

Efficient workflows with git & GitHub

Francisco Rodriguez-Sanchez

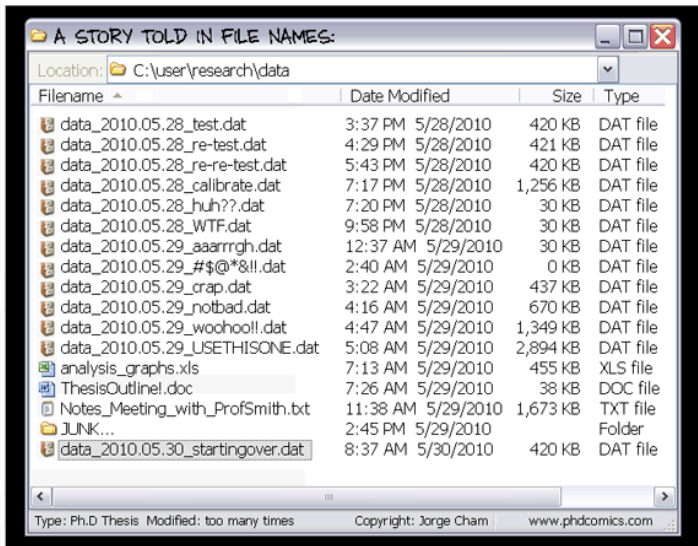
@frod_san

<https://frodriguezsanchez.net>

Workshop materials:

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

Version control without git



Version control without git

"FINAL".doc



FINAL.doc!



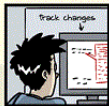
FINAL_rev.2.doc



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

JEROME CHAM © 2012

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 METAANALISISYS_14-6-2016_WITH REVIEWS.xlsx	21/06/2016 16:15
 FINAL METAANALISISYS_16-6-2016_WITH REVIEWS.xlsx	21/06/2016 16:13
 FINAL METAANALISISYS_2016-04-27_WITH REVIEWS.xlsx	25/05/2016 18:05
 FINAL METAANALISISYS_2016-04-27_WITH REVIEWS_FRS.xlsx	27/05/2016 18:44
 FINAL METAANALISISYS_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_EJL.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_2016-06-23_PACO.xlsx	20/06/2016 16:23

Collaborating without git

You've got email:

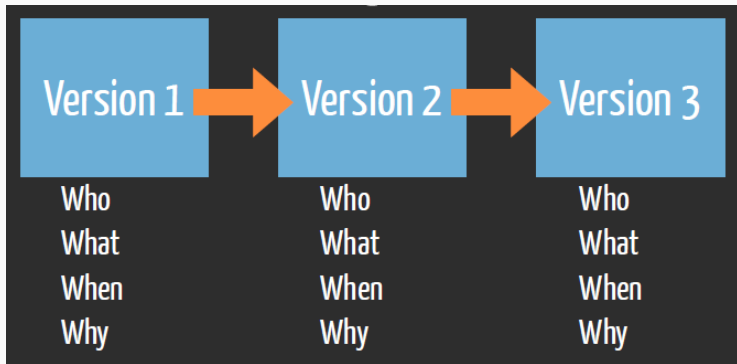
I'm attaching the final dataset to this email. Hope the analysis goes well!

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>)

Why version control

- Who did what, when, and why

Why version control

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

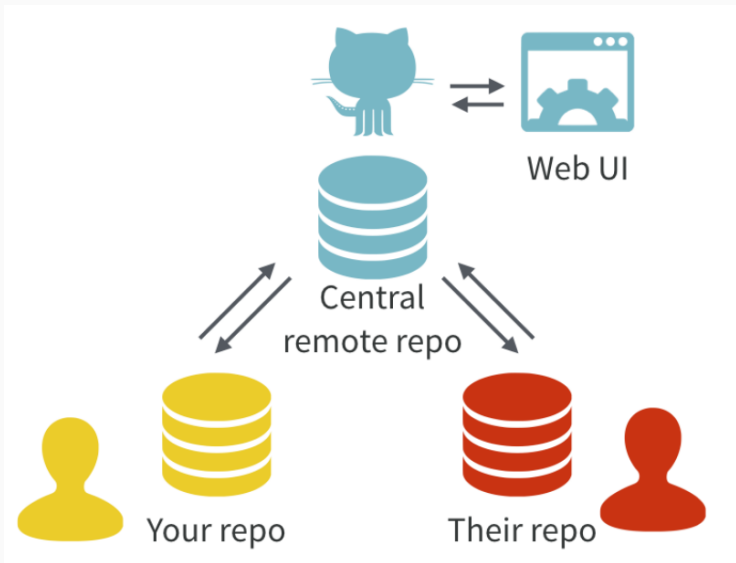
Why version control

- 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



- Project backup (including history)

Advantages of GitHub / GitLab...

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- Easy collaboration (social coding)

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- Project management (issues, task planning...)

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- 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)

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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 ✓

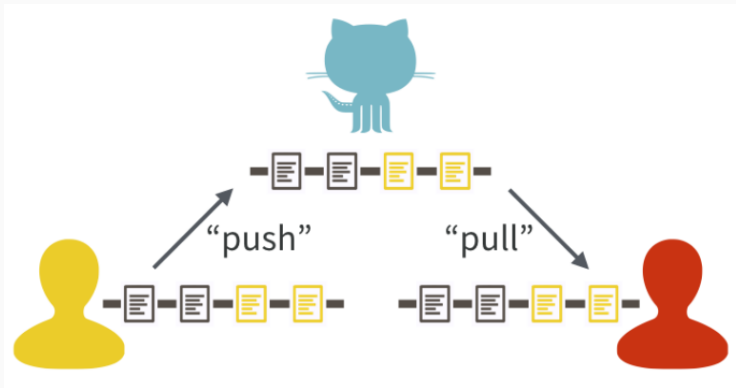
(GA) Integrate new data in database

 **Pablohomet** committed 3 hours ago

Create Zapatero-Ramos1978.xlsx

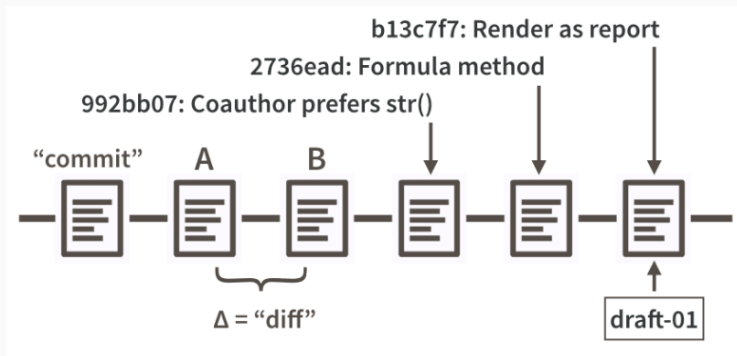
 **Pablohomet** committed 3 hours ago ✓

Distributed version control



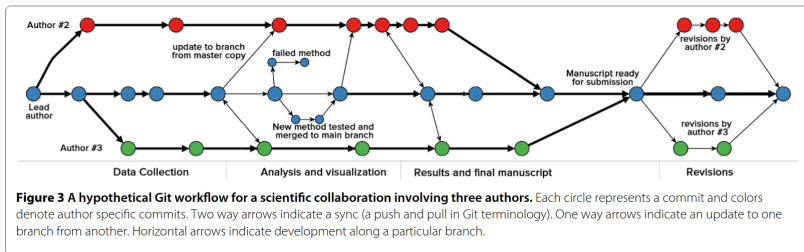
J. Bryan: [Excuse me, do you have a moment to talk about version control?](#)

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>

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)

<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>

The screenshot shows the GitHub profile page for Francisco Rodriguez-Sanchez. The profile includes a circular profile picture of a man with glasses and a beard, wearing a purple shirt. To the right of the profile picture are navigation tabs: Overview (selected), Repositories (65), Projects, Packages, Stars (2.4k), and Sponsoring (1). Below the profile picture, the name "Francisco Rodriguez-Sanchez" is displayed, along with the username "Pakillo" and a "Follow" button. The bio reads "Computational Ecologist & Data Scientist. R, maps & statistics fan". It also shows "455 followers · 317 following" and location information: "Sevilla, Spain", "https://frodriuezsanchez.net", and "@frod_san".

Navigation tabs: 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
Contributed to 49 repositories

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

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

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

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

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

Achievements
Master worker

Overview, Repositories, Stars, Follow, Sponsor

<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/
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

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GitHub Repositories

- Code
- Issues
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- Watch

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- Fork

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- Star

GitHub Repositories

- Code
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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

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

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- Add plot

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- See diff

GitHub solo demo

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- Open issue (e.g. use ggplot)

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- Switch to ggplot, commit (closing issue) & push

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- Add plot
- Commit & push
- See diff
- Open issue (e.g. use ggplot)
- Switch to ggplot, commit (closing issue) & push
- History (try [Git History](#))

GitHub solo demo

- Create new repository on GitHub
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- Commit & push
- Add plot
- Commit & push
- See diff
- Open issue (e.g. use ggplot)
- Switch to ggplot, commit (closing issue) & push
- History (try [Git 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...

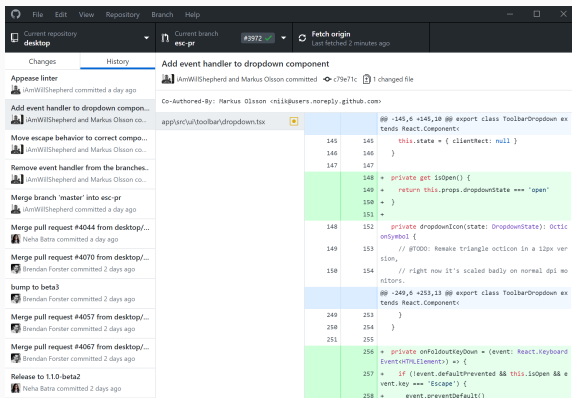


<https://xkcd.com/1597/>

GUIs can be very helpful

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

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



The screenshot shows the GitHub Desktop application window. The top bar includes a menu (File, Edit, View, Repository, Branch, Help) and a status bar showing the current repository as 'desktop', the current branch as 'esc-pr', and the commit hash '#3972'. Below the status bar, there are two tabs: 'Changes' and 'History'. The 'History' tab is active, displaying a list of commits. The most recent commit is 'Add event handler to dropdown component' by iamWIShepherd and Markus Olsson, committed a day ago. Below the commit list, there is a diff view for the file 'app/src/vul/toolbar/dropdown.tsx'. The diff shows changes between two versions of the file, with line numbers on the left and the code changes on the right. The code includes comments and function definitions for 'isOpen' and 'onFoldoutKeyDown'.

```
@@ -145,6 -145,18 @@ export class ToolbarDropdown ex
tends React.Component {
  145   this.state = { clientRect: null }
  146   }
  147   }
  148 + private get isOpen() {
  149 +   return this.props.dropdownState === 'open'
  150 + }
  151 +
  148   private dropdownIcon(state: DropdownState): Octic
  149   onSymbol {
  150     // @TODO: Remake triangle action in a 12px ver
  151     sion,
  152     // right now it's scaled badly on normal dpi so
  153     nitors.
  154   }
  155   }
  156 + private onFoldoutKeyDown = (event: React.Keyboard
  157 +   Event<HTMLElement>) => {
  158 +   if (event.defaultPrevented && this.isOpen && e
  159 +     vent.key === 'Escape') {
  160 +     event.preventDefault()
  161   }
  162 }
```

Sharing reports on GitHub

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


Repository settings -> Pages

- Follow

- Follow
- Star

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

- [GitHub skills](#)

Learn more

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

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- [Pro Git book](#)