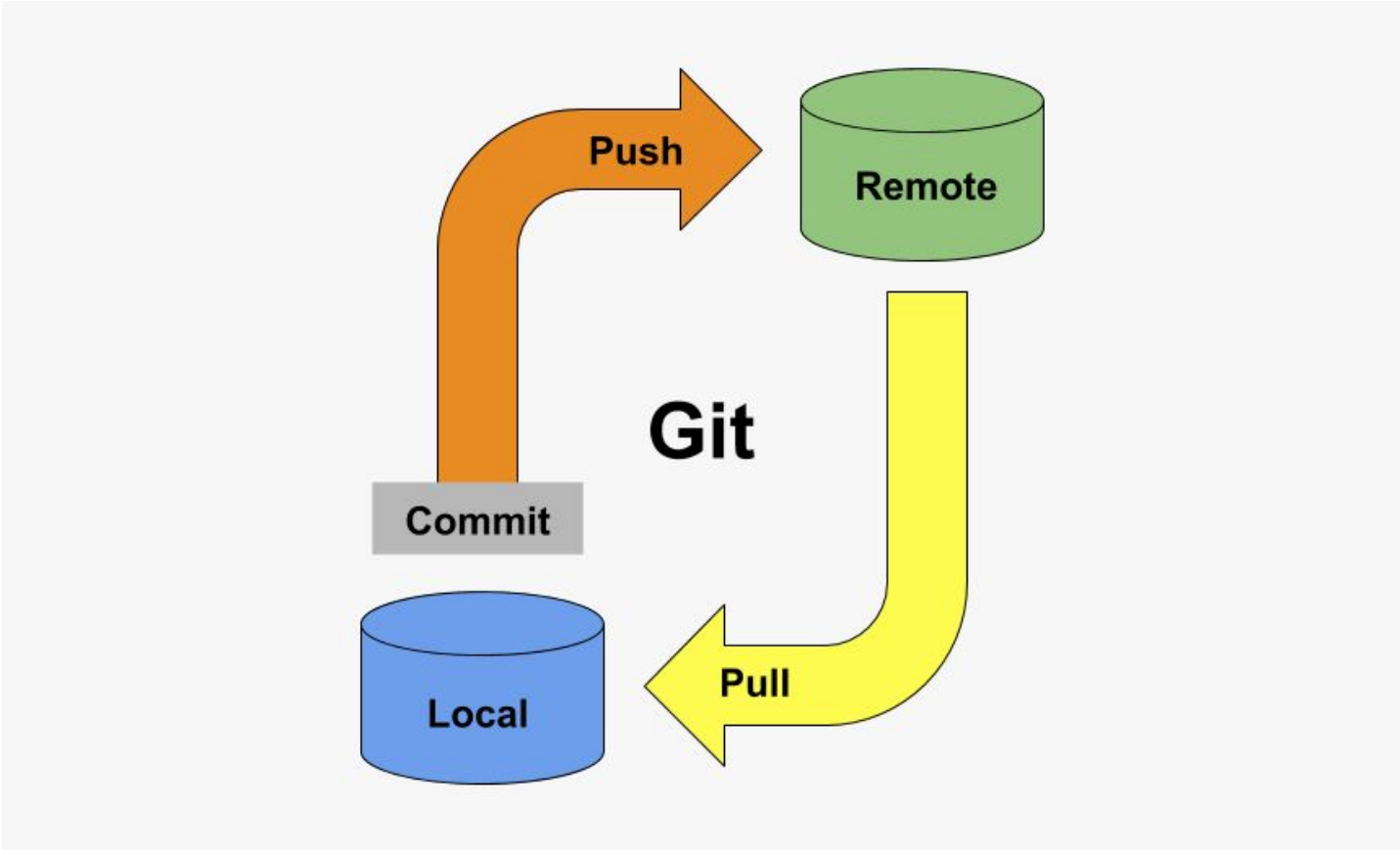
Commits → tree



hash

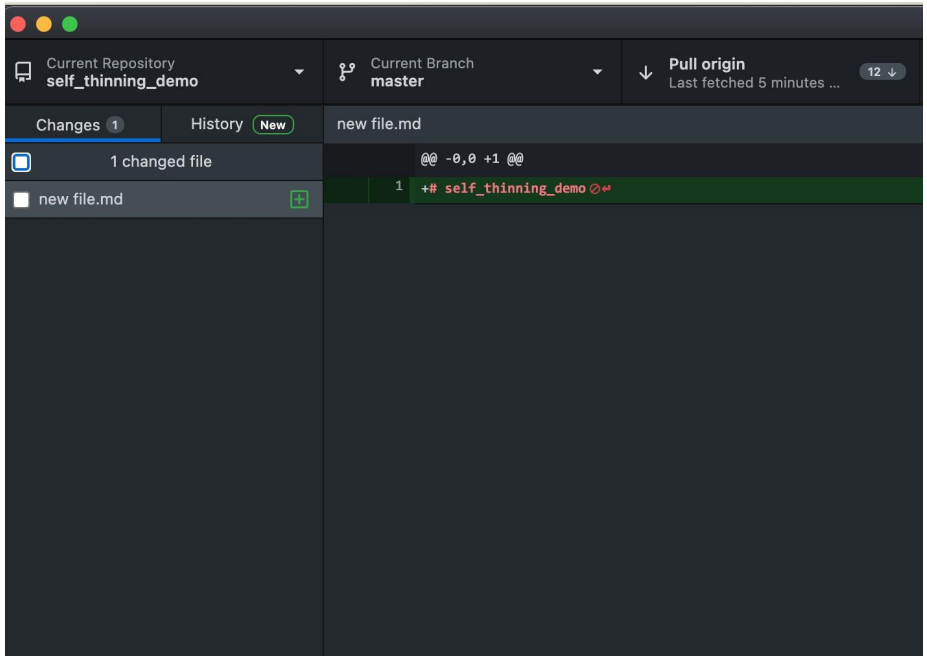

Current Repository
self_thinning_demo
Current Branch
master
Pull origin
Last fetched 7 minutes a...
3
Changes 3
History
No Branches to Compare
fixed bug stopping seed_rain from k...
fjrrobinson • Aug 20, 2021
fix file name, updating mortality
fjrrobinson • Aug 20, 2021
cleaned up seed rain and added file ...
fjrrobinson • Aug 19, 2021
added b_lf1 as output variable but d...
fjrrobinson • Aug 19, 2021
updated patch species total functio...
fjrrobinson • Aug 19, 2021
fixed tidy patch bug where defaulte...
fjrrobinson • Aug 16, 2021
plot individual growth to time functi...
Becca-90 • Aug 12, 2021
fixed arguments
Becca-90 • Aug 10, 2021
cleaned up seed rain and added file for changing traits
fjrrobinson
938c36d
3 changed files +307 -59
scripts/changing_traits.Rmd
scripts/height.Rmd
scripts/seed_rain _sensitivity.Rmd
96 48
97 49 ```{r}
@@ -103,22 +55,17 @@ plot_size_distribution_patch(resultshigh2$species)
103 55 ## total leaf area over time
104 56
105 57 ```{r}
106 -data_species_tot_low %>%
107 - ggplot(aes(time, area_leaf)) +
108 - geom_line()
109 58
110 -data_species_tot_high %>%
111 - ggplot(aes(time, area_leaf)) +
59 +purrr::map_df(
60 + my_result,
61 + ~ .x$species %>% patch_species_total() %>%
62 + mutate(seed_rain = .x$p$seed_rain)) %>%
63 + ggplot(aes(time, area_leaf,
64 + colour = as.factor(seed_rain))) +
112 65 geom_line()

Push and Pull

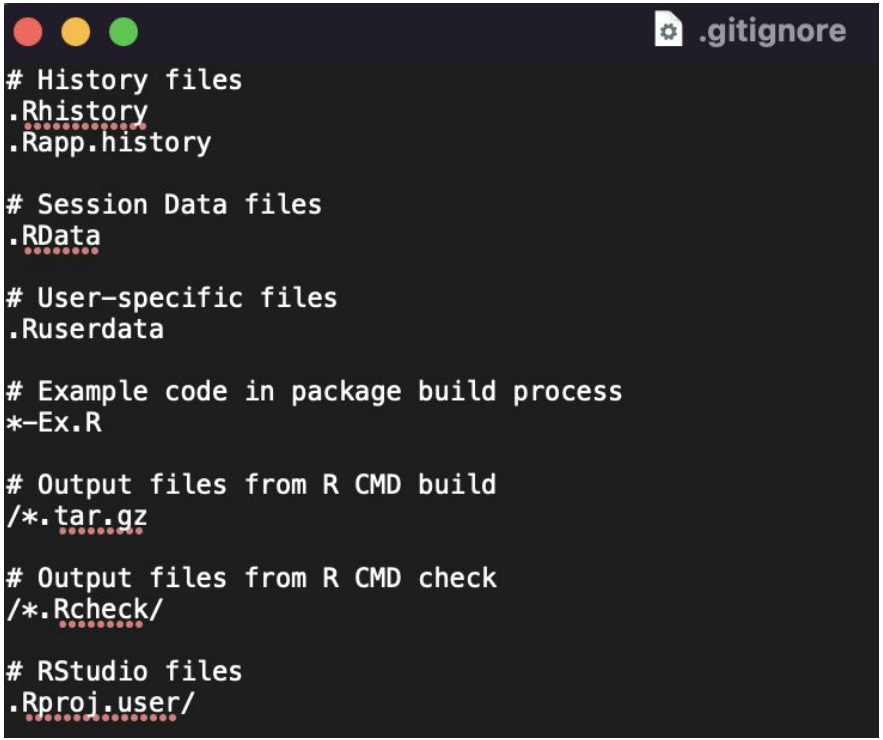


What to track and ignore?

You need to actively add files



You can ignore files with .gitignore



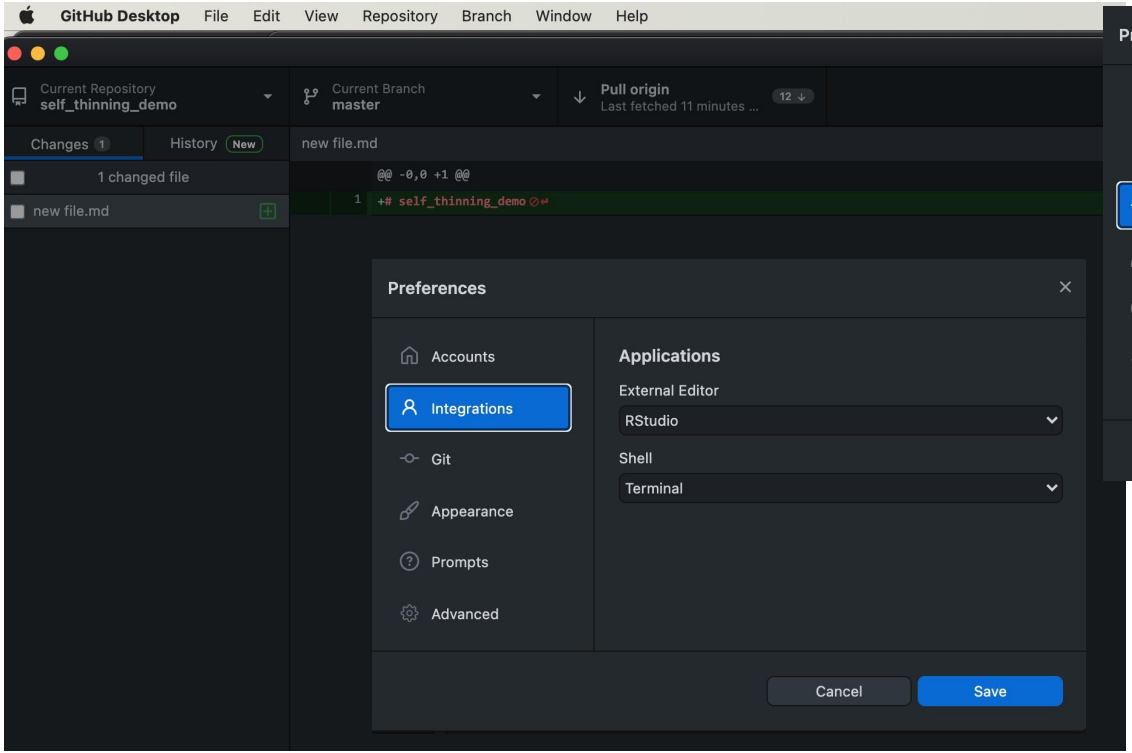
Ready to git with it?

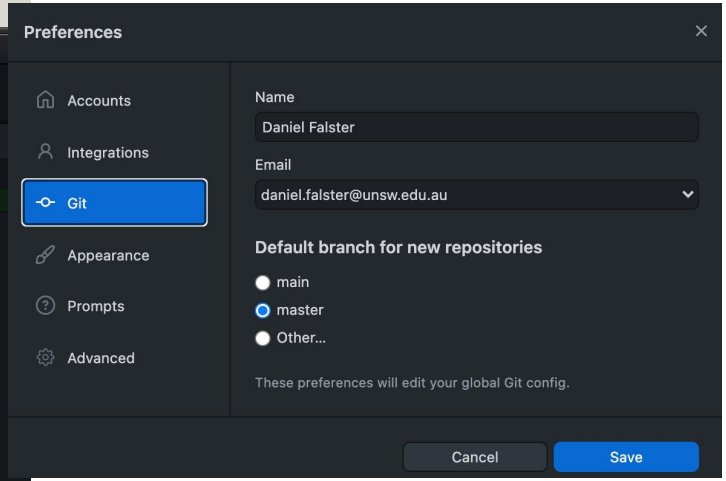
Our slightly ambitious plan

1. Sign into github & github desktop
2. Create a new local repo
3. Push to github
4. Collaborate
5. Where to from here?

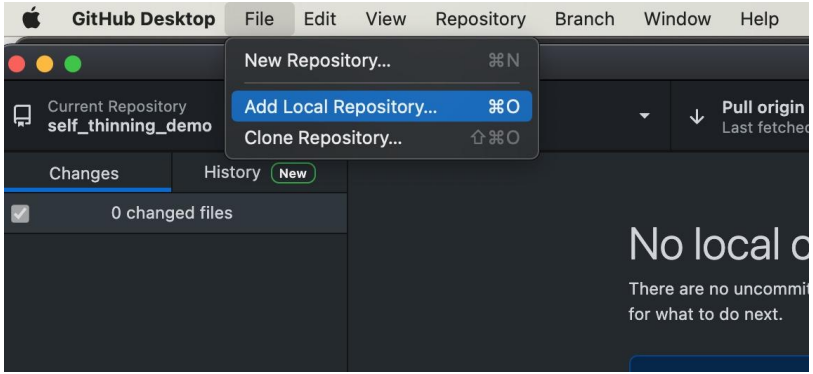
Sign into Github Desktop

Check preferences

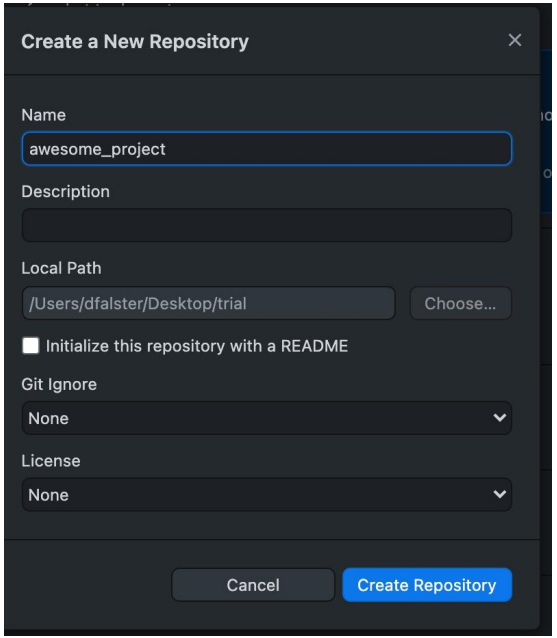




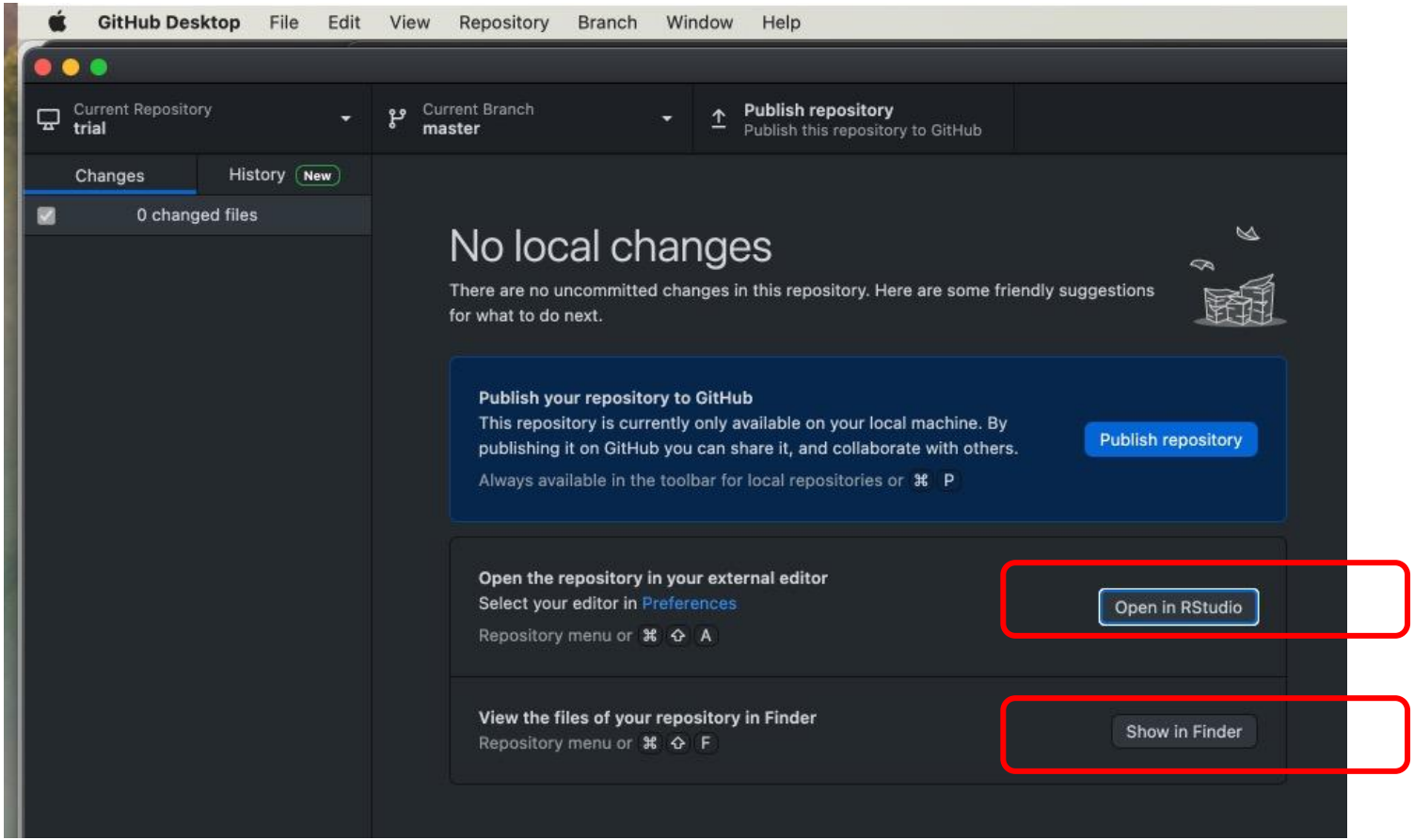
Create a new local repo



Creates repo on your machine

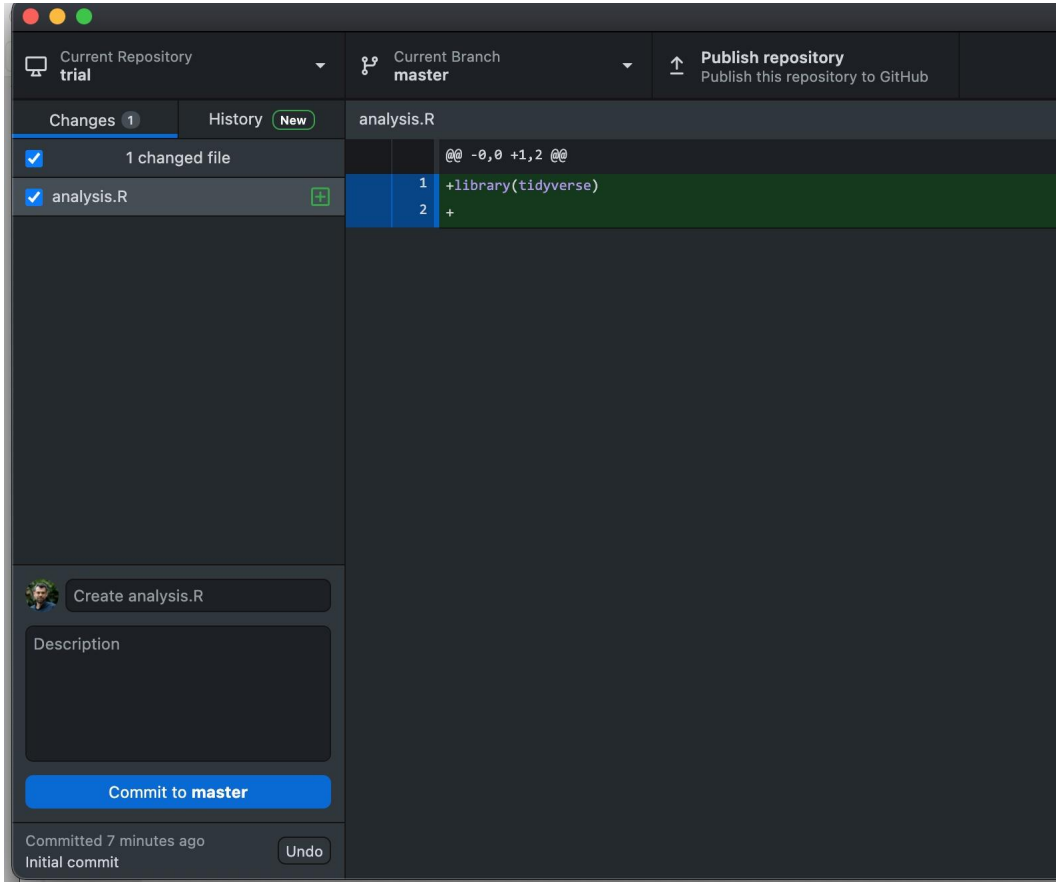


Open in Rstudio



Add (edit) file, commit, repeat

✅ files are “staged”



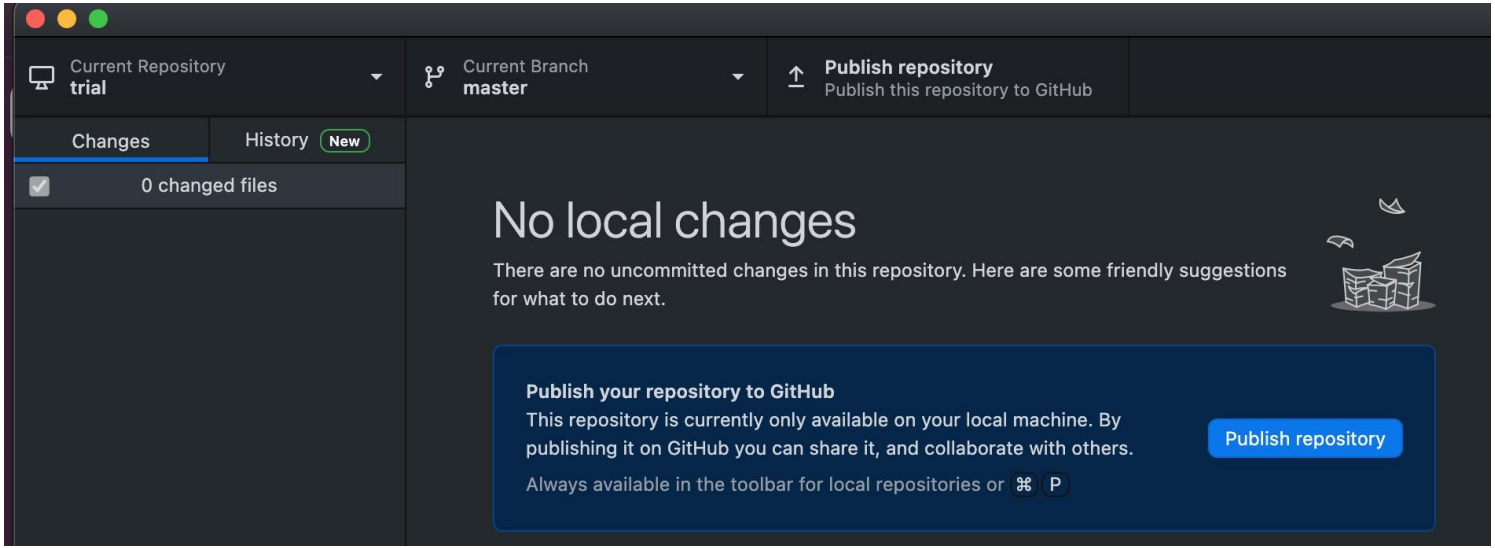
📝 describe what you did here

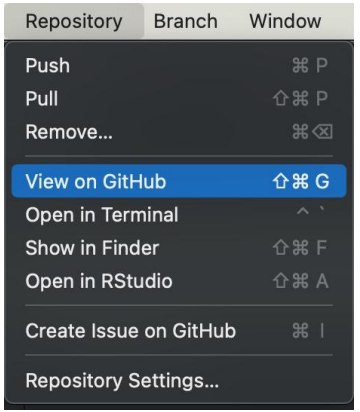
👀 See what part of your file is changed*

*only works for plain text files. (.txt, .R, .RMD) - not .docx

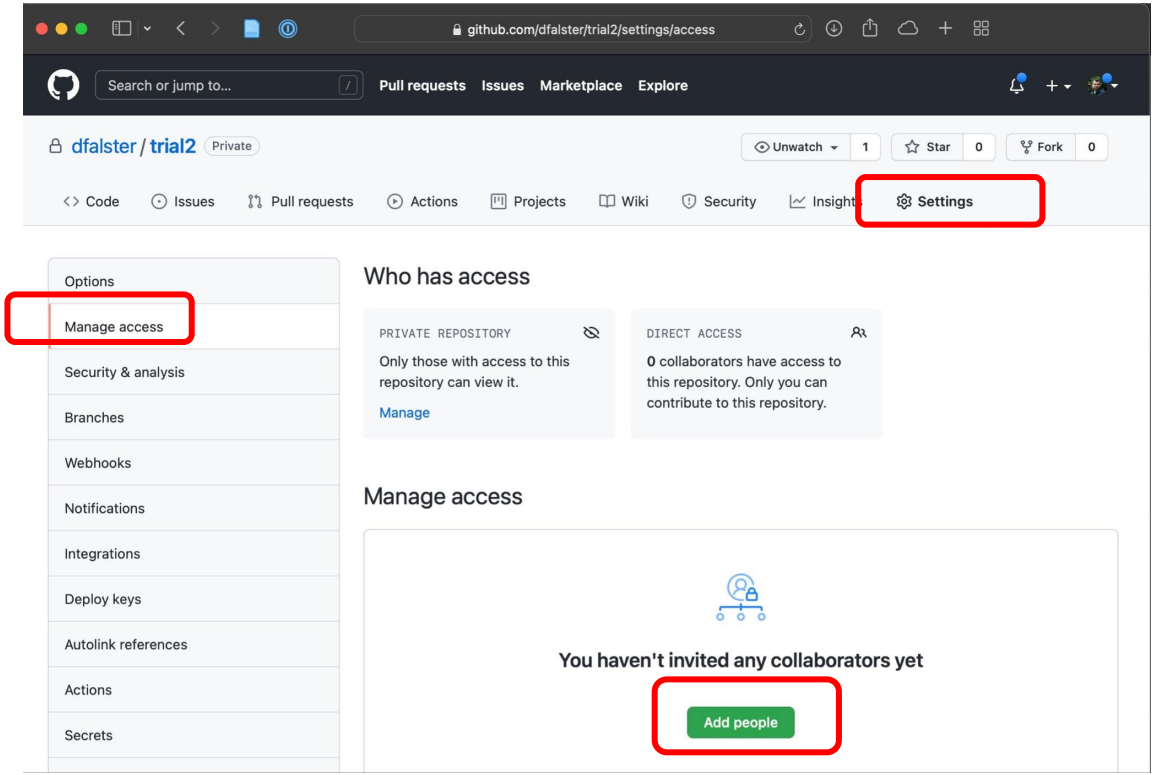
Ready to collaborate?

Push to github

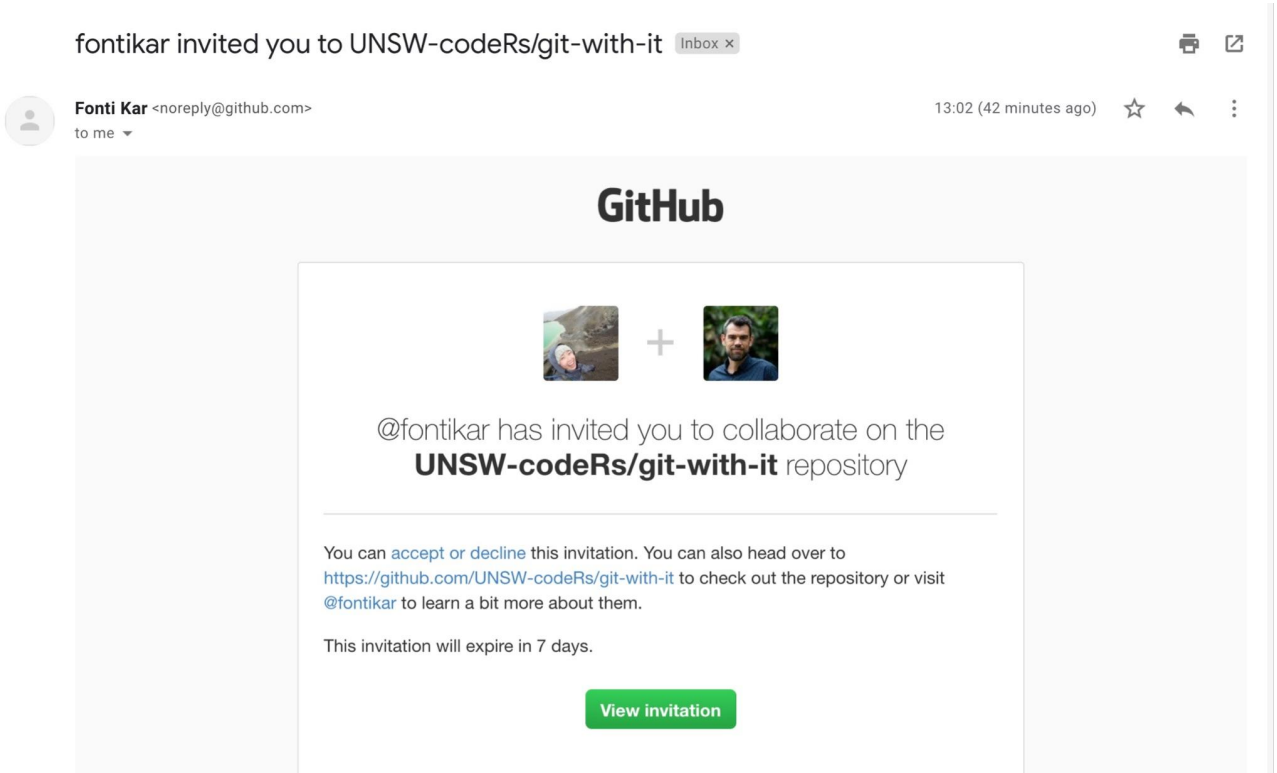




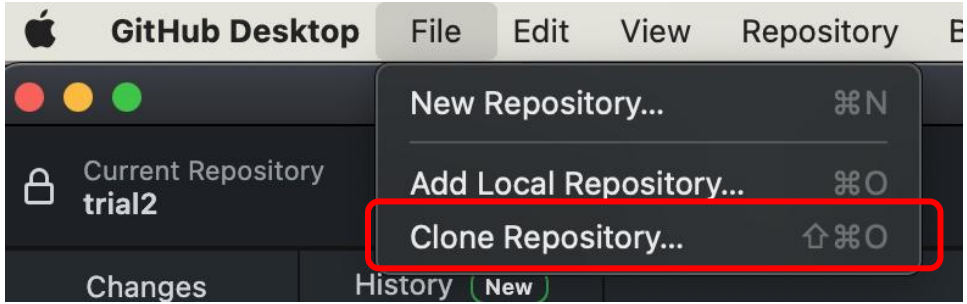
Invite someone to edit your repo

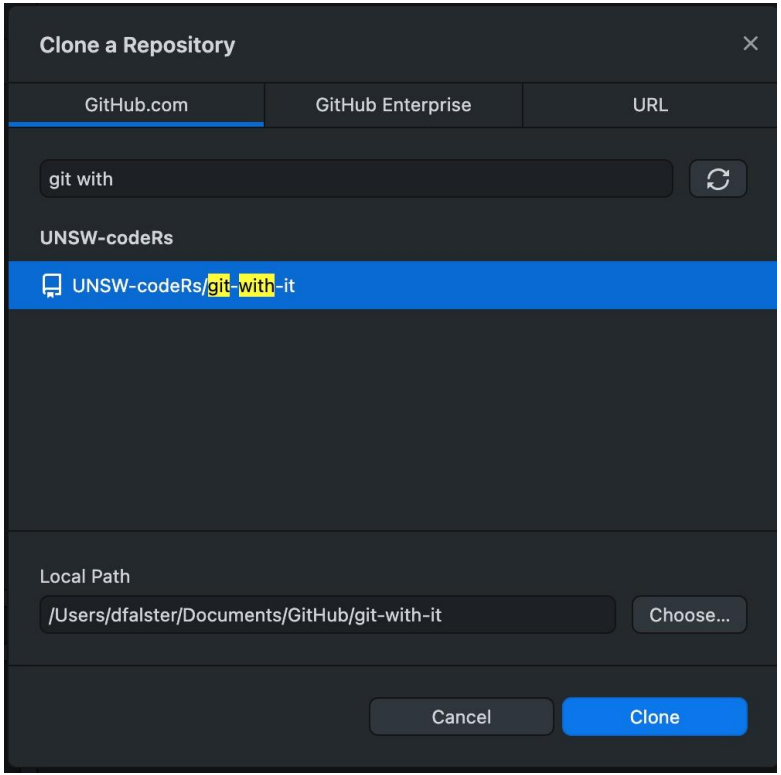


Accept invite



Now clone

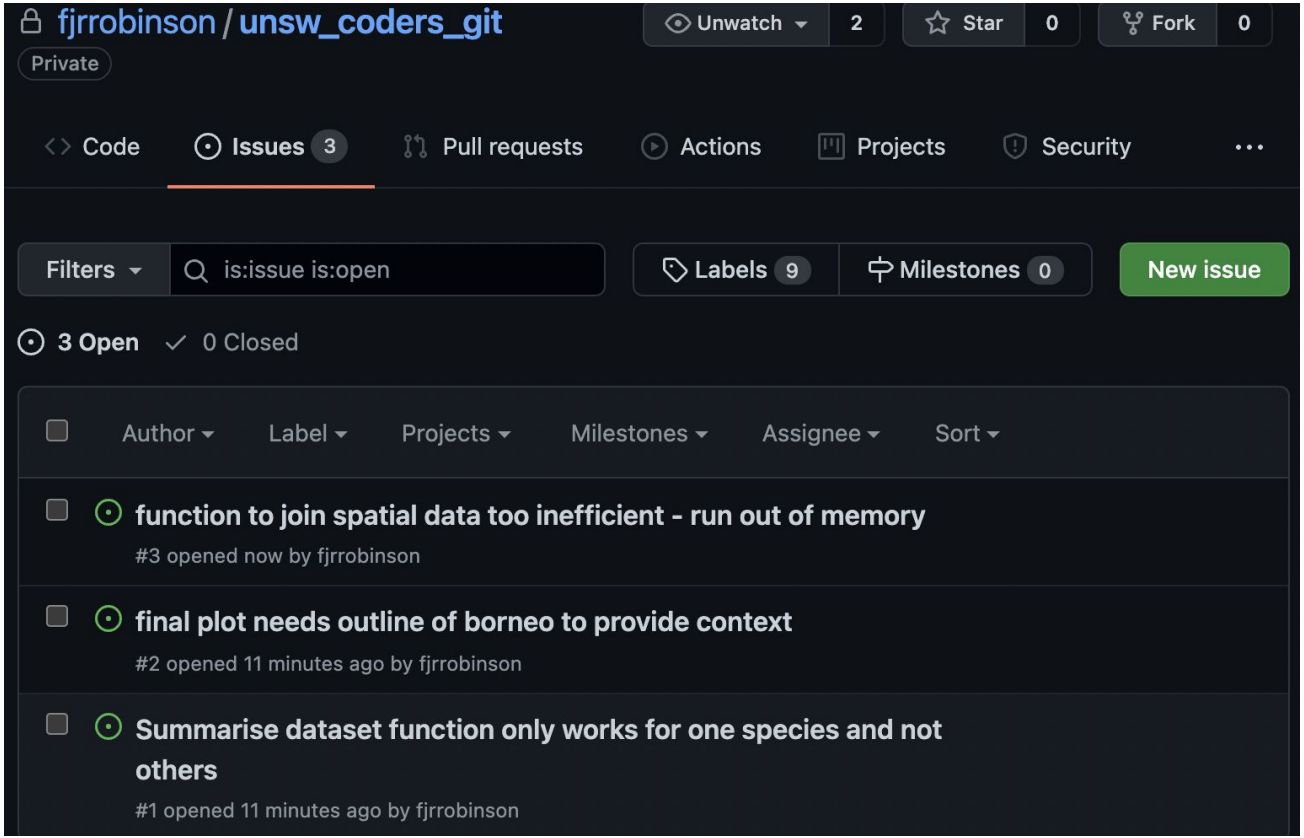

GitHub Desktop
File
Edit
View
Repository
New Repository... ⌘N
Add Local Repository... ⌘O
Clone Repository... ⇧⌘O
Current Repository
trial2
Changes
History
New


Clone a Repository
GitHub.com
GitHub Enterprise
URL
git with
UNSW-codeRs
UNSW-codeRs/git-with-it
Local Path
/Users/dfalster/Documents/GitHub/git-with-it
Choose...
Cancel
Clone

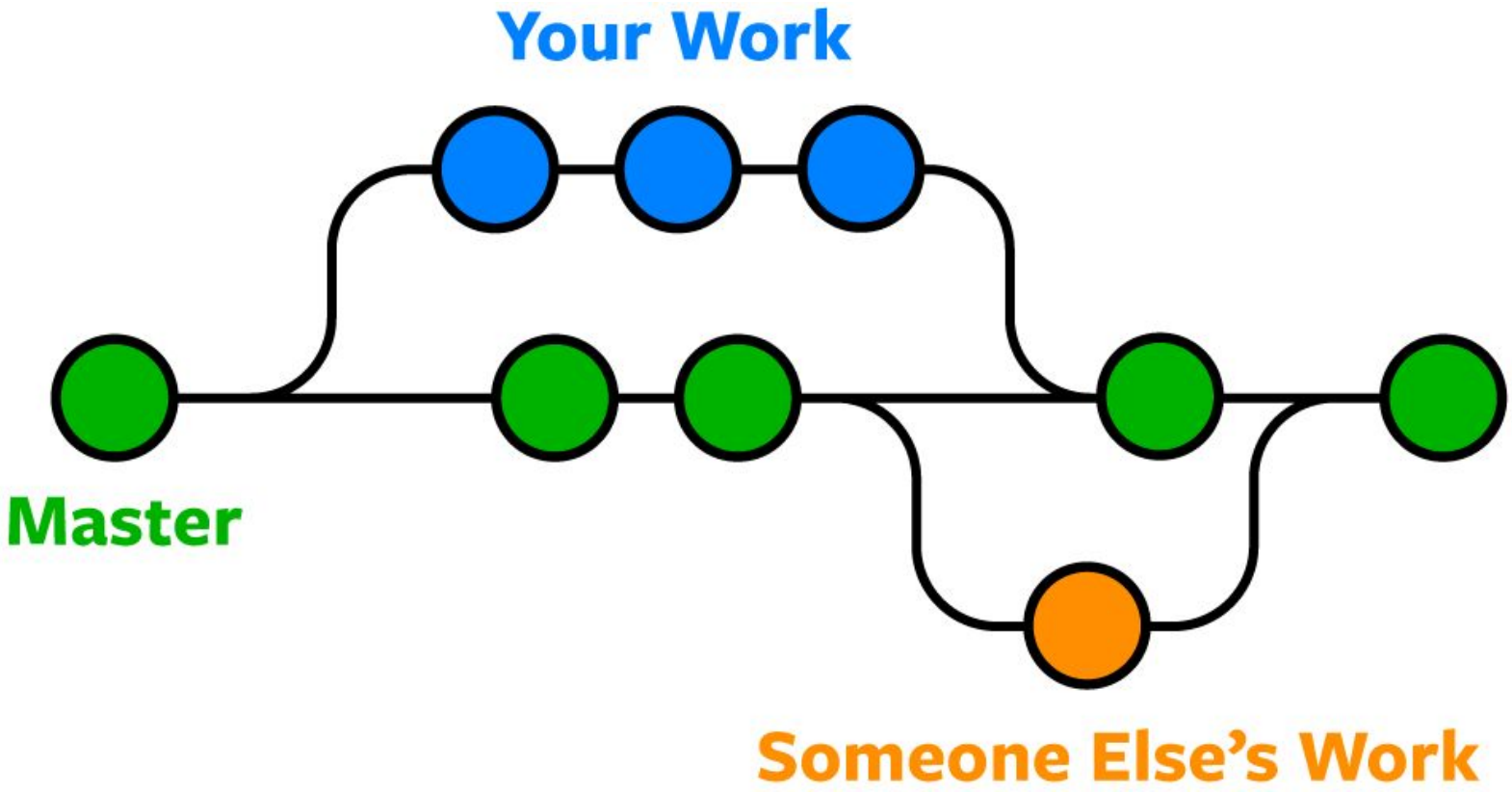
Where to next?

1. git commit
2. git push
3. leave building

Issues

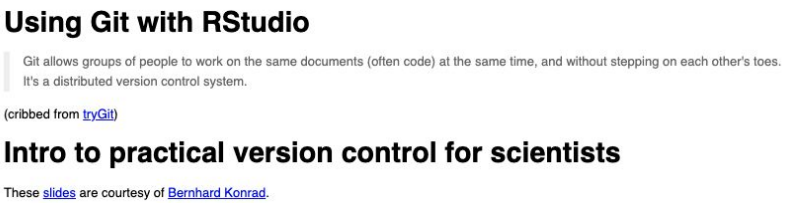

fjrrobinson / unsw_coders_git
Private
Unwatch 2
Star 0
Fork 0
Code
Issues 3
Pull requests
Actions
Projects
Security
Filters
is:issue is:open
Labels 9
Milestones 0
New issue
3 Open
0 Closed
Author
Label
Projects
Milestones
Assignee
Sort
function to join spatial data too inefficient - run out of memory
#3 opened now by fjrrobinson
final plot needs outline of borneo to provide context
#2 opened 11 minutes ago by fjrrobinson
Summarise dataset function only works for one species and not others
#1 opened 11 minutes ago by fjrrobinson

Branches



Resources

- Official git documentation:: https://git-scm.com
- Github desktop: https://docs.github.com/en/desktop
- Git via Rstudio: https://support.rstudio.com/hc/en-us/articles/200532077-Version-Control-with-Git-and-SVN
- https://jennybc.github.io/2014-05-12-ubc/ubc-r/session03_git.html



Using Git with RStudio

> Git allows groups of people to work on the same documents (often code) at the same time, and without stepping on each other's toes.
> It's a distributed version control system.

(cribbed from tryGit)

Intro to practical version control for scientists

These slides are courtesy of Bernhard Konrad.

- https://happygitwithr.com/install-intro.html#install-intro