Promoting GitHub use in EcoEvo

Hackathon @ SORTEE 2021

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July 12, 2021

Introductions and general hackathon info

Hackathon organizers

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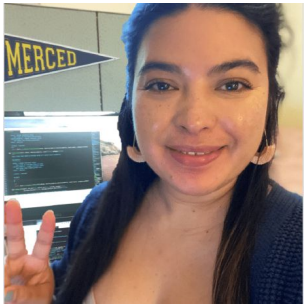

Luna Sánchez Reyes
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Code of conduct

https://www.sortee.org/codeofconduct/

Two alternative options to report:

1. Message SORTEE Executive committee member (Dr. Malika Ihle)
2. OR anonymously via the following Google Docs Form https://docs.google.com/forms/d/e/1FAIpQLSfWXYr5JTg3UtUINHiI7Dtxf4t5dRGvAub-jwRqiE_XR_sePA/viewform

Hackathon goals

- Address how **Ecologists and Evolutionary Biologists** can collaboratively communicate their findings and share information using **GitHub** as a platform.

- **Blog post** summarizing hackathon (maybe a manual).

- **Collaborative manuscript** summarizing many uses of GitHub in EcoEvo.

Schedule

18:30	**Introduction**
18:45	The power of Git and Github / examples / Q&A
19:05	Plan for the breakout rooms
19:15	**10 min BREAK**
19:25	Breakout room collaboration
20:25	**10 min BREAK**

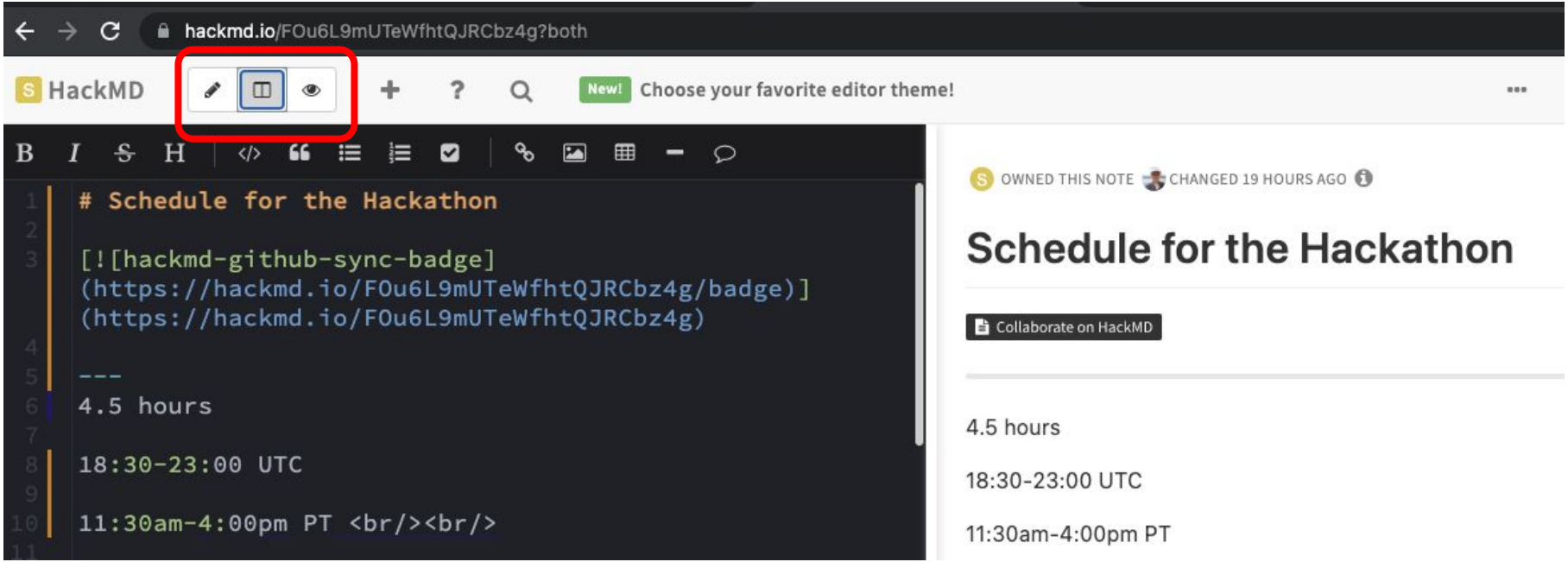
You can use the savvytime.com/converter/utc to convert these UTC times to your timezone!

20:35	Breakout summary and group discussion
21:30	**10 min BREAK**
21:40	Closing and next steps
22:00	***Optional*** – Start manuscript outline in breakout writing rooms
23:00	**END**

Zoom Breakout rooms & hackmd documents

We are using **hackmd** to collaboratively take notes:
hackmd.io/@SORTEE-Github-Hackathon/HkJrsXK2_/edit

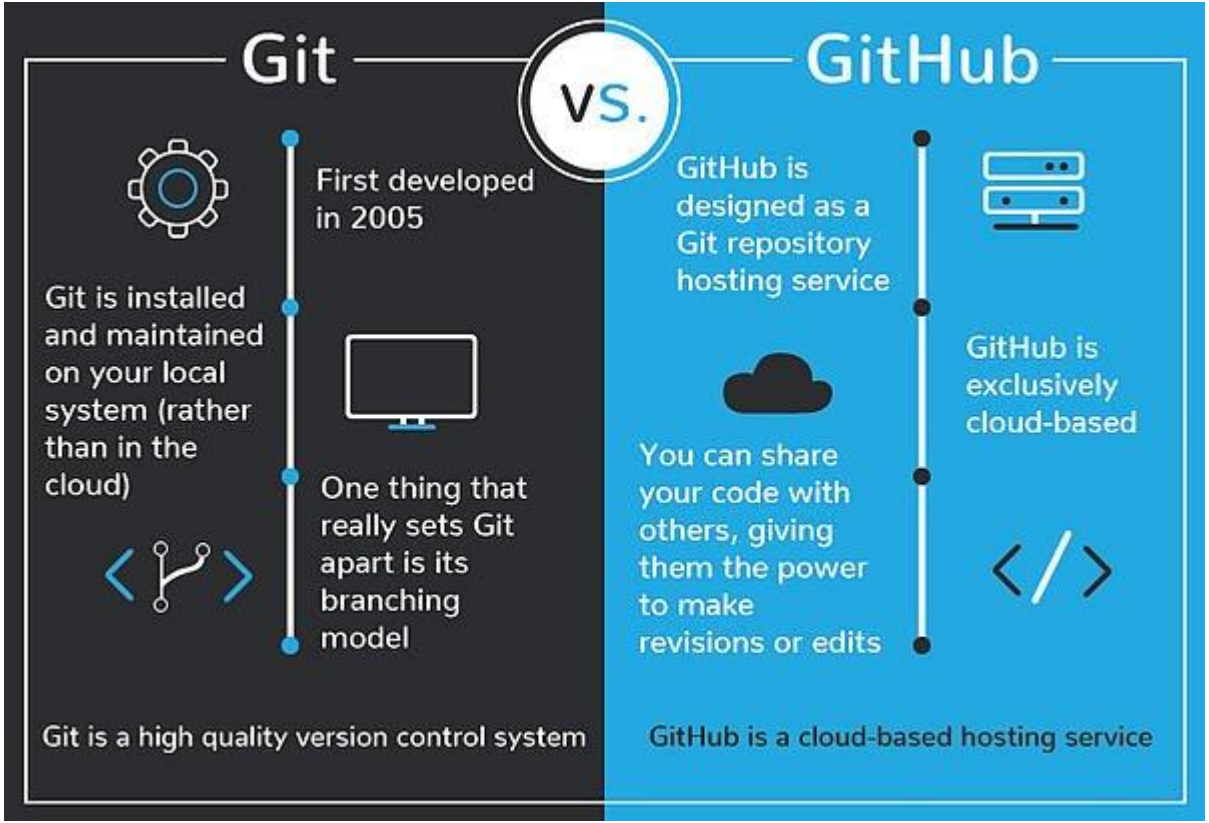
Markdown cheatsheet:
github.com/adam-p/markdown-here/wiki/Markdown-Cheatsheet



Questions?

The power of Git and GitHub

What are Git and GitHub?

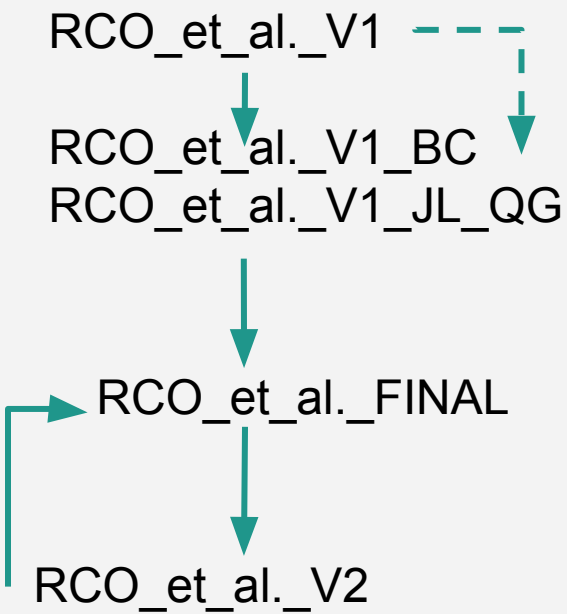


Comparable to “Time Machine” on Mac, or “Version history” within Dropbox and OneDrive, with the added capacity to **“commit”** (provide an explanation of each change) and “**branch**”.

“**Branching**” helps avoid having to manually combine independently-updated versions (e.g., comparing 2 word documents independently updated by 2 people).

GitHub as a place to collaborate on many things (docs, websites, etc.)

The ‘edit, save, attach’ method is inefficient



GitHub

“Like track changes [...] but more rigorous, powerful, and **scaled up to multiple files**." (Bryan, 2018)

Version control

What else can GitHub do?

Originally conceived for software dev, it has many other potential uses:

- Can be a **cloud storage** service for any type of file
- “**Forking**” allows people to use others’ projects as **templates** for their own
- Provides a **hosting** service for web content
- Allows you to freeze your work at a given moment in time as a **‘release’** which can be linked to a DOI (Required by many journals/funders)
- Provides **integration** with other tools (e.g. OSF)

Some benefits of using GitHub

1. Collaborate

2. Show off your work

3. See what others are up to (i.e., follow someone else's GitHub repository)

   (From Dr. Jenny Bryan's excellent https://happygitwithr.com/)

An introduction to our breakout rooms

Our experience w/ GitHub: **Visualizing Data and Results** (Joining Breakout 3)

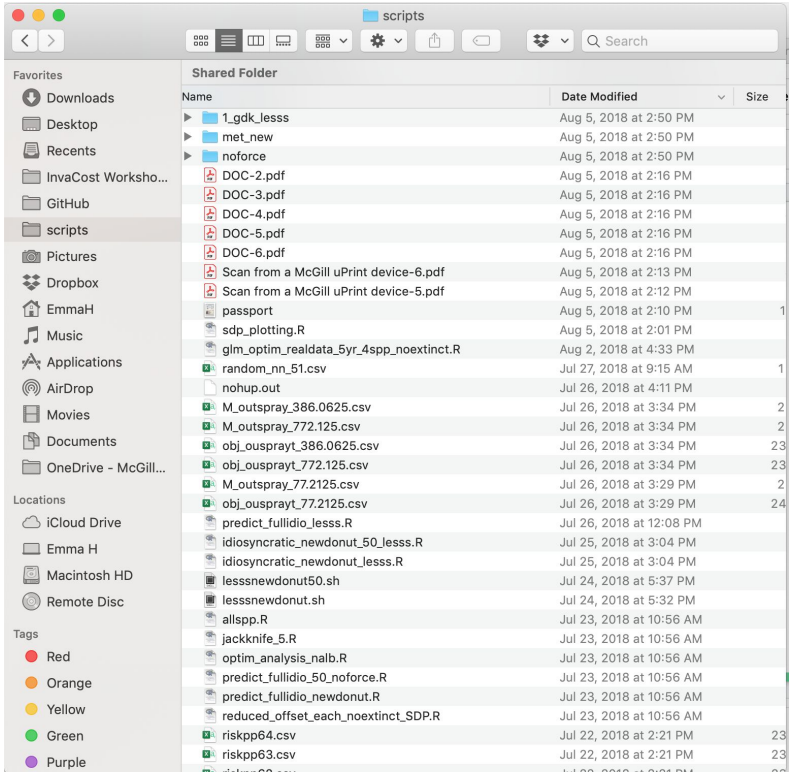
- How do we use Github to display our data and results? Notebooks, Websites, ect
- How do we build our Github repositories and organizations for displaying our work to our team or community? Directory structure, documentation, ect
- Github vs Other venues?
- Examples
  - Use of displaying notebooks as experiments on Github
    - Example: https://github.com/DiscoveryDNA/team_neural_network/tree/master/code/experiments
  - Working on a team using Github Organizations
    - Example: https://github.com/DiscoveryDNA
  - Hosting website to work on research publicly
    - Example: 1. Organization: https://github.com/cabinetofcuriosity 2. Website: https://github.com/cabinetofcuriosity/cabinetofcuriosity_site

Our experience w/ GitHub: **Career-supporting resources** (Breakout 2)

Store, deploy, host, share, collaborate on:	Example	GitHub repo
• Personal or Academic Websites	https://www.lunasare.com/	LunaSare/blogdown_lunasare
• Project Websites	https://randyposada4.github.io/bats/	Randyposada4/bats
• CVs	https://docs.google.com/loreabad6/R-CV/master/CV.pdf	loreabad6/R-CV
• Presentations, Slides & Talks	https://lunasare.github.io/slides/	LunaSare/slides
• Tutorials & Workshops (?)	https://lunasare.github.io/ssb2020_workshop/03-broken-taxa/index.html https://opentreeoflife.github.io/SSBworkshop/	LunaSare/ssb2020_workshop OpenTreeOfLife/opentreeoflife.github.io/blob/master/SSBworkshop.md

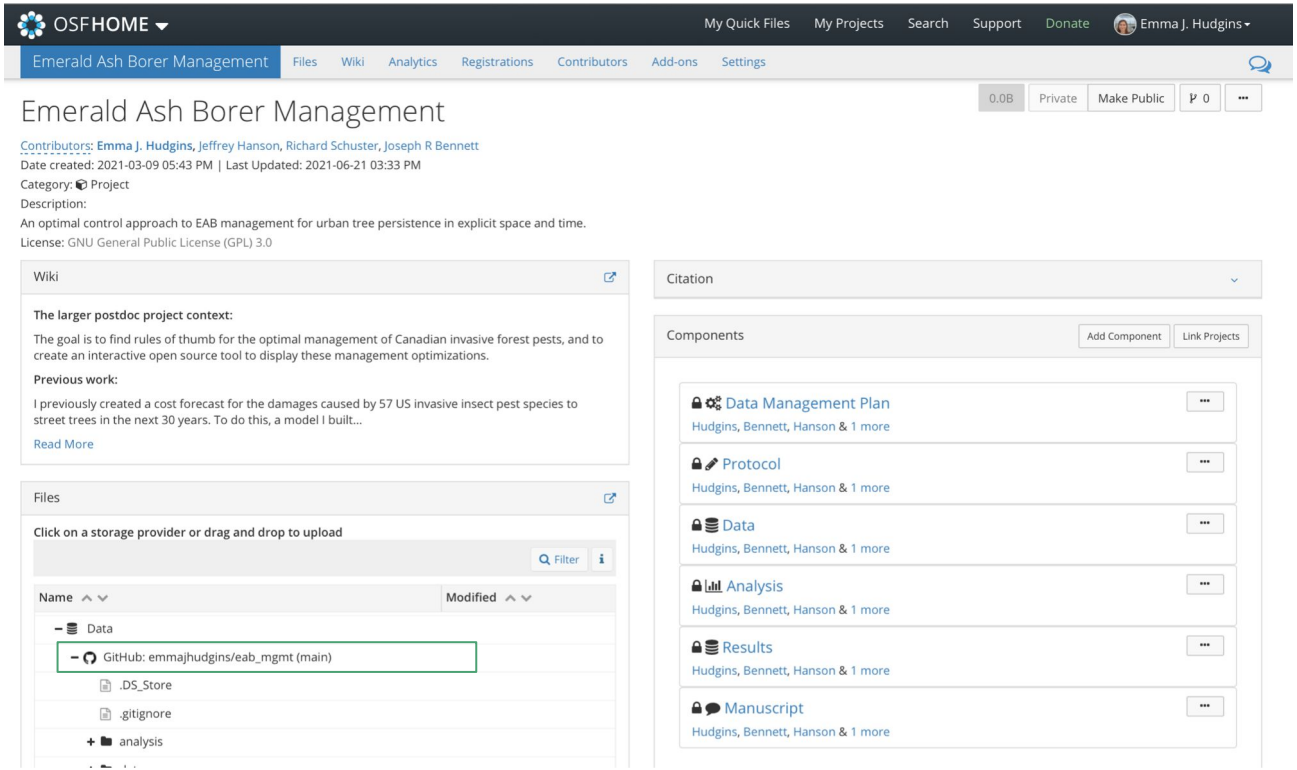
Our experience w/ GitHub: **Research documentation** (Breakout 3)

AKA how I went from this:



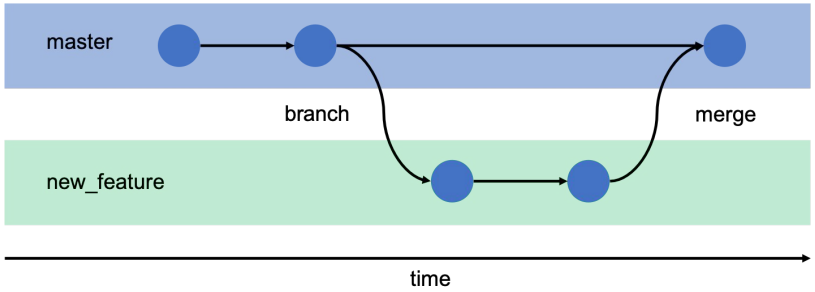
Our experience w/ GitHub: **Research documentation** (Breakout 3)

To this:

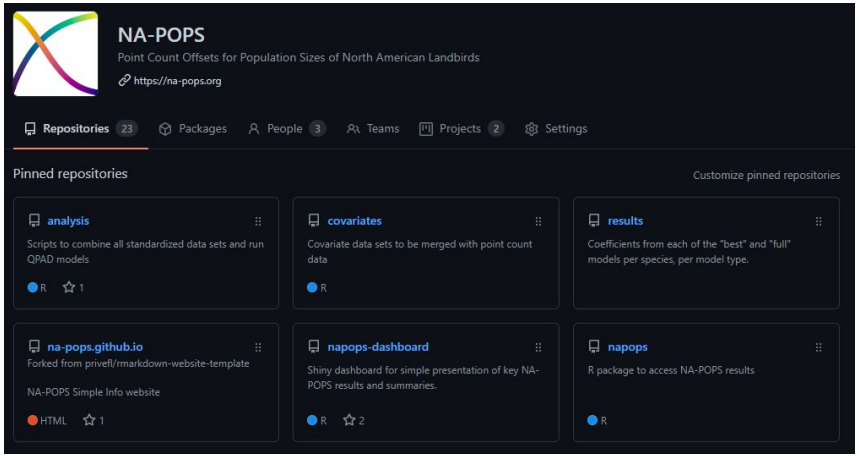


Our experience w/ GitHub: **Programming and code support** (Breakout 4)

- Using GitHub to track experiments within analysis scripts using branches



- Using GitHub organizations as a modular way to track large projects

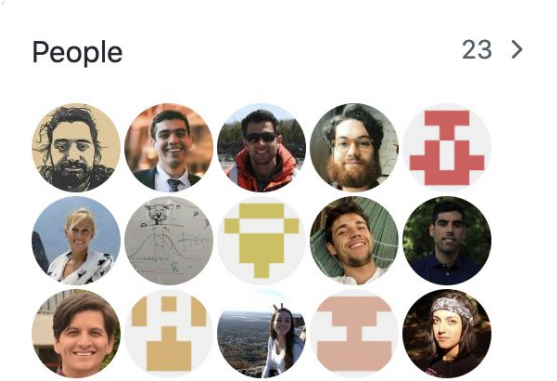


- Discussion of various coding technologies that can be used in conjunction with GitHub

Our experience w/ GitHub: **Dynamic collaboration** (Breakout 5)

Collaborating transparently

- **Organisations** with the option to make teams
- **Issues and pull requests** to integrate feedback and contributions in a transparent way
- **GitHub "Insights"**, or built-in displays to see contributors, contributions, etc.



Automating and testing code output, and collaborating dynamically with **GitHub Actions**

Questions?

Breakout room time!

1) Visualizing data and results

2) Career-supporting resources

3) Research documentation

4) Programming and code support

5) Dynamic collaboration

Welcome back from breakout rooms!

Link to post-breakout room questions on Poll Everywhere:
https://pollev.com/robertcrysta184

After breakout room discussion

Q1. How often do you see GitHub being used in these ways in ecology and evolution? Any examples come to mind? (Examples can be useful to include in manuscript outline)

After breakout room discussion

Q2. Do you think ecology and evolution would be improved with more usage of these tools? In what ways?

After breakout room discussion

Q3. What parts of ecology and evolution are beyond the scope of these tools? And provide example (e.g., _____ is a better platform for _____.)

After breakout room discussion

Q4. What parts of ecology and evolution are put at risk by these tools?

After breakout room discussion

Q4. What parts of ecology and evolution are put at risk by these tools?

Activity – Using GitHub going forward

Link to padlet

https://padlet.com/rcrystalornelas/zb9pgsbk8krxjdvb

1. Would you consider using GitHub for any of your current or future projects or recommend it to your colleagues?

2. If so, what would you most want to use it for (visualization, documentation, etc?)

Closing and Next Steps

Thank you for attending!!

- Stick around for a 1 hr writing session to brainstorm/outline manuscript
- Resources will be posted to our hackathon's GitHub Repository (https://github.com/SORTEE-Github-Hackathon/main-website) and Website (https://sortee-github-hackathon.github.io/main-website/).
- Blog post summarizing our session
- Building outline for manuscript / follow-up meeting to divide up writing tasks

Writing session

Writing session

Hackmd for writing session notes

https://hackmd.io/@SORTEE-Github-Hackathon/HkQM5Kcnu/edit