

Efficient workflows with git & GitHub

Francisco Rodriguez-Sanchez

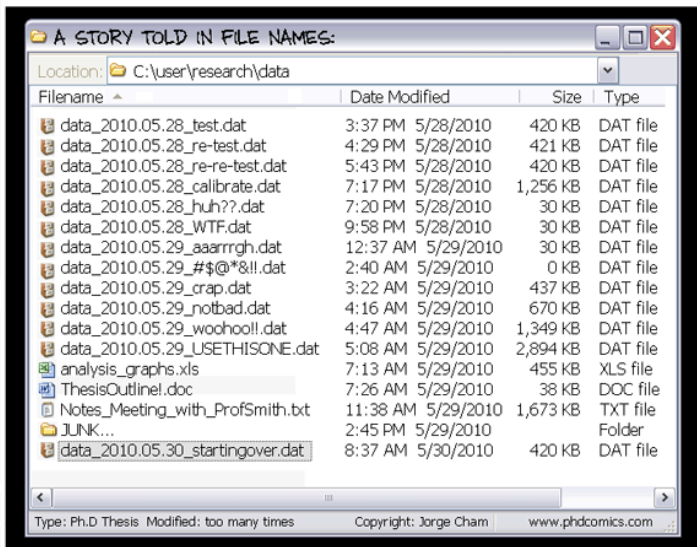
@frod_san

<https://frodriguezsanchez.net>

Workshop materials:

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

Version control without git



Version control without git

"FINAL".doc



FINAL.doc!



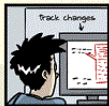
FINAL_rev.2.doc



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

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_AHJ_E.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 16:23 |

Collaborating without git

You've got email:

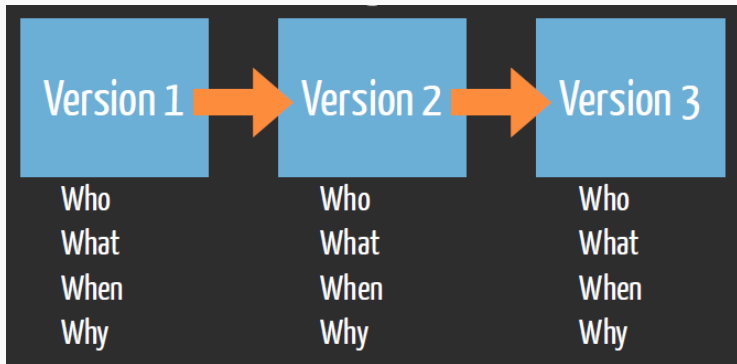
I'm attaching the final dataset to this email. Hope the analysis goes well!

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>)

- Who did what, when, and why

Why version control

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

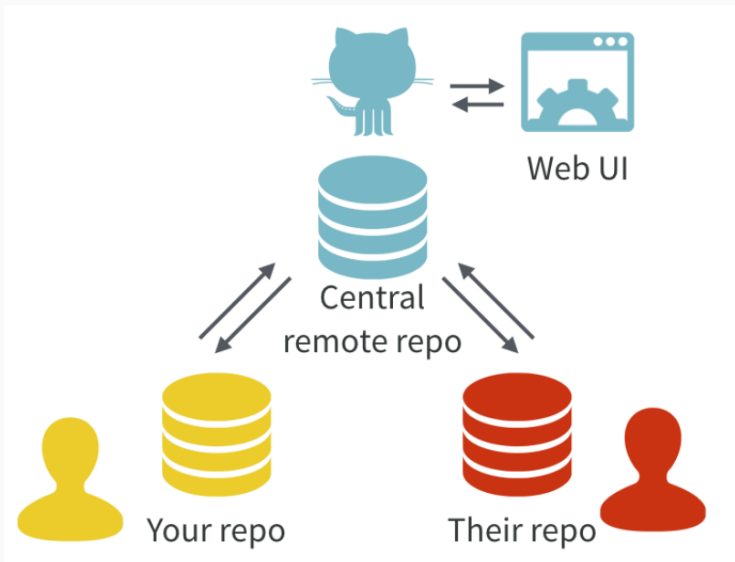
Why version control

- 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



- Project backup (including history)

Advantages of GitHub / GitLab...

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

Advantages of GitHub / GitLab...

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

Advantages of GitHub / GitLab...

- Project backup (including history)
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- 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: 27 January 2022 | Accepted: 12 August 2022

DOI: 10.1111/2041-210X.13982

RESEARCH ARTICLE

Methods in Ecology and Evolution



Implementing GitHub Actions continuous integration to reduce error rates in ecological data collection

Albert Y. Kim^{1,2} | Valentine Herrmann² | Ross Barreto³ | Brianna Calkins² |
Erika Gonzalez-Akre² | Daniel J. Johnson³ | Jennifer A. Jordan² | Lukas Magee³ |
Ian R. McGregor⁴ | Nicolle Montero³ | Karl Novak³ | Teagan Rogers² |
Jessica Shue⁵ | Kristina J. Anderson-Teixeira^{2,6}

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 ✓

Received: 4 July 2018 | Accepted: 31 August 2018

DOI: 10.1111/2041-210X.13104

RESEARCH ARTICLE

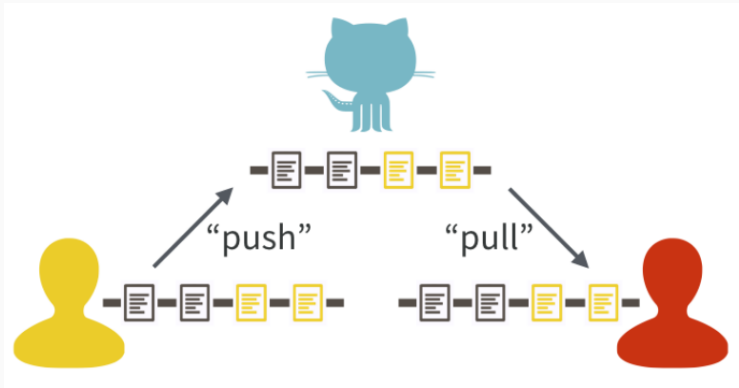
Methods in Ecology and Evolution



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

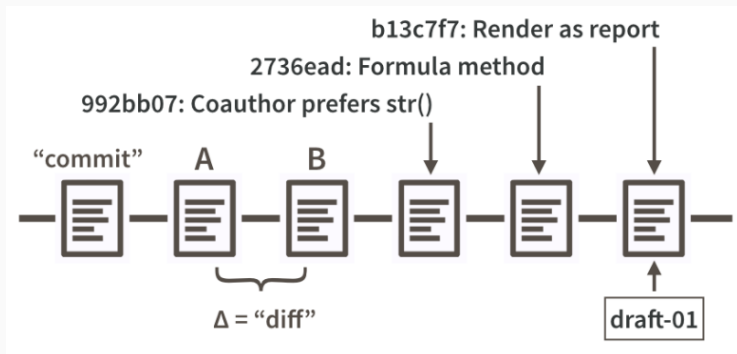
Ethan P. White^{1,2,3}  | Glenda M. Yenni¹  | Shawn D. Taylor⁴  | Erica M. Christensen¹  | Ellen K. Bledsoe⁴  | Juniper L. Simonis¹  | S. K. Morgan Ernest^{1,3} 

Distributed version control



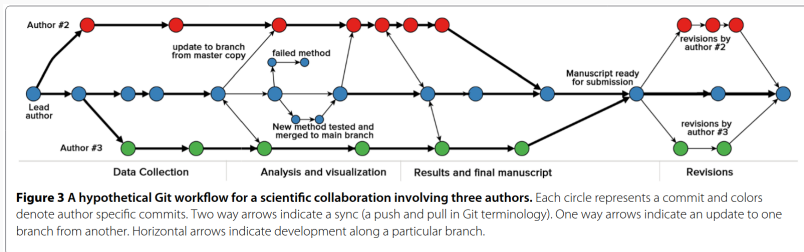
J. Bryan: [Excuse me, do you have a moment to talk about version control?](#)

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>

Also check out <https://education.github.com/> for extra benefits

<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>

Overview Repositories 65 Projects Packages Stars 2.4k Sponsoring 1

Francisco Rodriguez-Sanchez
Pakillo
Follow

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

455 followers · 317 following

Sevilla, Spain
https://frod_san
@frod_san

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

HTML CSS JavaScript R TeX
Stan RMarkdown SCSS

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 ([example](#))

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- 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

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- **Commit & push**

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- Open **issue** (e.g. add plot)

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- See **diff**
- Open issue (e.g. use ggplot)
- Create ggplot **branch**, write code, commit (closing issue) & push

GitHub solo demo

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- Write Rmd / R script importing data
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- See **diff**
- Open issue (e.g. use ggplot)
- Create ggplot **branch**, write code, commit (closing issue) & push
- Create **pull request & merge**

GitHub solo demo

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- Open **issue** (e.g. add plot)
- Write code for plot, commit & push
- See **diff**
- Open issue (e.g. use ggplot)
- Create ggplot **branch**, write code, commit (closing issue) & push
- Create **pull request & merge**
- History (try [Git History](#))

- Issues

Collaborating via GitHub

- Issues
- Branches, forks & pull requests

Collaborating via GitHub

- Issues
- Branches, forks & pull requests
- Granting repository access to collaborators

Collaborating via GitHub

- Issues
- Branches, 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...

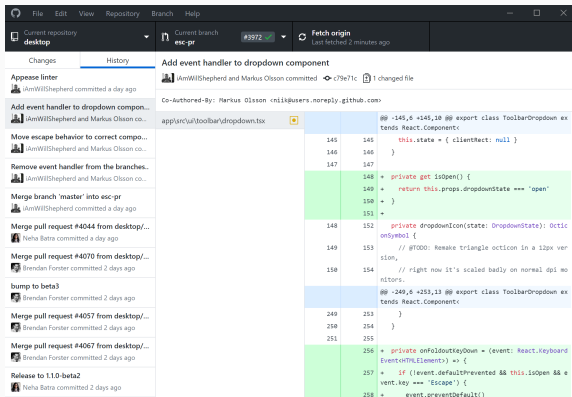


<https://xkcd.com/1597/>

GUIs can be very helpful

<https://desktop.github.com/> (Mac, Windows)

<https://www.gitkraken.com/> (Mac, Windows, Linux)



Sharing reports on GitHub

```
---  
output: github_document  
---
```

Website deployment

Repository settings -> Pages

- Follow

- Follow
- Star

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

Learn more

- [GitHub skills](#)

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

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- [Pro Git book](#)