

Efficient workflows with git & GitHub

Francisco Rodriguez-Sanchez

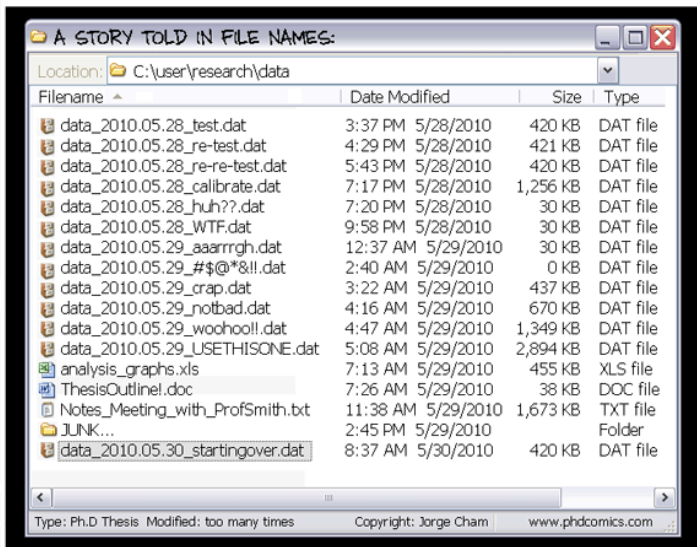
@frod_san

<https://frodriguezsanchez.net>

Workshop materials:

<https://github.com/Pakillo/github-workshop>

Version control without git



Version control without git

"FINAL".doc



FINAL.doc!



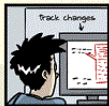
FINAL_rev.2.doc



FINAL_rev.6.COMMENTS.doc



FINAL_rev.8.comments5.
CORRECTIONS.doc













































FINAL_rev.18.comments7.
corrections9.MORE.30.doc



FINAL_rev.22.comments49.
corrections.10.##\$%WHYDID
ICOMETOGRADSCHOOL?????.doc

© 2012 PHD COMICS

Version control without git

 Coordinates_rawdata.csv	18/05/2015 19:07
 coords_2015-09-09.csv	23/09/2015 17:18
 coords_2015-09-09_modif.csv	05/11/2015 15:20
 coords_2015-10-11_modif_YC.csv	17/11/2015 13:49
 coords_2015-10-18_modif_YC.csv	18/11/2015 17:26
 coords_2015-12-26_modif_YC.csv	28/12/2015 13:33
 coords_2015-12-26_modif_YC_years.csv	30/03/2016 19:38
 Pulido et al_SMI_Data.csv	20/10/2015 11:55
 Pulido et al_SMI_Data_modif_YC_2015-12-26.csv	28/12/2015 13:30
 qualitative_data.csv	04/07/2016 15:50
 cleandata.xlsx	25/06/2015 01:14
 cleandata_YC.xlsx	30/06/2015 16:22
 COORDENADAS PACO_20-05-2016 CON REVIEWS.xlsx	20/05/2016 16:23
 COORDENADAS PACO_20-05-2016 CON REVIEWS_FRS.xlsx	27/05/2016 19:41
 COORDENADAS_paper195(Girella_elevata).xlsx	08/06/2016 13:09
 coordenadas_raw_2016-06-08.xlsx	09/06/2016 15:53
 coordenadas_raw_2016-06-08_old.xlsx	08/06/2016 16:00
 coordenadas_raw_2016-06-21.xlsx	21/06/2016 16:12
 coords_2015-09-09_modif.xlsx	05/11/2015 15:23
 coords_2015-10-11_modif_YC.xlsx	17/11/2015 13:37
 coords_2015-10-11_modif_YC_PACO.xlsx	17/11/2015 17:06
 coords_2015-10-18_modif_YC.xlsx	18/11/2015 17:24
 coords_2015-12-26_modif_YC.xlsx	30/03/2016 19:38
 coords_2016-04-02.xlsx	06/04/2016 17:46
 coords_2016-04-02_YC.xlsx	06/04/2016 18:03
 coords_2016-04-08_YC.xlsx	11/04/2016 13:51
 dataset_y_coords_09_09_15.xlsx	23/09/2015 17:18
 Datos metaanalysis_18-04-2016.xlsx	19/04/2016 16:24
 FINAL METAANALISYS_14-6-2016_WITH REVIEWS.xlsx	21/06/2016 16:15
 FINAL METAANALISYS_16-6-2016_WITH REVIEWS.xlsx	21/06/2016 16:13
 FINAL METAANALISYS_2016-04-27_WITH REVIEWS.xlsx	25/05/2016 18:05
 FINAL METAANALISYS_2016-04-27_WITH REVIEWS_FRS.xlsx	27/05/2016 18:44
 FINAL METAANALISYS_2016-04-29_EXCLUDING REVIEWS.xlsx	08/06/2016 13:06
 FINAL VOTECOUNTING_1-7-2016.xlsx	04/07/2016 15:46
 fitnessdata_2016-06-22.xlsx	22/06/2016 21:00
 IFS for Bastien_19-3-2016_YC.xlsx	28/03/2016 19:26
 Metaanalysis final_01-05-2015 with coordinates.xlsx	18/05/2015 19:20
 Metaanalysis final_22-05-2015 coords.xlsx	24/06/2015 15:50
 Metaanalysis final_25-06-2015.xlsx	30/06/2015 16:55
 Metaanalysis y coords revisadas_06-08-2015_AH_JE.xlsx	23/09/2015 12:57
 Pulido et al_SMI_Data_2016-05-27.xlsx	27/05/2016 18:48
 Pulido et al_SMI_Data_2016-06-27_PACO.xlsx	09/06/2016 16:33

Collaborating without git

You've got email:

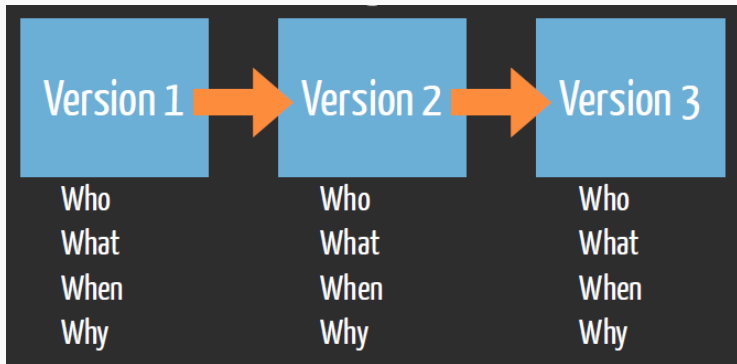
I'm attaching the final dataset to this email. Hope the analysis goes well!

Later:

*We just found a mistake in the data so I'm attaching the **revised final** dataset. Sorry about that!*

Version control with git

Version control with git



R. Fitzjohn (<https://github.com/richfitz/reproducibility-2014>)

Why version control

- Who did what, when, and why

Why version control

- Who did what, when, and why
- Record all changes

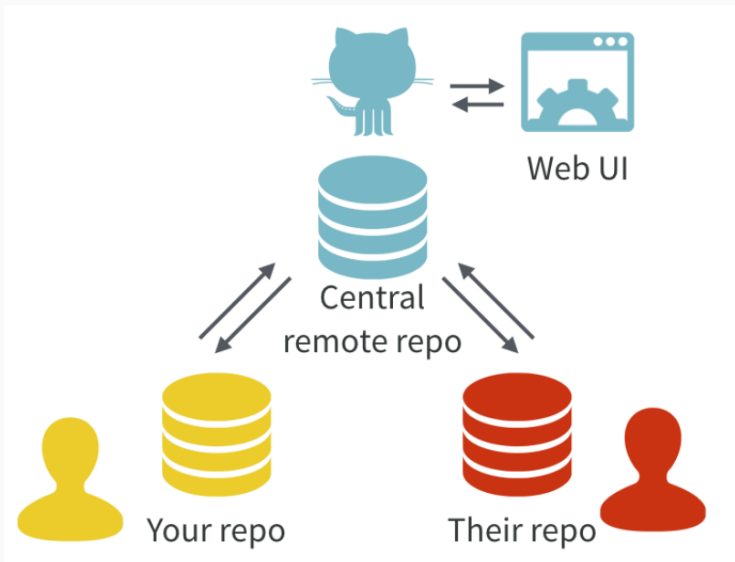
Why version control

- Who did what, when, and why
- Record all changes
- Can go back (undo)

Why version control

- Who did what, when, and why
- Record all changes
- Can go back (undo)
- Easy collaboration (GitHub, GitLab...)

Distributed version control



Advantages of GitHub / GitLab...

- Project backup (including history)

Advantages of GitHub / GitLab...

- Project backup (including history)
- Easy collaboration (social coding)

Advantages of GitHub / GitLab...

- Project backup (including history)
- Easy collaboration (social coding)
- Project management (issues, task planning...)

Advantages of GitHub / GitLab...

- Project backup (including history)
- Easy collaboration (social coding)
- Project management (issues, task planning...)
- Easy web deployment

Advantages of GitHub / GitLab...

- Project backup (including history)
- Easy collaboration (social coding)
- Project management (issues, task planning...)
- Easy web deployment
- Continuous integration (GitHub Actions)

Received: 4 July 2018 | Accepted: 31 August 2018


DOI: 10.1111/2041-210X.13104

RESEARCH ARTICLE

Methods in Ecology and Evolution



Developing an automated iterative near-term forecasting system for an ecological study

Ethan P. White^{1,2,3}  | Glenda M. Yenni¹  | Shawn D. Taylor⁴  | Erica M. Christensen¹  | Ellen K. Bledsoe⁴  | Juniper L. Simonis¹  | S. K. Morgan Ernest^{1,3} 

Automatic data checks, integration & website

(GA) Integrate new data in database



GemmaCalvo committed 3 hours ago

create Espadaler1983



GemmaCalvo committed 3 hours ago ✓

(GA) Integrate new data in database



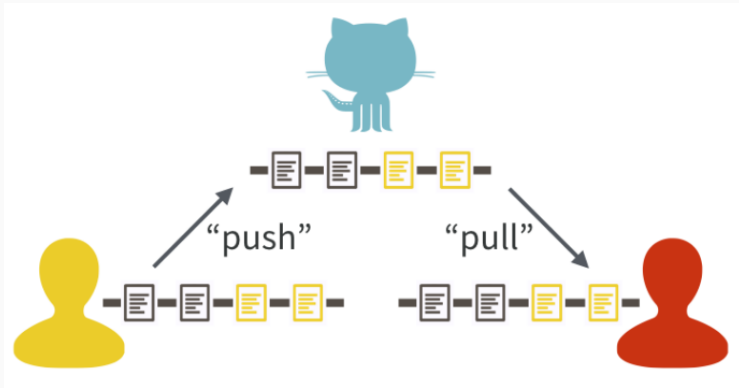
Pablohomet committed 3 hours ago

Create Zapatero-Ramos1978.xlsx



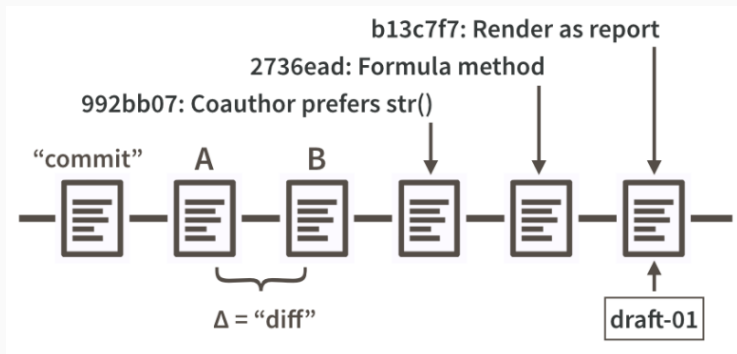
Pablohomet committed 3 hours ago ✓

Distributed version control



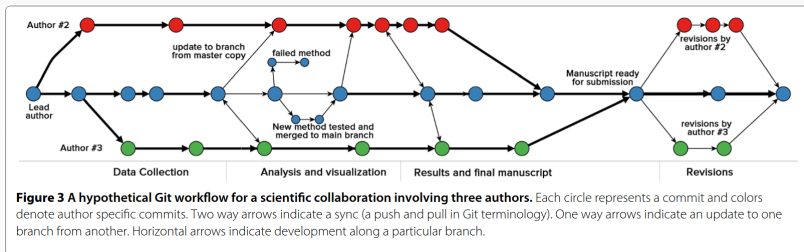
J. Bryan: [Excuse me, do you have a moment to talk about version control?](#)

Commits save snapshots of project



J. Bryan: [Excuse me, do you have a moment to talk about version control?](#)

Collaboration workflow



Ram 2013

Set up

Set up

<https://happygitwithr.com/>

<https://git-scm.com/>

<https://github.com/>

Sign up on GitHub

<https://github.com/>

Advice: <https://happygitwithr.com/github-acct.html>

<https://cran.r-project.org/>

[https://www.rstudio.com/products/rstudio/download/
#download](https://www.rstudio.com/products/rstudio/download/#download)

Install git

<https://happygitwithr.com/install-git.html>

Introduce yourself to git

Use same email as GitHub!

```
install.packages("usethis")  
  
library("usethis")  
  
use_git_config(user.name = "Jane Doe",  
               user.email = "jane@example.org")
```

Create and save Personal Access Token (PAT)

```
usethis::create_github_token()
```

Will open GitHub webpage


Click 'Generate token' (green button)

Paste and store you PAT:

```
gitcreds::gitcreds_set()
```

GitHub profiles

<https://github.com/Pakillo>



Francisco Rodriguez-Sanchez
Pakillo

Follow

Computational Ecologist & Data Scientist.
R, maps & statistics fan

455 followers · 317 following

Sevilla, Spain
 <https://frodriuezsanchez.net>
 @frod_san

Overview Repositories 65 Projects Packages Stars 2.4k Sponsoring 1

Pakillo / README.md

Francisco Rodriguez-Sanchez
 Joined GitHub 10 years ago
 Followed by 455 users

Activity
 4069 Commits
 0 Pull requests reviewed
 4 Pull requests opened
 143 Issues opened
 943 issue comments

96 Repositories
 Prefers Other license
 12 Releases
 0 Packages
 1.91 GB used

Community stats
 Member of 12 organizations
 Following 317 users
 Sponsoring 1 repository
 Starred 2328 repositories
 Watching 190 repositories

0 Sponsors
 984 Stargazers
 247 Forkers
 207 Watchers
 684 views in last two weeks

11 Languages

Most used languages

Notable contributions

@ecoinIAET @Rstats-courses @ComputationalEcology
 @PJordano-Lab @mitodisease @SevillaR

Achievements

Master worker

Overview, Repositories, Stars, Follow, Sponsor

GitHub Repositories


<https://github.com/Pakillo/grateful>

Pakillo / grateful Public

Notifications Fork 17 Star 154

<> Code Issues 5 Pull requests 1 Actions Projects Security Insights

master 2 branches 0 tags Go to file Code

 **Pakillo** cite tidyverse pkg by default ✓ ba9b093 on 17 Feb 🕒 129 commits

📁 .github	add GA coverage	7 months ago
📁 R	cite tidyverse pkg by default	7 months ago
📁 inst	update citation	7 months ago
📁 man	cite tidyverse pkg by default	7 months ago
📁 tests	cite tidyverse pkg by default	7 months ago
📄 .Rbuildignore	use codecov	7 months ago
📄 .gitignore	use GA for pkgdown	7 months ago
📄 DESCRIPTION	cite tidyverse pkg by default	7 months ago
📄 LICENSE	update Description	7 months ago
📄 LICENSE.md	update Description	7 months ago
📄 NAMESPACE	fix minor errors and roxygenise	7 months ago
📄 NEWS.md	fixed bug when matching citekeys with some pkg na...	7 months ago
📄 README.Rmd	use codecov	7 months ago
📄 README.md	add GA coverage	7 months ago
📄 _pkgdown.yml	use GA for pkgdown	7 months ago

About

Facilitate citation of R packages

[🔗 pakillo.github.io/grateful/](https://pakillo.github.io/grateful/)

📖 Readme

📄 Unknown, MIT licenses found

🔖 Cite this repository ▾

☆ 154 stars

👁 8 watching

🍴 17 forks


Releases


No releases published

Packages

No packages published

Contributors 3

 **Pakillo** Francisco Rodriguez-Sanchez

 **connorp** Connor P. Jackson

- Code

GitHub Repositories

- Code
- Issues

GitHub Repositories

- Code
- Issues
- Discussions

GitHub Repositories

- Code
- Issues
- Discussions
- Project management

GitHub Repositories

- Code
- Issues
- Discussions
- Project management
- Wiki

GitHub Repositories

- Code
- Issues
- Discussions
- Project management
- Wiki
- Insights

GitHub Repositories

- Code
- Issues
- Discussions
- Project management
- Wiki
- Insights
- Settings

GitHub Repositories

- Code
- Issues
- Discussions
- Project management
- Wiki
- Insights
- Settings
- Watch

GitHub Repositories

- Code
- Issues
- Discussions
- Project management
- Wiki
- Insights
- Settings
- Watch
- Fork

GitHub Repositories

- Code
- Issues
- Discussions
- Project management
- Wiki
- Insights
- Settings
- Watch
- Fork
- Star

GitHub Repositories

- Code
- Issues
- Discussions
- Project management
- Wiki
- Insights
- Settings
- Watch
- Fork
- Star
- Commit history

READY?

GitHub solo demo

- Create new repository on GitHub

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio
- Write Rmd / R script importing data

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio
- Write Rmd / R script importing data
- Commit & push

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio
- Write Rmd / R script importing data
- Commit & push
- Add plot

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio
- Write Rmd / R script importing data
- Commit & push
- Add plot
- Commit & push

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio
- Write Rmd / R script importing data
- Commit & push
- Add plot
- Commit & push
- See diff

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio
- Write Rmd / R script importing data
- Commit & push
- Add plot
- Commit & push
- See diff
- Open issue (e.g. use ggplot)

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio
- Write Rmd / R script importing data
- Commit & push
- Add plot
- Commit & push
- See diff
- Open issue (e.g. use ggplot)
- Switch to ggplot, commit (closing issue) & push

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio
- Write Rmd / R script importing data
- Commit & push
- Add plot
- Commit & push
- See diff
- Open issue (e.g. use ggplot)
- Switch to ggplot, commit (closing issue) & push
- History

GitHub solo demo

- Create new repository on GitHub
- Clone on Rstudio
- Write Rmd / R script importing data
- Commit & push
- Add plot
- Commit & push
- See diff
- Open issue (e.g. use ggplot)
- Switch to ggplot, commit (closing issue) & push
- History
- Branching & merging

- Issues

Collaborating via GitHub

- Issues
- Forks & pull requests

Collaborating via GitHub

- Issues
- Forks & pull requests
- Granting repository access to collaborators

Collaborating via GitHub

- Issues
- Forks & pull requests
- Granting repository access to collaborators
- Merge conflicts

Do not amend previous commit if you already pushed to GitHub

Commit message

12 characters

fixing error|

☒ Amend previous commit

Commit

If it gets too messy...



<https://xkcd.com/1597/>

Sharing reports on GitHub

output: github_document

Website deployment

Repository settings -> Pages

- Follow

- Follow
- Star

- Follow
- Star
- Contribute (issues, pull requests)

To read more

- [Excuse me, do you have a moment to talk about version control?](#)

To read more

- [Excuse me, do you have a moment to talk about version control?](#)
- [A Quick Introduction to Version Control with Git and GitHub](#)

To read more

- [Excuse me, do you have a moment to talk about version control?](#)
- [A Quick Introduction to Version Control with Git and GitHub](#)
- [Curating Research Assets: A Tutorial on the Git Version Control System](#)

To read more

- [Excuse me, do you have a moment to talk about version control?](#)
- [A Quick Introduction to Version Control with Git and GitHub](#)
- [Curating Research Assets: A Tutorial on the Git Version Control System](#)
- [Ten Simple Rules for Taking Advantage of Git and GitHub](#)

To read more

- [Excuse me, do you have a moment to talk about version control?](#)
- [A Quick Introduction to Version Control with Git and GitHub](#)
- [Curating Research Assets: A Tutorial on the Git Version Control System](#)
- [Ten Simple Rules for Taking Advantage of Git and GitHub](#)
- [Git can facilitate greater reproducibility and increased transparency in science](#)

To read more

- [Excuse me, do you have a moment to talk about version control?](#)
- [A Quick Introduction to Version Control with Git and GitHub](#)
- [Curating Research Assets: A Tutorial on the Git Version Control System](#)
- [Ten Simple Rules for Taking Advantage of Git and GitHub](#)
- [Git can facilitate greater reproducibility and increased transparency in science](#)
- [Pro Git book](#)