

The Alan Turing Institute



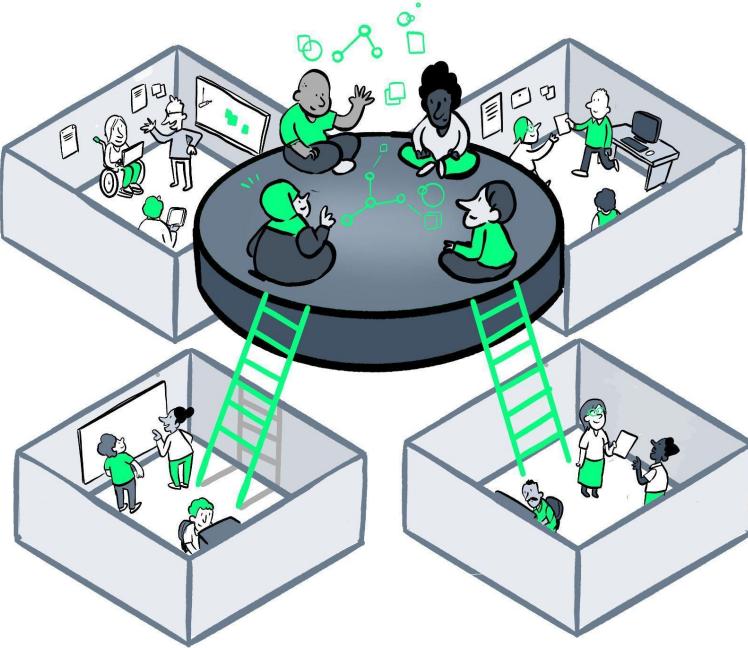
Git Good: an Introduction to GitHub for Collaboration

Turing Enrichment Students Workshop 16 October 2023

Anne Lee Steele, Eirini Zormpa, Emma Karoune

Online repo: github.com/alan-turing-institute/github-introduction

Illustration by Scriberia for The Turing Way community used under CC-BY 4.0 License, presentation DOI: <https://doi.org/10.5281/zenodo.8435227>



Introductions



Anne Lee Steele
Research Community
Manager, The Turing
Way



Eirini Zormpa
Research Community
Manager, AIM RSF -
Open Collaboration



Emma Karoune
Senior Community
Manager, Health

Overview

1. What is TPS and *The Turing Way*?
2. Github Introduction
3. How you can get involved in *The Turing Way*



Overview

1. What is TPS and *The Turing Way*?
2. Github Introduction
3. How you can get involved in The Turing Way



The Alan Turing Institute: challenge-led approach



Defence & national security

Tools, practices and systems

Building open source infrastructure to empower a global, decentralised network of people who connect data with domain experts

Environment & sustainability

Data for Research (Data Wrangling)

Provisioning research ready data for AI and data science, based on standards and a 'high-quality data first' approach, which facilitates reproducible, accessible analyses.

Research Engineering

We connect research to applications, helping create usable and sustainable tools, practices and systems.

Tools, Practices and Systems (TPS)

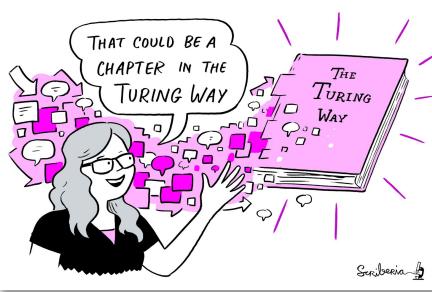
- Trustworthy systems
- Transparent reporting
- Inclusive interoperable design
- Ethical integrity
- Respectful co-creation
- Leadership in open research



The Turing Way

An Open Source guide on Data Science

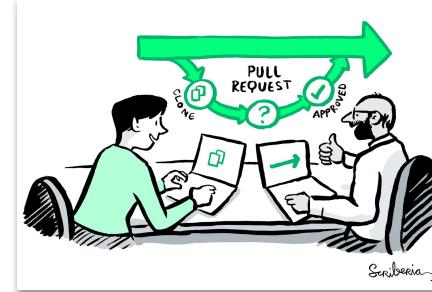
We involve and support a diverse community to make data science reproducible, ethical, collaborative and inclusive for everyone



A Book



A Global Community

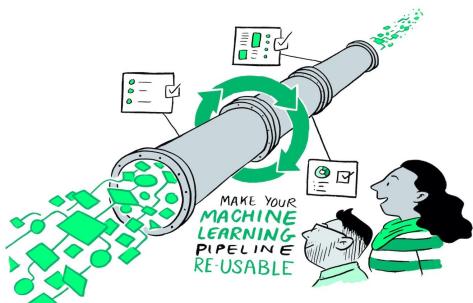


An Open Source Project



A Culture of Collaboration

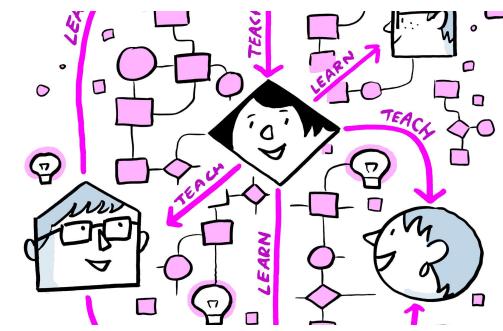
The Turing Way Guides



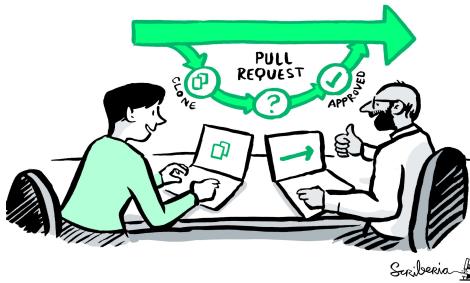
Reproducibility



Project Design



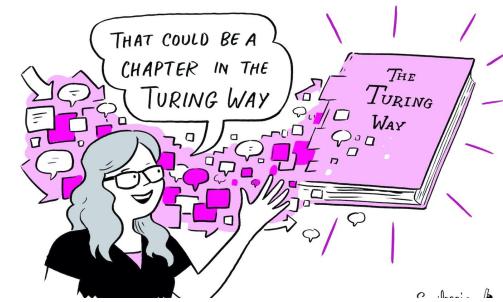
Communication



Collaboration



Ethical Research



Community Handbook

Collaborative Writing

There are challenges for collaborative writing

- People editing the same line
- Working at different time
- Have different ideas



Online repo: github.com/alan-turing-institute/github-introduction

Illustration by Scriberia for The Turing Way community used under CC-BY 4.0 License

Collaborative Writing

There are challenges for collaborative writing

- People editing the same line
- Working at different time
- Have different ideas

Create **different versions** of the same file or document



Online repo: github.com/alan-turing-institute/github-introduction.

Illustration by Scriberia for The Turing Way community used under CC-BY 4.0 License

Key Practices for Collaboration

MENTORED CONTRIBUTIONS



Develop & share



Maintain & improve



Share resources



Review and update



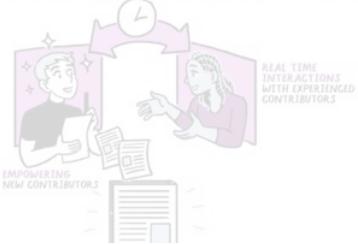
Make it global



Share best practices

Key Practices for Collaboration

MENTORED CONTRIBUTIONS



Develop & share



Review and update

FIXING LINKS



Make it global



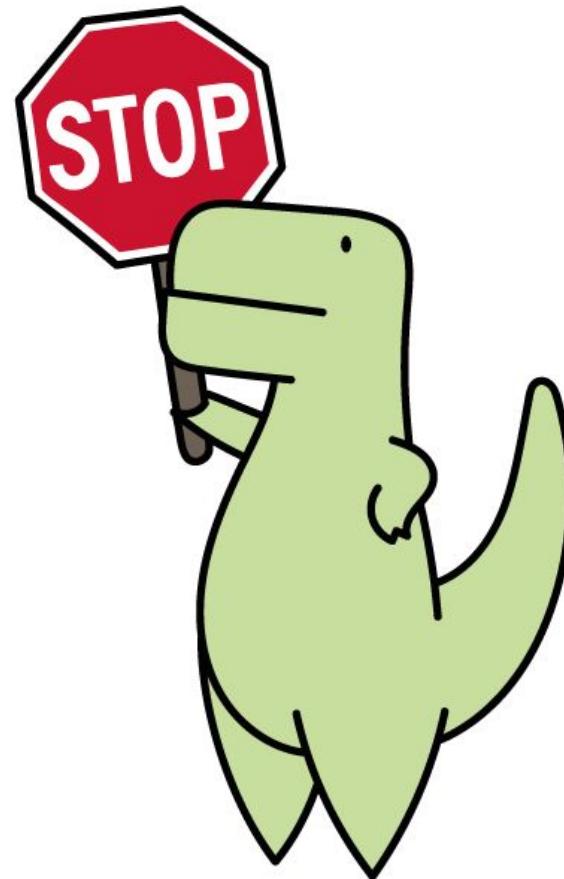
Share resources



**PROJECT
DESIGN**

Share best practices

Any Questions?



Let's Git Good:



- Why use GitHub?
- What is GitHub?
- How to use GitHub?
- **Exercise 1:** Finding an Issue and contributing to a project.
- Collaborating on GitHub
- **Exercise 2:** Editing a file and making a Pull Request.
- How to use the template repo for your challenge

Collaboration

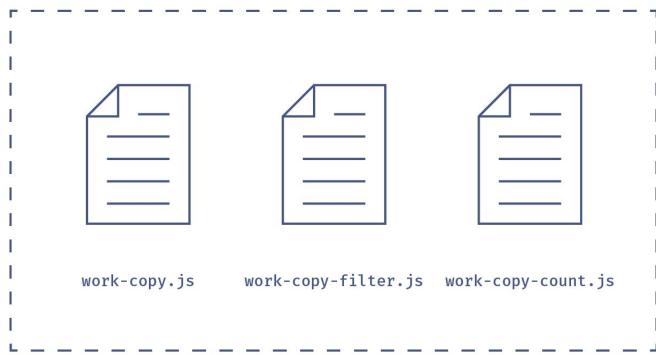
It's a challenge to write collaboratively and with many people!

...(It's also a challenge to write alone!)



Online repo: github.com/alan-turing-institute/github-introduction

Illustration by Scriberia for The Turing Way community used under CC-BY 4.0 License



Online repo: github.com/alan-turing-institute/github-introduction
Illustration by Scriberia for The Turing Way community used under CC-BY 4.0 License

What is version control?

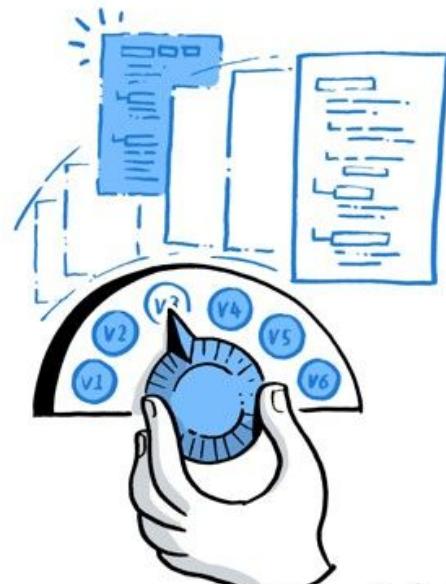
An approach to **recording** changes in a file over time so that you can:

- track history
- review specific changes
- go to earlier/later versions



Online repo: github.com/alan-turing-institute/github-introduction

Illustration by Scriberia for The Turing Way community used under CC-BY 4.0 License



Online repo: github.com/alan-turing-institute/github-introduction

Illustration by Scriberia for The Turing Way community used under CC-BY 4.0 License

Image from [Mozilla Science Lab's Study Group Orientation handbook](#), used under a [Mozilla Public License Version 2.0](#)

Git & GitHub



Git is one of the most widely used **software** for version control. It is free and open source!

You can use git **on your computer** through the command line or a GUI.



GitHub is a popular **website** for hosting and sharing projects you have been tracking with git.

This allows other **people anywhere** to work on your project at the same time ✨



Where the world builds software

Millions of developers and companies build, ship, and maintain their software on GitHub—the largest and most advanced development platform in the world.

Email address

Sign up for GitHub

56+ million
Developers

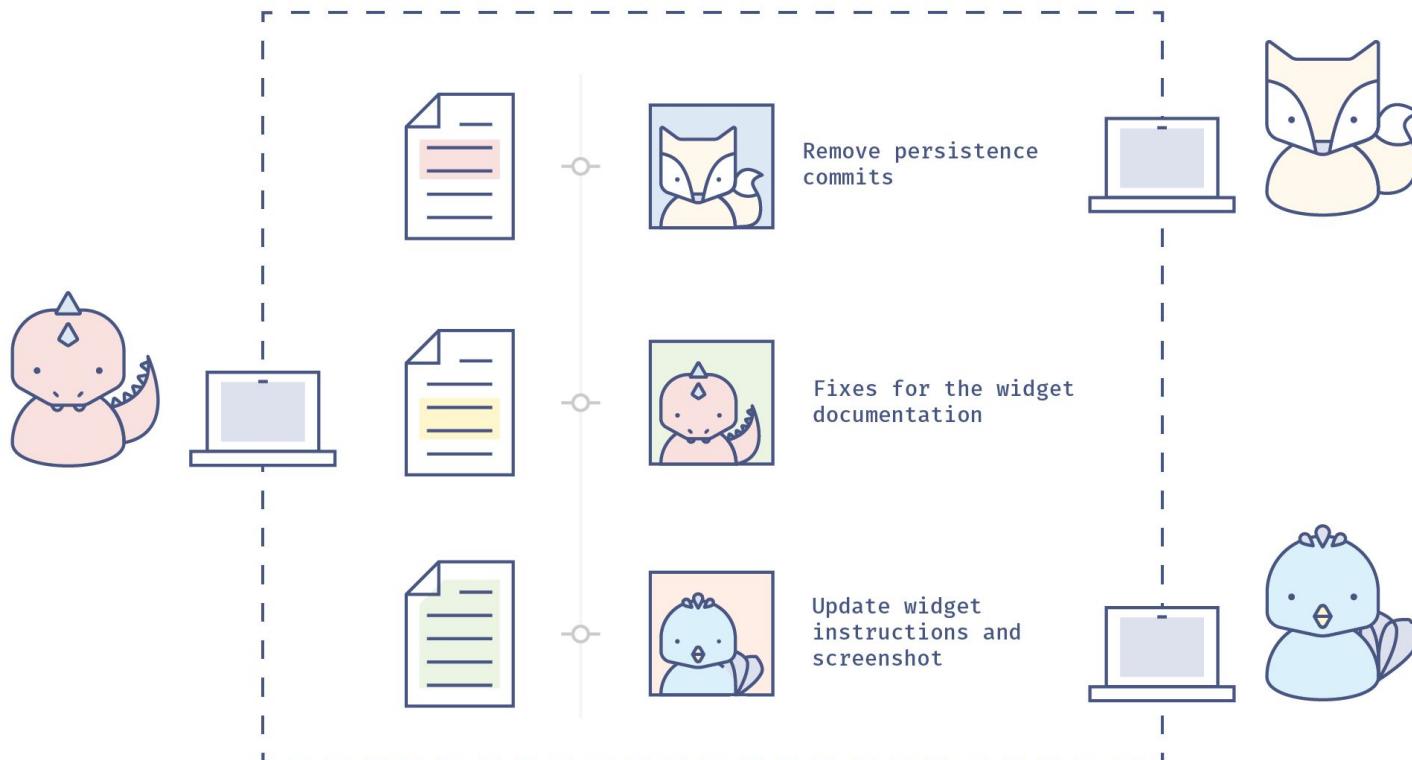
3+ million
Organizations

100+ million
Repositories

72%
Fortune 50



Collaboration on GitHub



GitHub Supports Collaboration

MENTORED CONTRIBUTIONS



Develop & share



Maintain & improve



Share resources



Review and update



Make it global



Share best practices

Summary



- to **share your projects** online
- to easily **work with other** collaborators
- for a **web interface** for version control

Useful for any project where a group of people are working together

GitHub Vocabulary: Repository

- Repository (repo) 
- Commit 
- Branch & Fork 
- Pull request 
- Merge 



GitHub



Repository

An online ‘project folder’ where all your files are, online or on your computer.

Screenshot of a GitHub repository page for 'aim-rsf / Glossary-of-Terms' (Public). The repository has 4 branches and 0 tags. The most recent commit was made by 'BrainonSilicon' 18 hours ago, updating glossary formatting. Other commits include updates to .github, docs, .all-contributorsrc, .gitignore, and README.md. The README.md file contains a 'Welcome' message and an 'About the Glossary of Terms' section. The About section mentions the AIM Research Support Facility (RSF) and the NIHR's Artificial Intelligence for Multiple Long-Term Conditions (AIM) project.

Code main 4 branches 0 tags Go to file Add file Code

BrainonSilicon Update glossary formatting ... 6302844 18 hours ago 69 commits

.github Update issue templates 20 hours ago

docs Update glossary formatting 18 hours ago

.all-contributorsrc docs: update .all-contributorsrc [skip ci] 23 days ago

.gitignore Add a .gitignore file and ignore the _build directory 27 days ago

README.md fixed typo yesterday

README.md

Welcome

all contributors 4

About the Glossary of Terms

The AIM Research Support Facility (RSF), based at The Alan Turing Institute with collaborators from Swansea University and the University of Edinburgh, offers AI and advanced data science support to the research teams part of the [NIHR's Artificial Intelligence for Multiple Long-Term Conditions \(AIM\) project](#).

Our community has compiled a [Glossary](#) of common terms relating to Health, Medicine, Artificial Intelligence,

GitHub Vocabulary: Commit

- Repository (repo) 
- Commit 
- Branch & Fork 
- Pull request 
- Merge 



GitHub

• Commit

Saving a version of file(s)

- ‘commit’ changes with message, i.e. “Update glossary formatting”

The screenshot shows a GitHub repository interface. At the top, there are buttons for 'main' (with a dropdown arrow), '4 branches', '0 tags', 'Go to file', 'Add file', and a green 'Code' button. Below this is a list of commits:

Author	Commit Message	Date	
BrainonSilicon	Update glossary formating ...	6302844 18 hours ago	
	.github	Update issue templates	20 hours ago
	docs	Update glossary formatting	18 hours ago
	.all-contributorsrc	docs: update .all-contributorsrc [skip ci]	23 days ago
	.gitignore	Add a .gitignore file and ignore the _build directory	27 days ago
	README.md	fixed typo	yesterday

Below the commits is a preview of the 'README.md' file. It contains the following content:

```
#: README.md
```

Welcome

all contributors 4

About the Glossary of Terms

The AIM Research Support Facility (RSF), based at The Alan Turing Institute with collaborators from Swansea University and the University of Edinburgh, offers AI and advanced data science support to the research teams part of the [NIHR's Artificial Intelligence for Multiple Long-Term Conditions \(AIM\) project](#).

Our community has compiled a [Glossary](#) of common terms relating to Health, Medicine, Artificial Intelligence,

–o Commit

Saving a version of file(s)

- ‘commit’ changes with message, i.e. “Update glossary formatting”

–o Commits on Oct 12, 2022

Update glossary formatting ...
 BrainonSilicon committed 2 days ago ✓

Merge pull request #19 from aim-rsf/fix-links ...
 BrainonSilicon committed 2 days ago

Update issue templates ...
 BrainonSilicon committed 2 days ago

fixed typo ...
 eirini-zormpa committed 2 days ago

Update about page ...
 BrainonSilicon committed 2 days ago ✓

Update README.md ...
 BrainonSilicon and eirini-zormpa committed 2 days ago

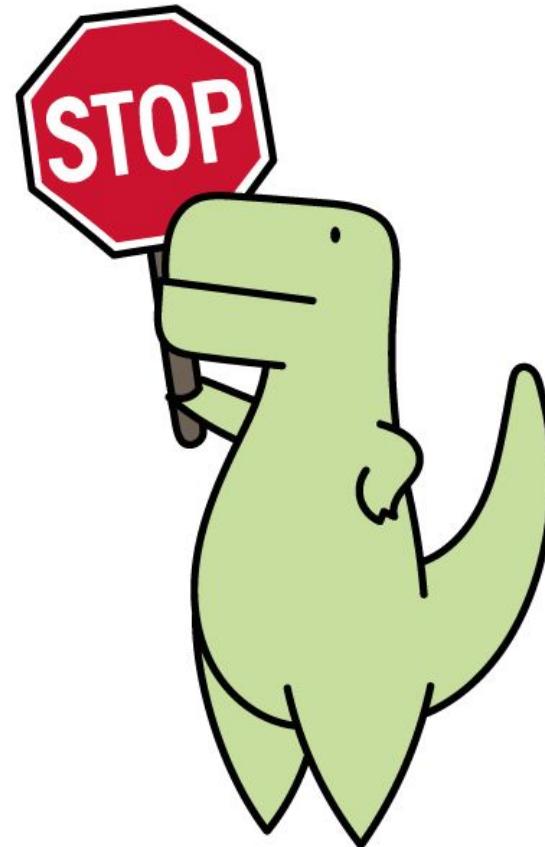
–o Commits on Oct 10, 2022

Fixed broken links
 BrainonSilicon committed 4 days ago

Create a GitHub account?

- Go to github.com
- Sign in to your account

(if you don't have an account now is
a good time to create one)



LoofandTimmy.com

Exercise 1: Commenting on an issue.

- Go to the repository we've set up for this session.
- Comment on the issue titled "[Exercise 1: Getting started](#)".

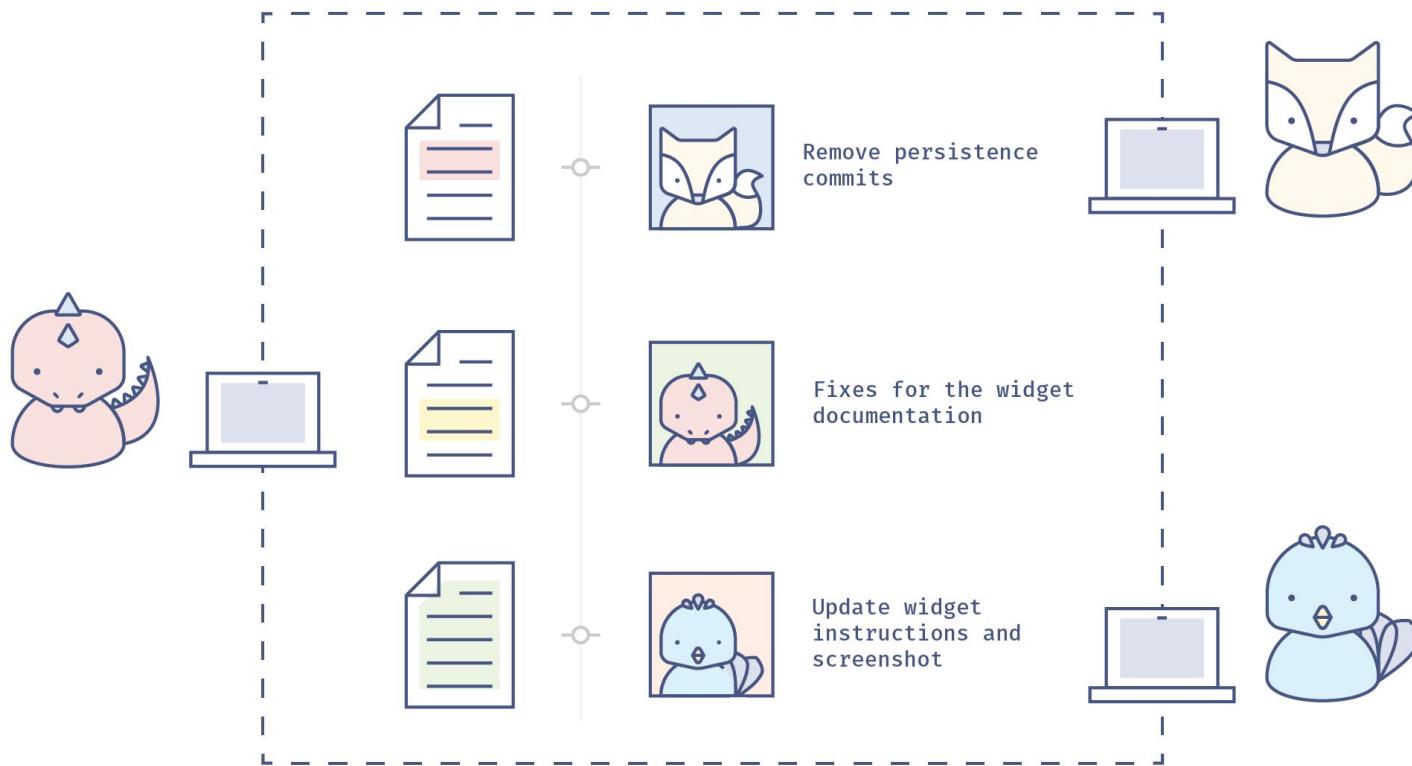


Let's Git Good:



- Why use GitHub?
- What is GitHub?
- How to GitHub?
- **Exercise 1:** Finding an Issue and contributing to a project.
- **Collaborating on GitHub**
- **Exercise 2:** Editing a file and making a Pull Request.
- How to use the template repo for your challenge

Collaboration on GitHub



GitHub Vocabulary: Branch & Fork

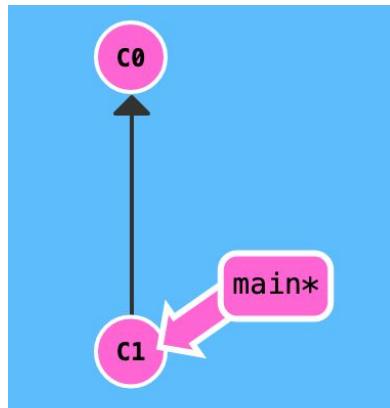
- Repository (repo) 
- Commit 
- Branch & Fork 
- Pull request 
- Merge 



-o Commit

Saving a version of file(s)

'commit' changes with message
(i.e.'Changes title')



Commits on Aug 3, 2022

- Merge pull request [alan-turing-institute#2495](#) from alan-turing-instit... [...](#)
harisood committed 1 hour ago
- Add numbers to md
aleesteele committed 1 hour ago

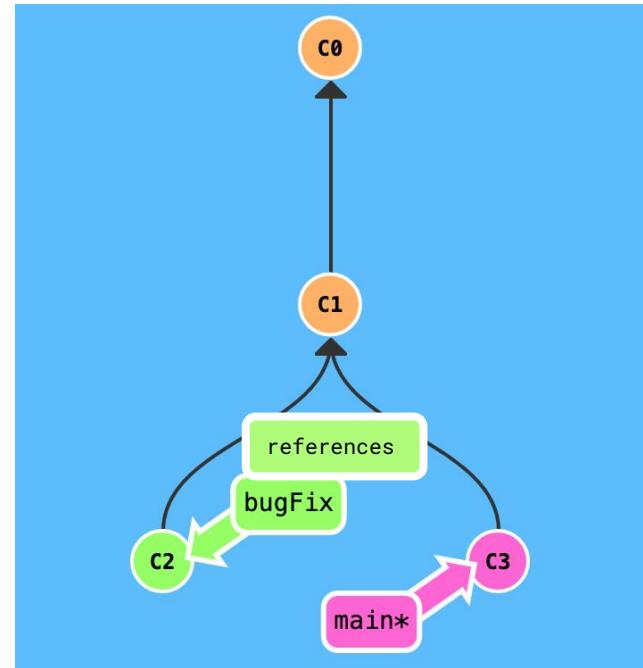
Commits on Aug 2, 2022

- Updated README-French.md ([alan-turing-institute#2117](#)) [...](#)
akashraj01 committed 18 hours ago
- Merge pull request [alan-turing-institute#2482](#) from alan-turing-instit... [...](#)
aleesteele committed yesterday

Branch

A temporary place in **your** repo pointing to a commit

Is used to work on an idea
(like a solution to a problem)
→ *requires ‘write’ access to the original repo*



Branch

A temporary place in **your** repo pointing to a commit

Is used to work on an idea
(like a solution to a problem)
→ *requires ‘write’ access to the original repo*

The screenshot shows a GitHub repository interface. At the top, there are buttons for 'main' (selected), '4 branches' (highlighted with a red box), and '0 tags'. To the right are buttons for 'Go to file', 'Add file', and 'Code'. Below this, a list of commits is shown, starting with a merge from 'BrainonSilicon' that updated glossary formatting. The list continues with updates to issue templates, documentation, and README files, along with a .gitignore entry. At the bottom, the 'README.md' file is displayed, featuring a 'Welcome' section, an 'all contributors' badge (4 contributors), and a 'About the Glossary of Terms' section. A note at the bottom of the README states that the AIM Research Support Facility (RSF) offers AI and advanced data science support to research teams part of the NIHR's Artificial Intelligence for Multiple Long-Term Conditions (AIM) project.

Author	Commit Message	Time Ago
BrainonSilicon	Update glossary formating ...	18 hours ago
.github	Update issue templates	20 hours ago
docs	Update glossary formating	18 hours ago
.all-contributorsrc	docs: update .all-contributorsrc [skip ci]	23 days ago
.gitignore	Add a .gitignore file and ignore the _build directory	27 days ago
README.md	fixed typo	yesterday

Branch

A temporary place in **your** repo pointing to a commit

Is used to work on an idea
(like a solution to a problem)
→ *requires ‘write’ access to the original repo*

Active branches

bibliography	⌚ Updated 7 minutes ago by Sophia Batchelor
references	⌚ Updated 12 minutes ago by Sophia Batchelor
fix-links	⌚ Updated yesterday by eirini-zormpa
contributions	⌚ Updated 28 days ago by Sophia Batchelor

Branch vs Fork

A temporary place in **your** repo pointing to a commit

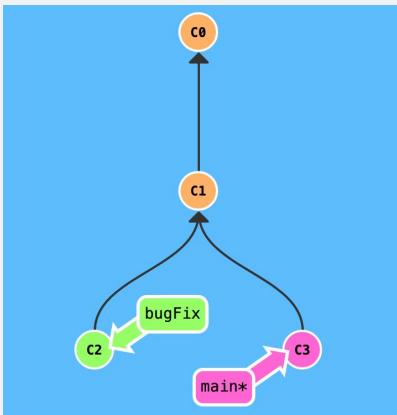
Is used to work on an idea
(like a solution to a problem)
→ *requires ‘write’ access to the original repo*

Fork: An **independent** copy of a repo

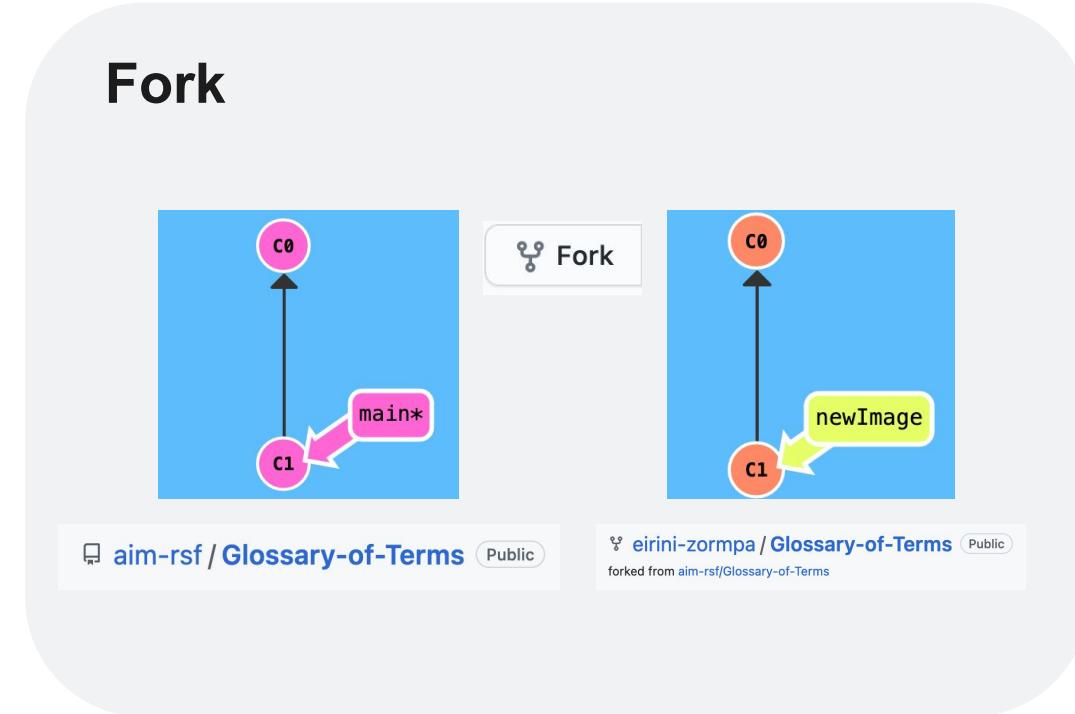
Can be used for independent work or collaboration →
does not require write access to original repo

⌚ Branch vs Fork

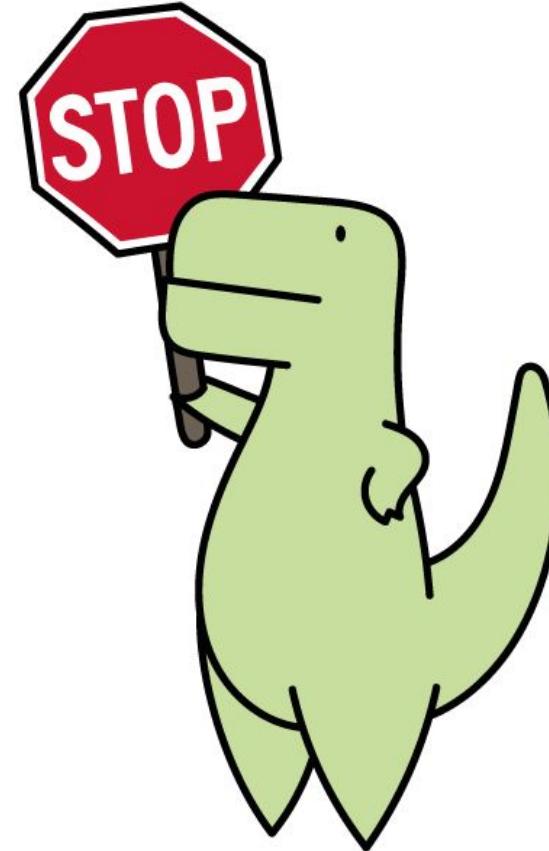
Branch



Fork



Questions?



LoofandTimmy.com

GitHub Vocabulary: PRs & Merging

- Repository (repo) 
- Commit 
- Branch & Fork 
- Pull request 
- Merge 

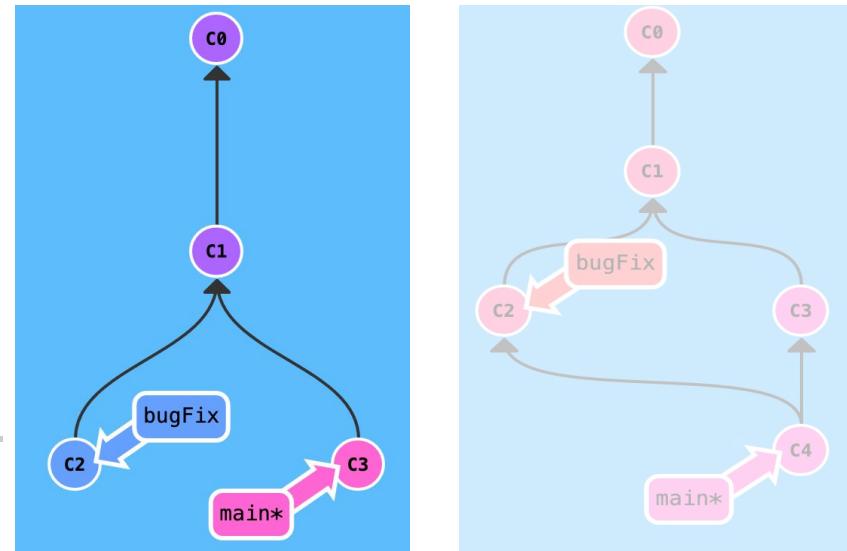


GitHub

Pull Request & Merge

Pull request
request to add your changes from a branch back into main.

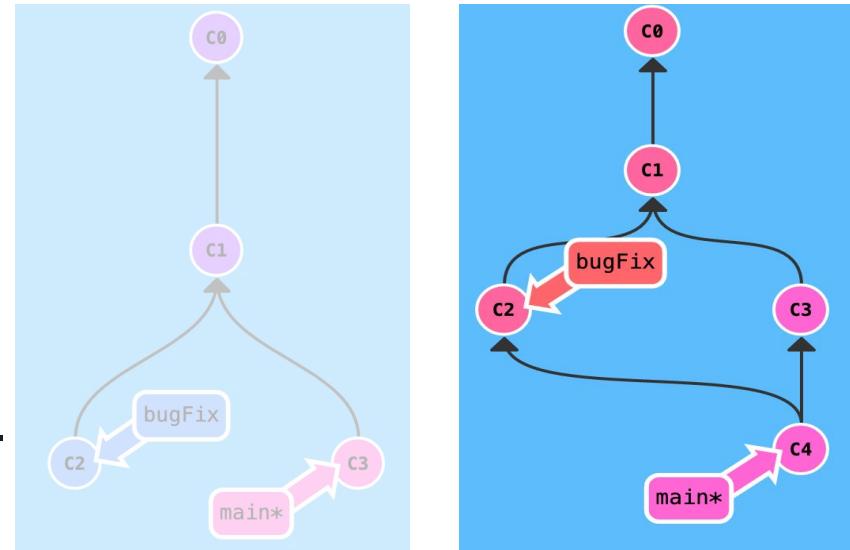
Merge
act of incorporating new changes (commits) from one branch to another.



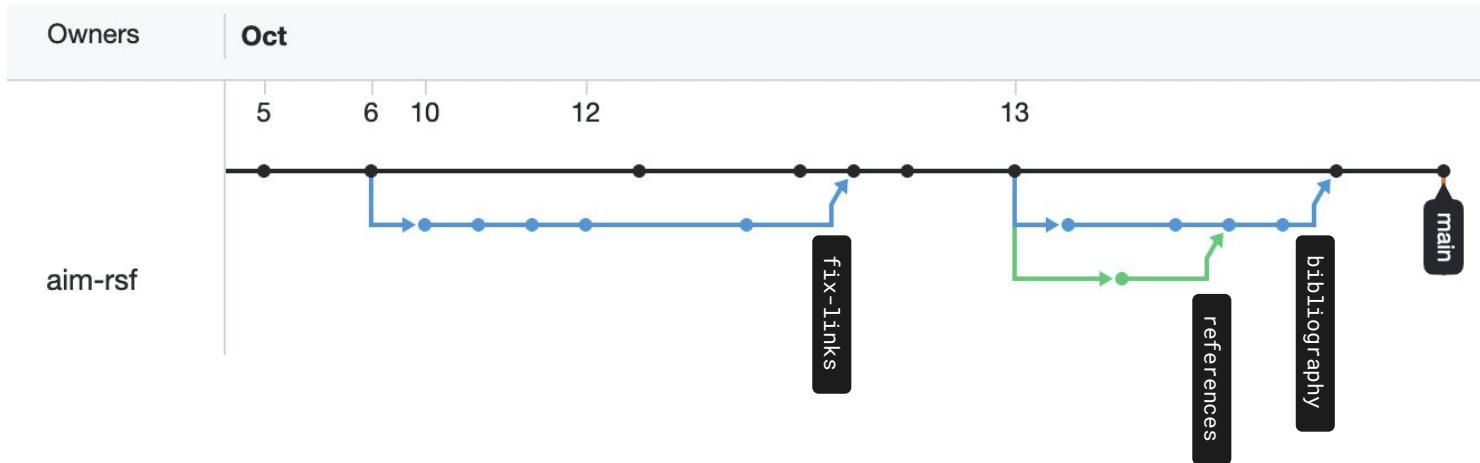
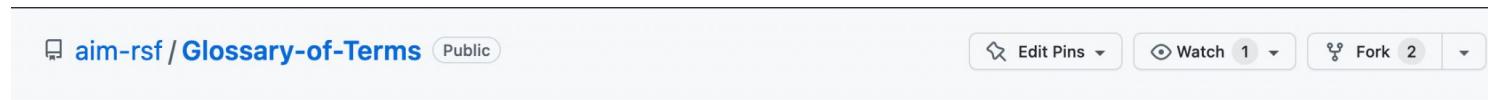
Pull Request & Merge

Pull request
request to add your changes from a
branch back into main.

Merge
act of incorporating new changes
(commits) from one branch to another.



Pull Request & Merge



⌚ Branches, PRs, and Merging

If you own a repo or are an official collaborator:

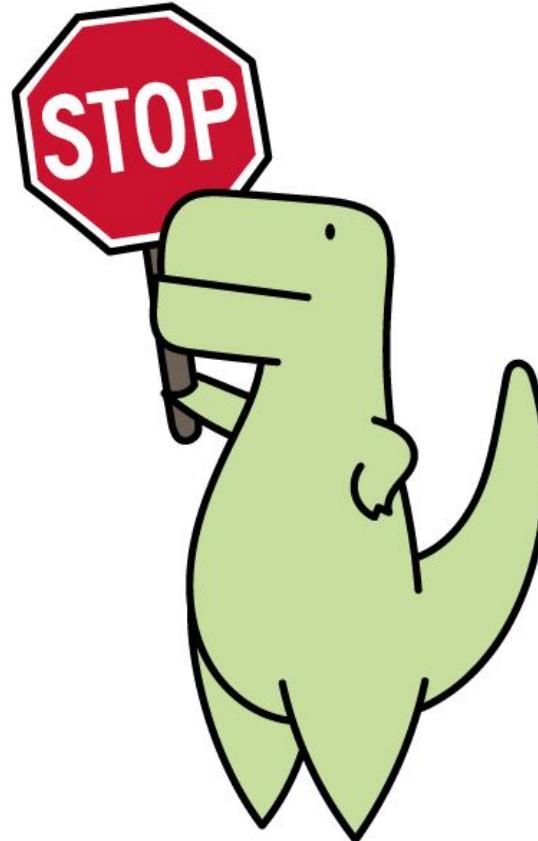
- a. you will **Create a new branch**
- b. work on the new branch
- c. **create a Pull Request** for the changes you've made
- d. a collaborator will decide to merge them in.

⌚ Forks, PRs, and Merging

If you **do not** own a repo and aren't an official collaborator:

- a. you will **Create a fork**
- b. work on your own fork
- c. **create a Pull Request** for the changes you've made
- d. the repo maintainer will decide to merge them in.

Questions?



LoofandTimmy.com

GitHub Exercise 2: Edit a file and make a Pull Request.

I'll talk through it, and then we'll do it together.

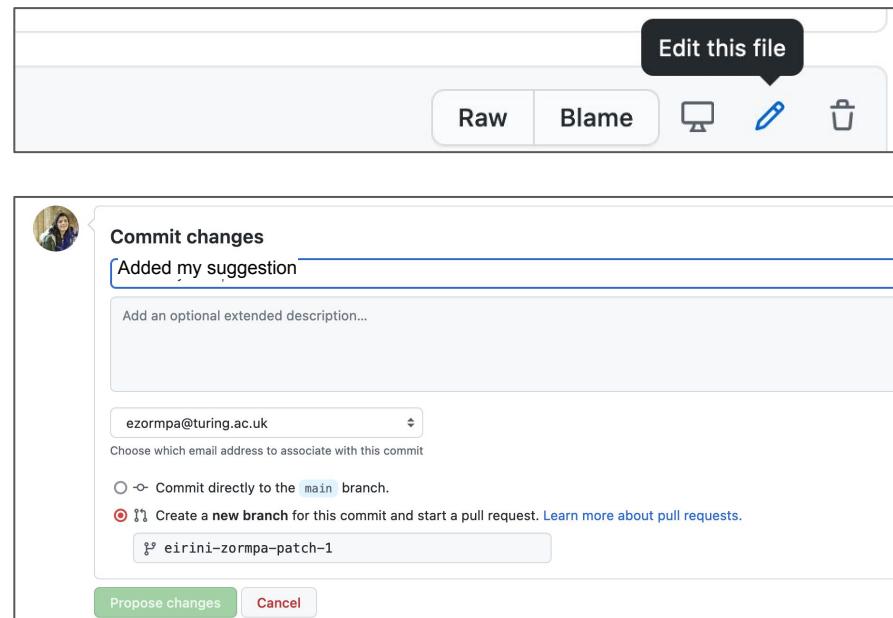
1. Go to the file labeled **introductions**
2. Edit the file and write about your **favourite pizza topping**
3. **Commit** the change and submit a **Pull Request**.



Make a commit -

Step-by-step:

1. Navigate to the [introductions file](#)
2. Click on the pencil icon to edit
3. Write on the line **number assigned by the instructor from the Issue we worked on earlier**
4. Scroll down to the 'Commit changes' section
5. Write a good commit message!
6. Create a new branch for the commit
7. Click on 'Propose changes'
8. **Don't close this page**



Create a Pull request

Step-by-step:

1. Go back to the pull request page
2. You should see a green check, saying ‘Able to merge’
3. Add any additional information in the ‘Leave a comment’ section, if you like
4. Click on ‘Create a pull request’
5. Assign the co-facilitator for the day (**@EKaroune**) as reviewer



Open a pull request

The change you just made was written to a new branch named `eirini-zormpa-patch-1`. Create a pull request below to propose these changes.

base: main ▾ ← compare: eirini-zormpa-patch-1 ▾ ✓ Able to merge. These branches can be automatically merged.

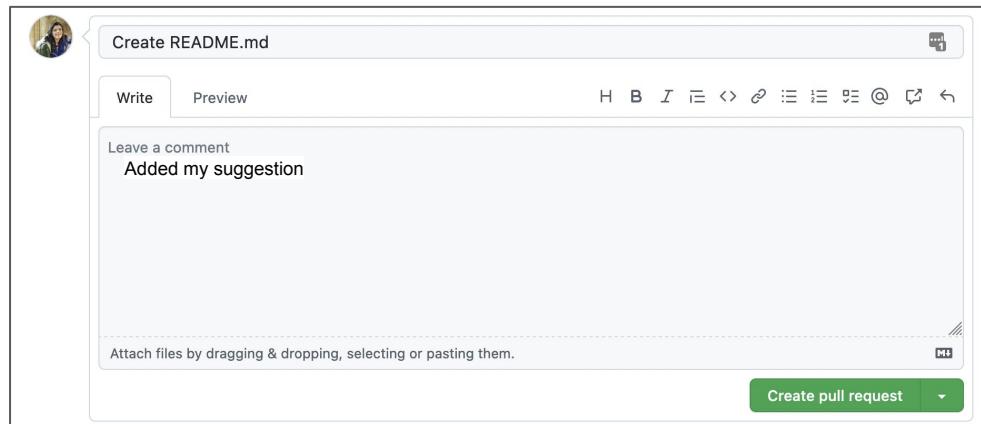
Create README.md

Write Preview

Leave a comment
Added my suggestion

Attach files by dragging & dropping, selecting or pasting them.

Create pull request



1 Open eirini-zormpa wants to merge 1 commit into `main` from `eirini-zormpa-patch-1`

Conversation 0 Commits 1 Checks 0 Files changed 1

eirini-zormpa commented 19 minutes ago Member ...

No description provided.

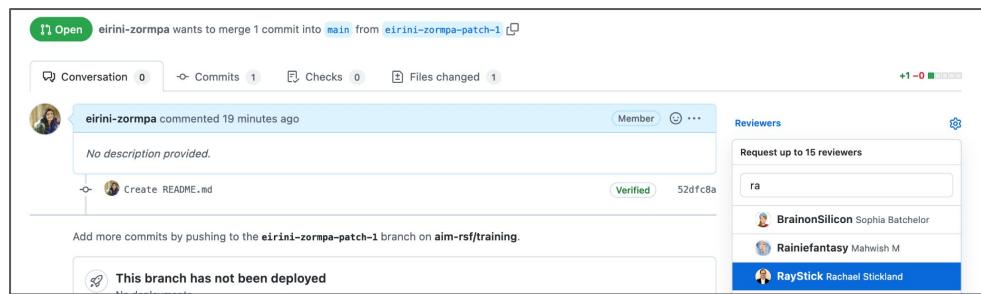
Create README.md Verified 52dfc8a

Add more commits by pushing to the `eirini-zormpa-patch-1` branch on `aim-rsf/training`.

This branch has not been deployed

Request up to 15 reviewers

Ra BrainonSilicon Sophia Batchelor Rainiefantasy Mahwish M RayStick Rachael Stickland



CONGRATS!!

You made your first Pull Request!



Let's Git Good:



- Why use GitHub?
- What is GitHub?
- How to GitHub?
- **Exercise 1:** Finding an Issue and contributing to a project.
- Collaborating on GitHub
- **Exercise 2:** Editing a file and making a Pull Request.
- **Stretch exercises:**
 1. **Making your own repository on Github**
 2. **Contribute to an issue or pull request in The Turing Way!**

GitHub Exercise 3
(optional!): Contribute
to an issue or pull
request in
The Turing Way!

<https://github.com/the-turing-way/the-turing-way/issues/3319>



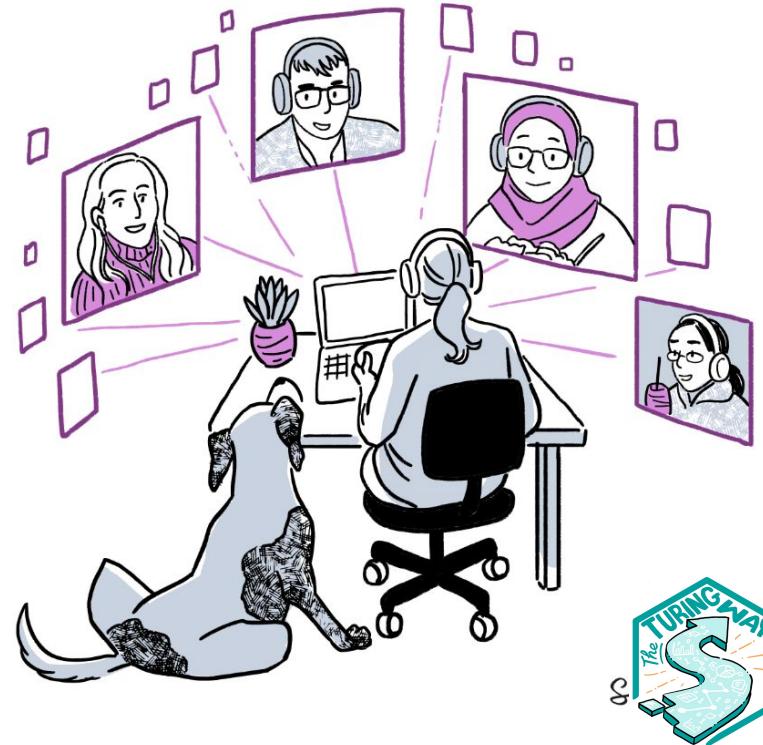
GitHub Skills Summary

- Repository to store your project 
- Issues to track tasks 
- Writing in Markdown to add links and content
- Branches and Pull requests to collaborate 

Join a Community Event

- *Collaboration Cafes*
 - 1st & 3rd Wednesdays (15:00 UTC+1)
- *Fireside Chats*
 - *monthly*
- *Book Dash - bi-annual*
 - *Community Share-out*

bit.ly/turingway



Join us!

For more information, join us on Slack or on Github:

- *Explore more resources for Github:*

<https://the-turing-way.netlify.app/collaboration/github-novice.html>

- <https://tinyurl.com/jointuringwaysslack>
- <https://the-turing-way.start.page/>
- **[Save the Date]: 13 - 17 November**

Community Share-outs and Book Dash



Get involved with the community

- Slack workspace
- PR / Issue on Github
- Community events

bit.ly/turingway

<https://zenodo.org/record/3332807>

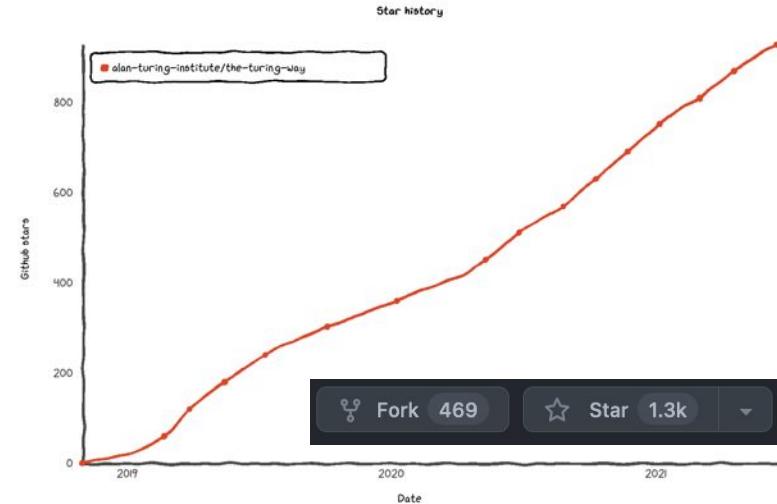


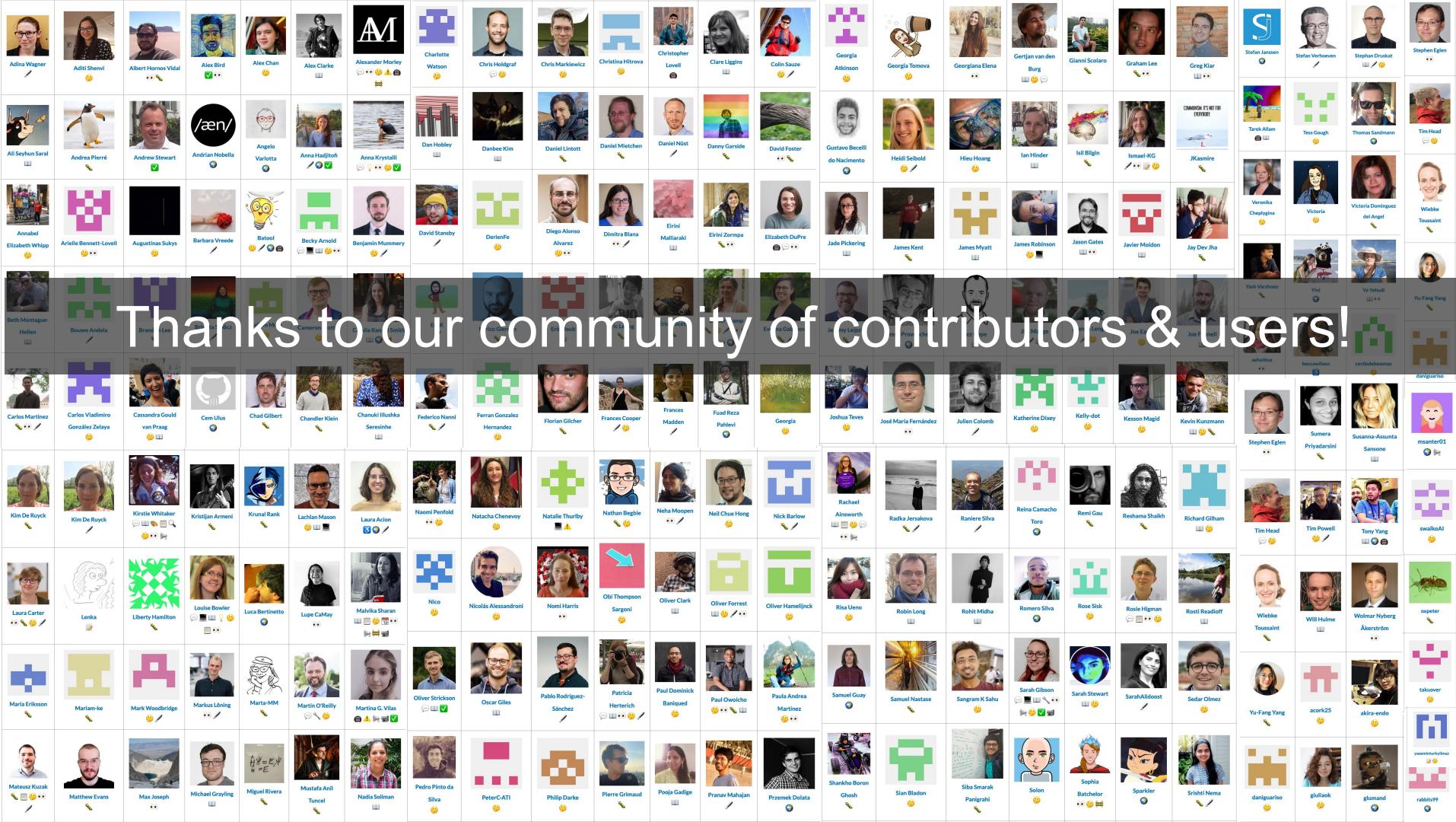
8,921

views

11,048

downloads





Thanks to our community of contributors & users!

Acknowledgements:

- Kirstie Whitaker, Malvika Sharan, *The Turing Way* community, friends & collaborators
- GitHub workshop based on [Friendly GitHub Intro by Kirstie Whitaker](#) & [GitHub Collaborating Document by Malvika Sharan](#)

Stay in Touch

- Book: the-turing-way.netlify.com
- Join Slack: <https://tinyurl.com/jointuringwaysslack>
- Twitter: twitter.com/turingway
- Newsletter: tinyletter.com/TuringWay
- Mastodon: [@turingway](https://fosstodon.org/@turingway)
- GitHub: github.com/alan-turing-institute/the-turing-way
- Original artwork by Scriberia: <https://doi.org/10.5281/zenodo.3332807>

Contact us: sbatchelor@turing.ac.uk, ekaroune@turing.ac.uk



Acknowledgements

- Kirstie Whitaker, Malvika Sharan, *The Turing Way* community, friends & collaborators
- RCM Team: Sophia Batchelor, Malvika Sharan, Cass Gould van Praag, Emma Karoune, Eirini Zormpa, Gabin Kayumbi, Anne Lee Steele.
- GitHub workshop based on [Friendly GitHub Intro by Kirstie Whitaker](#), [GitHub Collaborating Document by Malvika Sharan](#) & [GitHub for Collaboration by Sophia Batchelor](#).
- Original artwork by Scriberia: <https://doi.org/10.5281/zenodo.3332807>

THANK YOU !!

