


**The
Alan Turing
Institute**

The Turing Way

**Empowering researchers in
reproducible, ethical, inclusive
and collaborative science**

Kirstie Whitaker

Pronouns: she/her



@TuringWay @kirstie_j
<https://doi.org/10.5281/zenodo.4944374>



The Turing Way is an open source book project that involves and supports a diverse research community in ensuring that reproducible and ethical data science is accessible and comprehensible for everyone.



The Turing Way is:

- a book
- a community
- a global collaboration
- a whole tonne of work



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<https://doi.org/10.5281/zenodo.4944374>

Thank you to our 250+ contributors



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Malvika Sharan

“No one can change research culture on their own. Scaling our community by empowering YOU to participate is how we will change the world.”



<https://doi.org/10.5281/zenodo.4536335>

<https://foss-backstage.de/session/>

[building-culture-collaboration-open-source-communities-turing-way](https://foss-backstage.de/session/building-culture-collaboration-open-source-communities-turing-way)

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Picture credit: Chris Gorgolewski
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Our human needs
are what makes
reproducibility so
challenging to
implement



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		Data	
		Same	Different
Analysis	Same	Reproducible	Replicable
	Different	Robust	Generalisable

Is not considered
for promotion

Held to higher
standards than
others

Publication bias
towards novel
findings

Requires
additional
skills and a
change of
mindset

Barriers to reproducible research

Plead the 5th

Takes time

Support additional

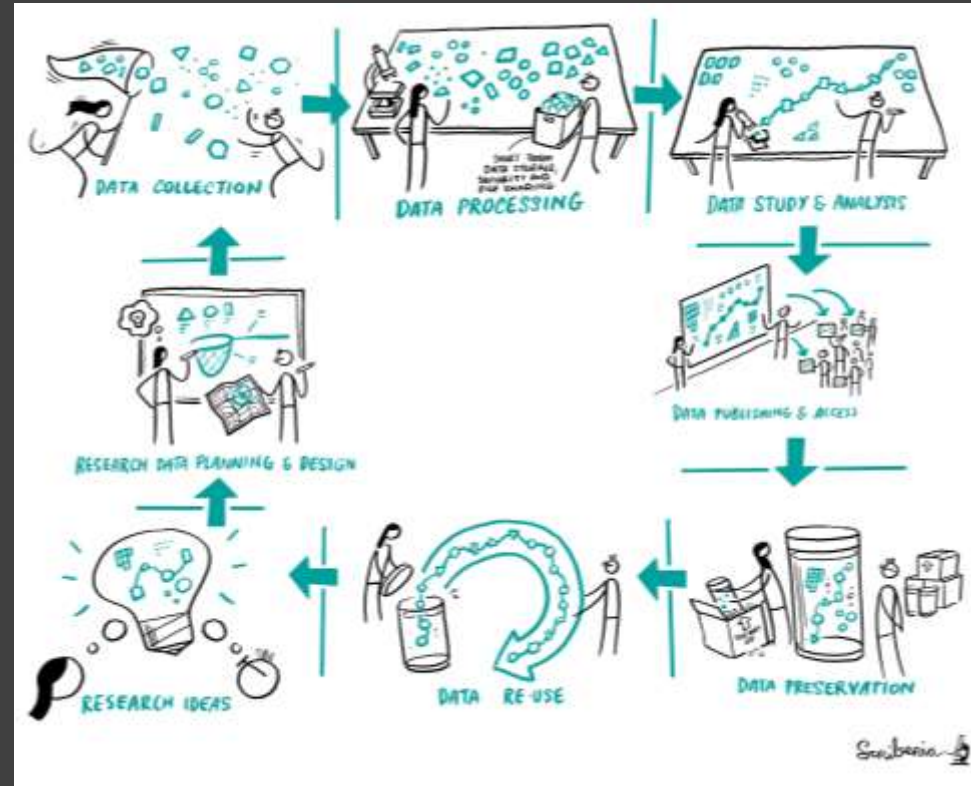
users

[https://the-turing-way.netlify.app/
reproducible-research/overview/overview-barriers.html](https://the-turing-way.netlify.app/reproducible-research/overview/overview-barriers.html)

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To be fully reproducible
we have to cover all the
steps of the research
cycle

And that is super
overwhelming...but
we're here to help





The Turing Way

Search this book...

Welcome

Guide for Reproducible Research

Overview

Open Research

Version Control

Licensing

Research Data Management

Reproducible Environments

BinderHub

Code quality

Code Testing

Code Reviewing Process

Continuous Integration

Reproducible Research with Make

Research Compendia

Credit for Reproducible Research

Risk Assessment

Case Studies



Guide for Reproducible Research

This guide covers topics related to skills, tools and best practices for research reproducibility.

The Turing Way defines reproducibility in data research as data and code being available to fully rerun the analysis.

There are several definitions of reproducibility in use, and we discuss these in more detail in the [Definitions of Reproducibility](#) section of this chapter. While it is absolutely fine for us each to use different words, it will be useful for you to know how *The Turing Way* defines reproducibility to avoid misunderstandings when reading the rest of the handbook.



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Guide for Reproducible Research

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Becky Arnold

“There are a lot of things you need to know before you can jump into continuous integration.

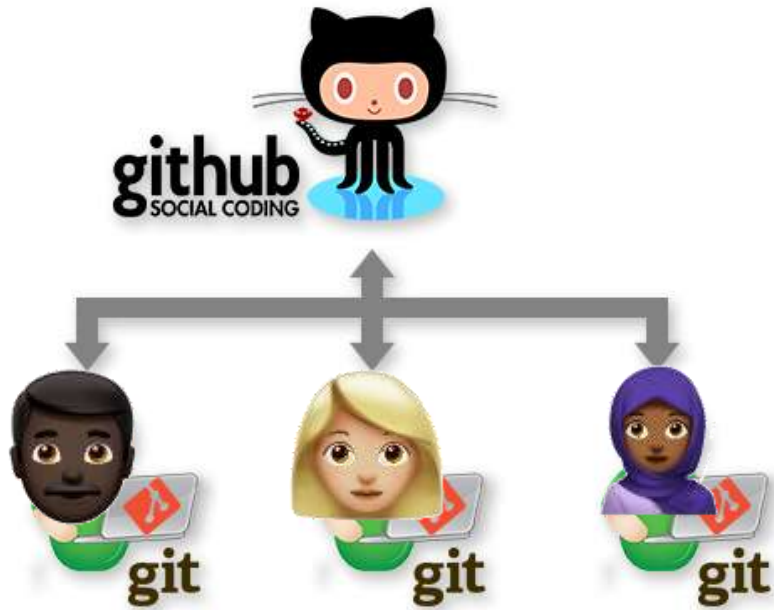
Version control is a prerequisite for pretty much everything.”



<https://software.ac.uk/about/fellows/becky-arnold>

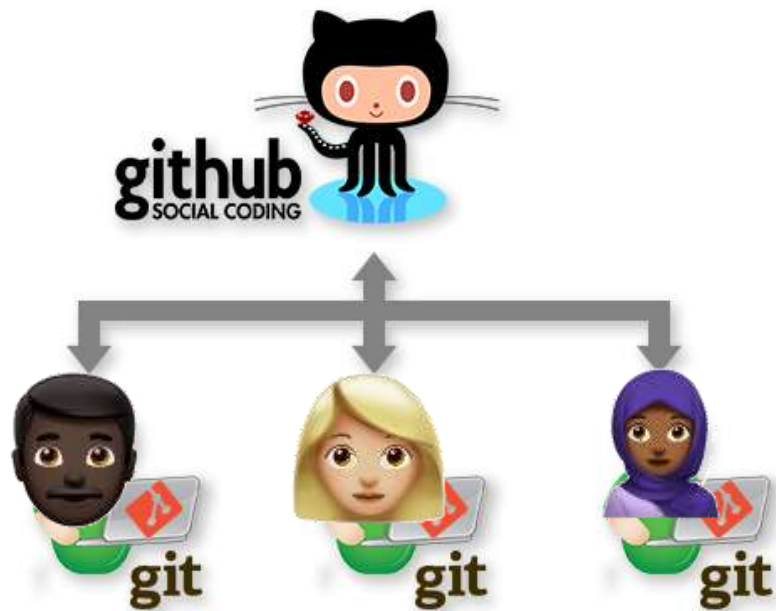
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<https://the-turing-way.netlify.app/collaboration/github-novice.html>
<https://the-turing-way.netlify.com/reproducible-research/vcs.html>

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<https://the-turing-way.netlify.com/reproducible-research/vcs.html>
<https://neurohackademy.org>

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Emma Karoune

“People who use GitHub regularly don’t realise how many words there are that people like me don’t know! It can be really demoralising.”



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1. Project

5. Insights

2. Issues

6. Edit repo details

7. Description of the repository

3. Files

8. Link for Git pages

9. Topic labels

4. Landing page or README.md file

10. License

The screenshot shows the GitHub interface for the repository 'EKaroune / Open-Science-in-Phytolith-Research'. The repository is on the 'master' branch with 1 branch and 0 tags. The file list includes: 'Key to codes in the database of asses...', 'LICENSE', 'README.md', 'Roadmap.md', 'Workshop on open science.md', '._config.yml', 'codeofconduct.md', and 'contributing.md'. The README.md file is selected, showing the title 'Open Science in Phytolith Research' and the text 'Let's make phytolith research better by moving into the era of open science!' and 'Welcome!'. The right sidebar contains the 'About' section with a description, a link to 'ekaroune.github.io/open-science-in-p...', topic labels 'phytoliths', 'open-science', 'open-data', 'open-access', and 'data-sharing', 'Readme', 'CC-BY-4.0 License', 'Releases', 'Packages', and 'Environments'.

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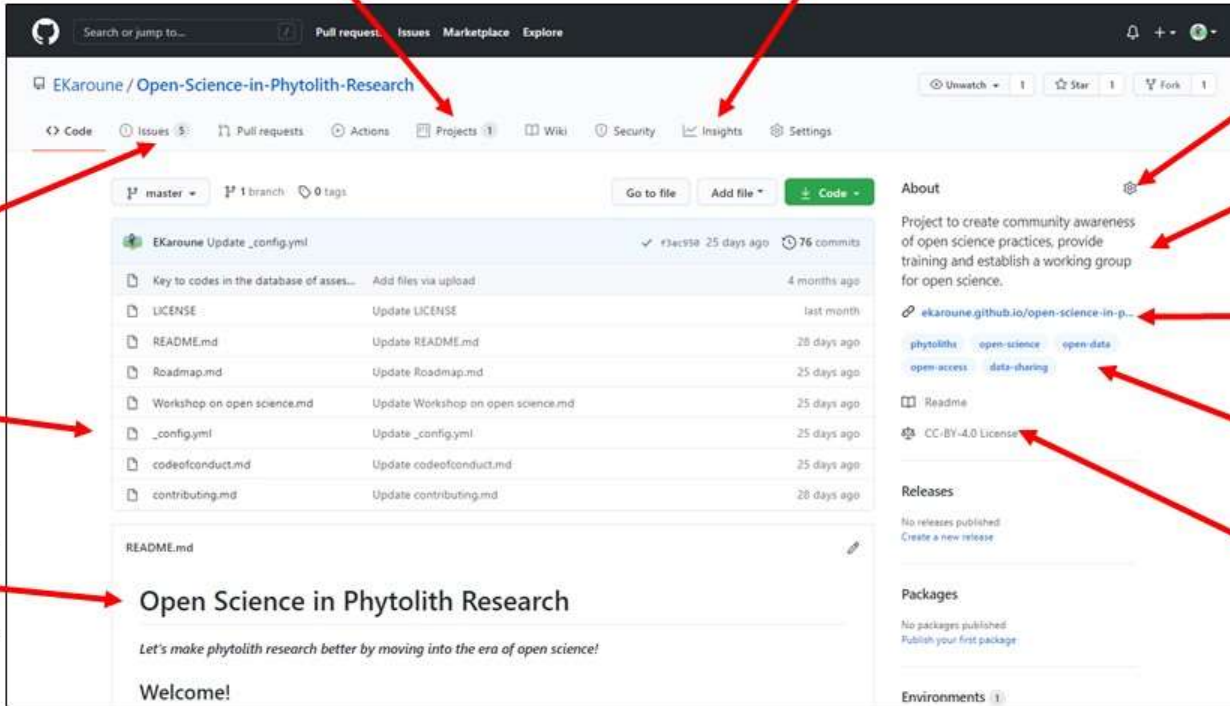
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Scribbleria

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THERE'S MORE TO COLLABORATION

THAN YOU MIGHT THINK!



Sensibaia

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Every project has a culture

- Whose work is valued?
- Who is glue?
- Beware a tyranny of structurelessness



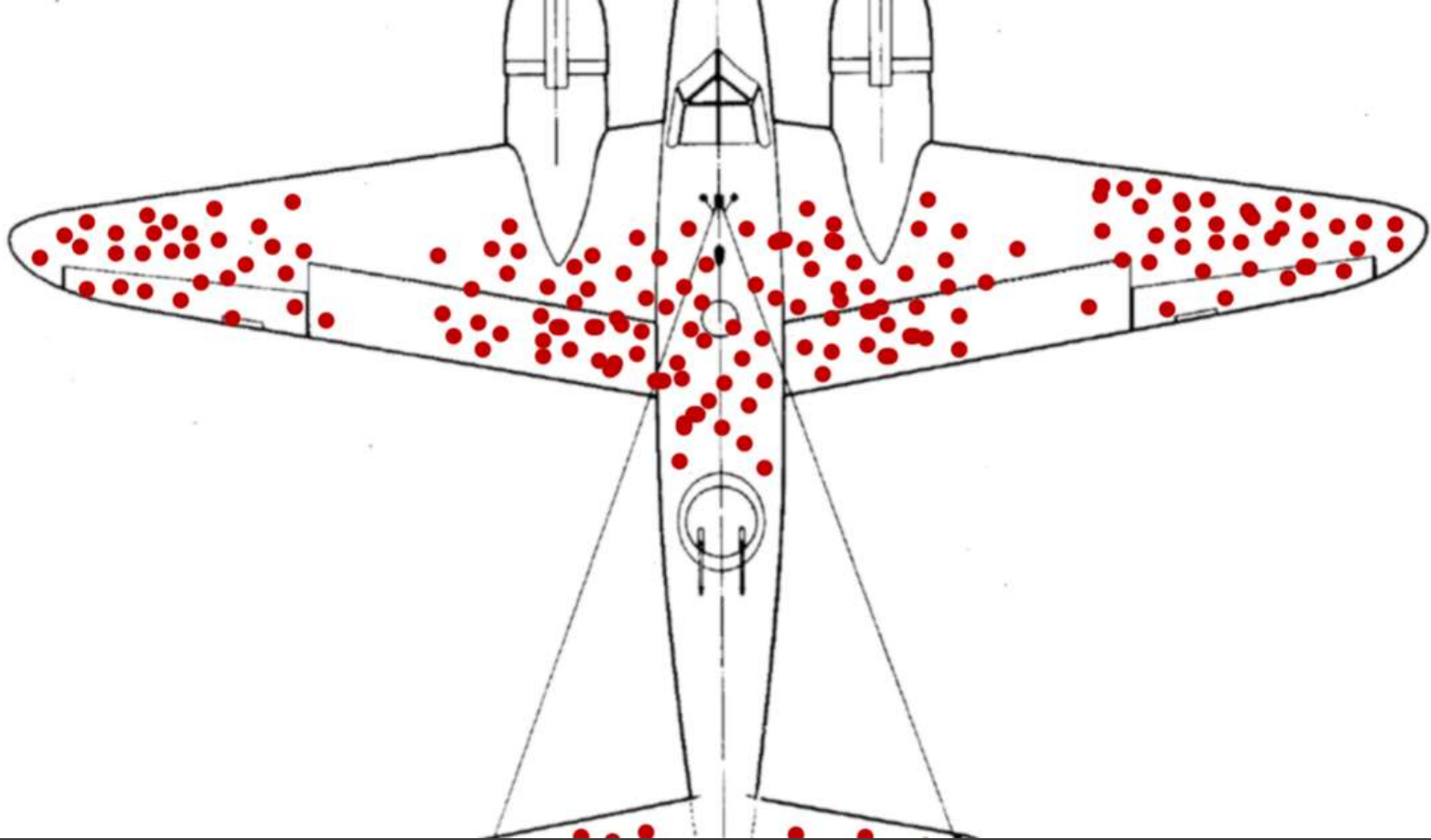
<https://noidea.dog/glue>

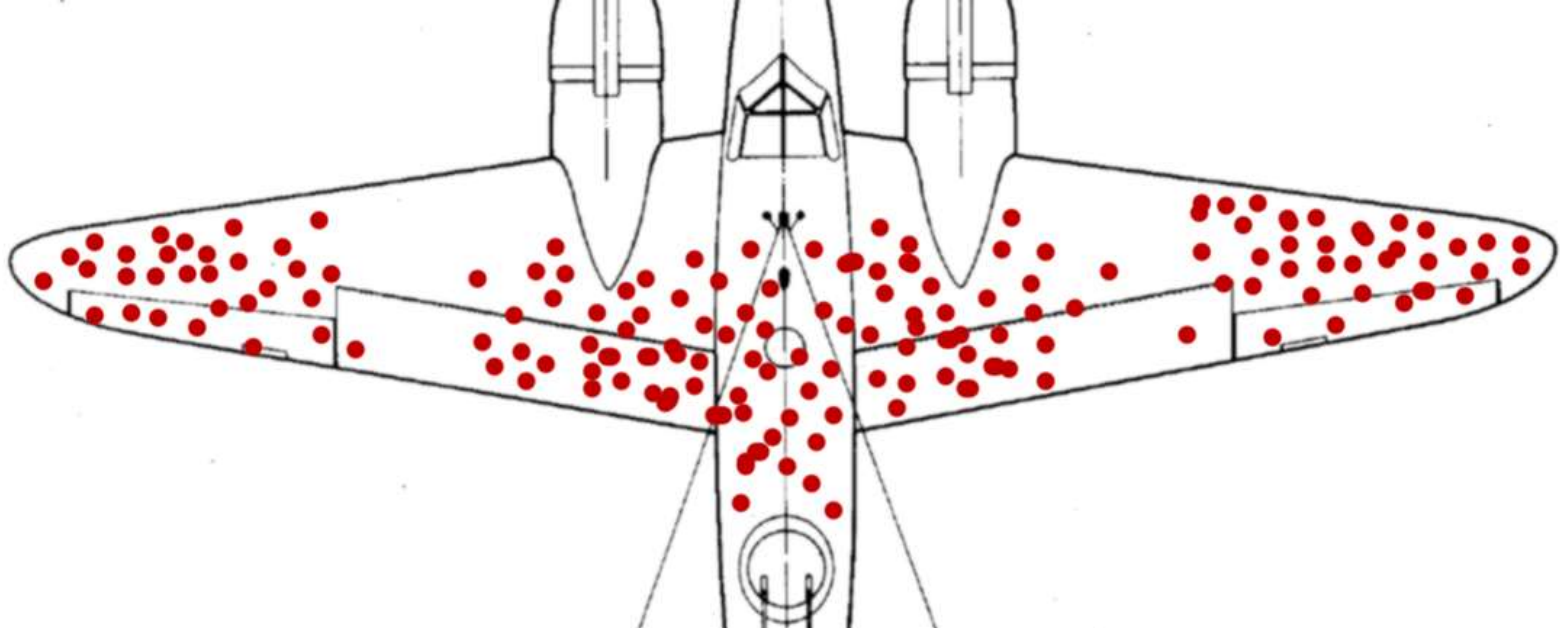
<https://www.wired.com/story/silicon-valley-tyranny-of-structurelessness/>

<https://www.jofreeman.com/joreen/tyranny.htm>

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The armor, said Wald, doesn't go where the bullet holes are. It goes where the bullet holes aren't: on the engines.



Whose voices are missing?

- In this room
- In your friend group
- At open source coding events



There are many different definitions of “open”.

The purpose of open should be built upon equity, diversity and inclusion.



Whitaker & Guest, 2020; derived from Robinson & Champieux, 2018,
Itself adapted from Berlin Open Science Meetup.
<https://osaos.codeforscience.org/what-is-open>

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Our community management materials are all openly available:

- Code of conduct
- Style guide
- Acknowledging contributors
- Event templates

<https://the-turing-way.netlify.app/community-handbook/community-handbook.html>

<https://the-turing-way.netlify.app/community-handbook/acknowledgement/acknowledgement-members.html>

The Turing Way

Home for The Turing Way book series
Home for The Turing Way
The Turing Way Content
Print

Community Handbook

This is a community handbook that discusses aspects of The Turing Way project that are useful for participating in the community.

The Turing Way is a community-led book project that involves diverse perspectives of researchers, students, educators, learners and various stakeholders from around the world.

The Community Handbook part of this book aims to provide information about the project, ways of working, and ethical aspects that can make community participation enjoyable for our members.

We are incredibly grateful to our community members who are the readers, co-writers, contributors, collaborators, moderators, helpers and supporters.

Thank you for joining the incredible journey of The Turing Way!

Fig. 47 The Turing Way content Handbook for the Turing Way project. (https://doi.org/10.1002/9781119500000.ch47)

License for The Turing Way book series

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<https://doi.org/10.5281/zenodo.4944374>

Our community management materials are all openly available and always evolving:

- Pathways to getting involved
- Governance and decision making

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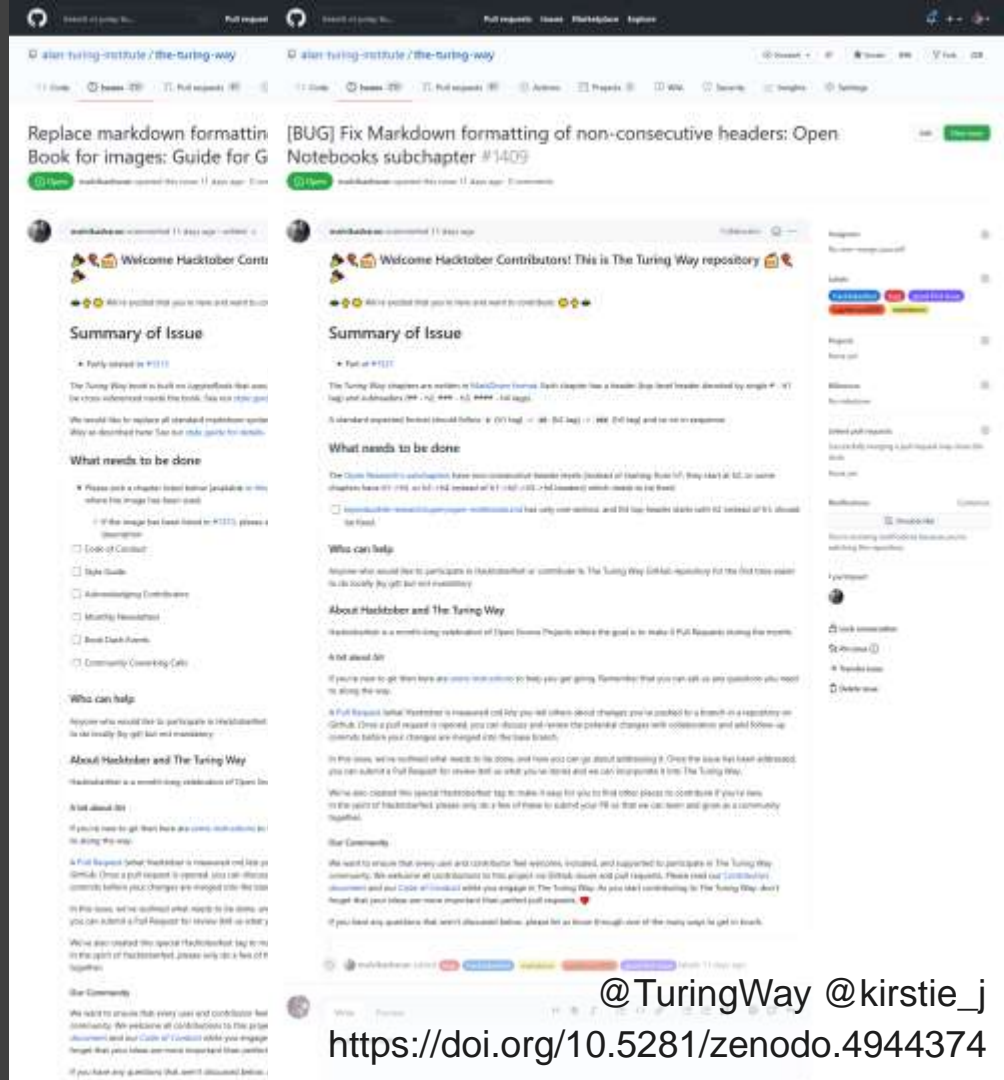
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OUR COMMUNITY

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- A good first issue should take longer to write than it does to fix
- The goal is to welcome people more than “just” to fix the bug



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<https://github.com/alan-turing-institute/the-turing-way/issues/1409> & [issues/1414](https://github.com/alan-turing-institute/the-turing-way/issues/1414)

<https://doi.org/10.5281/zenodo.4944374>

Paul Owoicho

“There are lots of distracting formatting inconsistencies in the book that I can turn into ‘good first issues’ for new community members.”





The Turing Way

Search this book...

Welcome

[Guide for Reproducible Research](#)

[Guide for Project Design](#)

[Guide for Communication](#)

[Guide for Collaboration](#)

[Guide for Ethical Research](#)

[Community Handbook](#)

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[Style Guide](#)

[Achieving Consistency](#)

[Formatting](#)

[Structure](#)

[Language](#)

[Acknowledging Contributors](#)



On this page

[Hard Requirements](#)

[Soft Requirements](#)

Formatting

Formatting refers to how *The Turing Way* is written, and directly affects the book's appearance and presentation. Proper formatting ensures that *The Turing Way* is readable, accessible, and resembles a polished piece of work.

Hard Requirements

The hard requirements in the consistency checklist ensure that *The Turing Way* prioritises accessibility, collaboration, readability and ease of use. The checks that deal with the *The Turing Way*'s formatting include:

Check 1: Add labels to chapters, subchapters, sections and images to enable cross-referencing

Often, a chapter might refer to content from another chapter to explain a concept or expand on a point. Cross-Referencing facilitates this by ensuring that the referred content is easy to find with a simple click. Cross-Referencing helps make *The Turing Way* easily navigable and accessible.

[Cross-Referencing](#) is discussed in detail in the [Style Guide](#). The subchapter explains what labels are, provides a naming convention for labels in *The Turing Way*, and gives several useful examples for how cross-referencing should be done.

Check 2: Convert HTML formatting to Markdown

The Turing Way is a [Jupyter-book](#) and should be written in [Markdown](#), where possible, so that it renders as intended.

Some chapters in *The Turing Way* are not entirely written in Markdown, making some of its content hard to read. For example, in the Licencing chapter of the [Guide for Reproducible Research](#), the [Software Licences](#) subchapter contains a

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<https://github.com/alan-turing-institute/the-turing-way/pull/1459>

<https://doi.org/10.5281/zenodo.4944374>

Collaboration cafes

- 1st and 3rd Wednesdays of each month
- All remote participation
 - Zoom call
 - Pomodoro technique
 - Breakout rooms for mentored contributions
- Everyone welcome



Martina Vilas

“The co-working hours are friendly for introverts who might be intimidated working with new people. These personal interactions are also crucial for staying motivated!”



<https://martinagvilas.github.io>

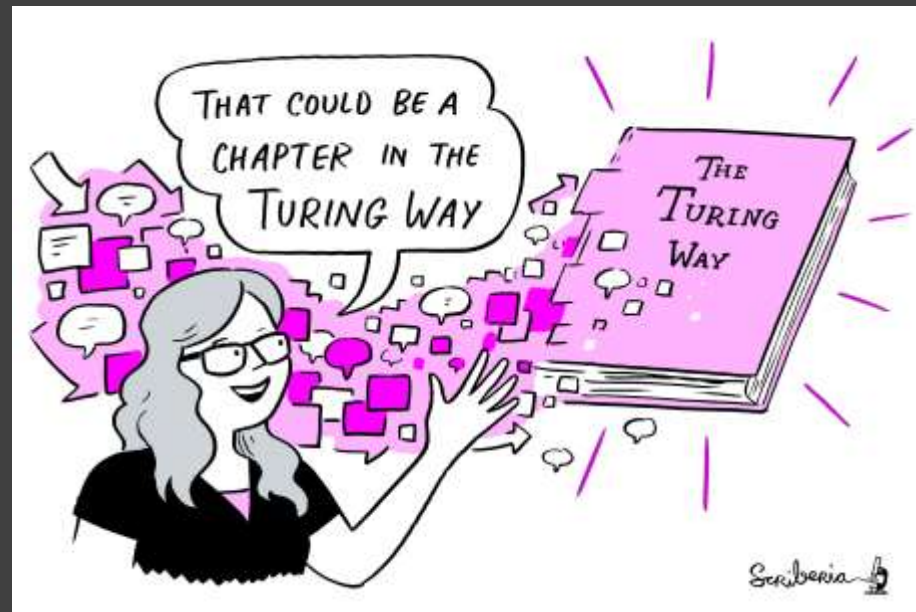
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Join us!

– You can help in so many ways!

- Editing
- Writing
- Linking
- Automating
- Curating
- Translating
- Promoting



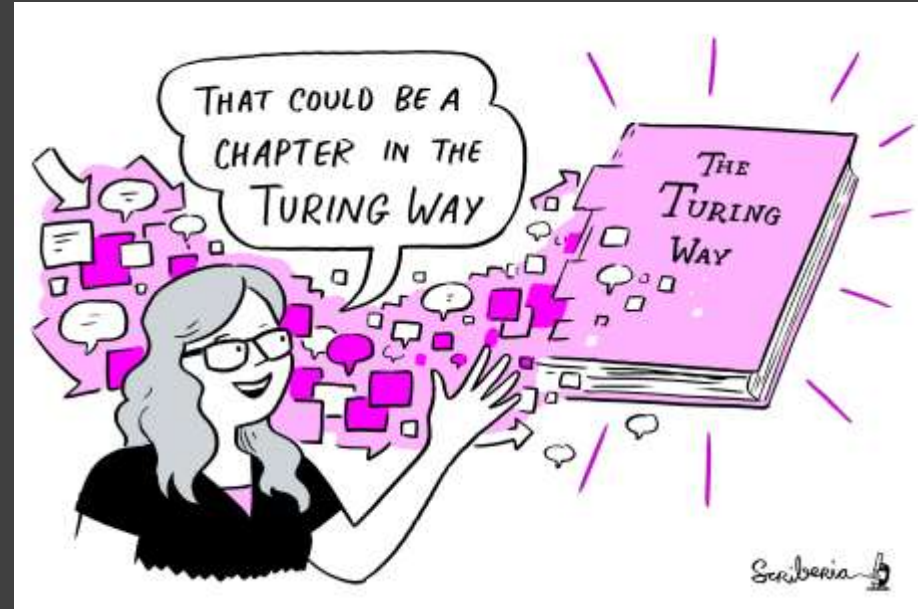
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<https://doi.org/10.5281/zenodo.4944374>

<https://github.com/alan-turing-institute/the-turing-way/issues/1712>

Join us!

- You can help in so many ways!
- Collaboration cafés twice per month, co-working sessions every week

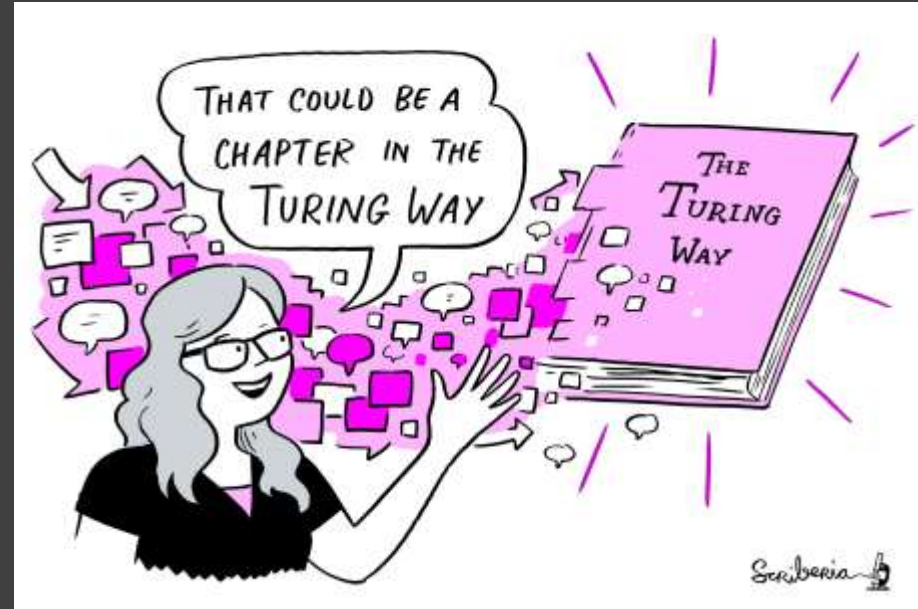


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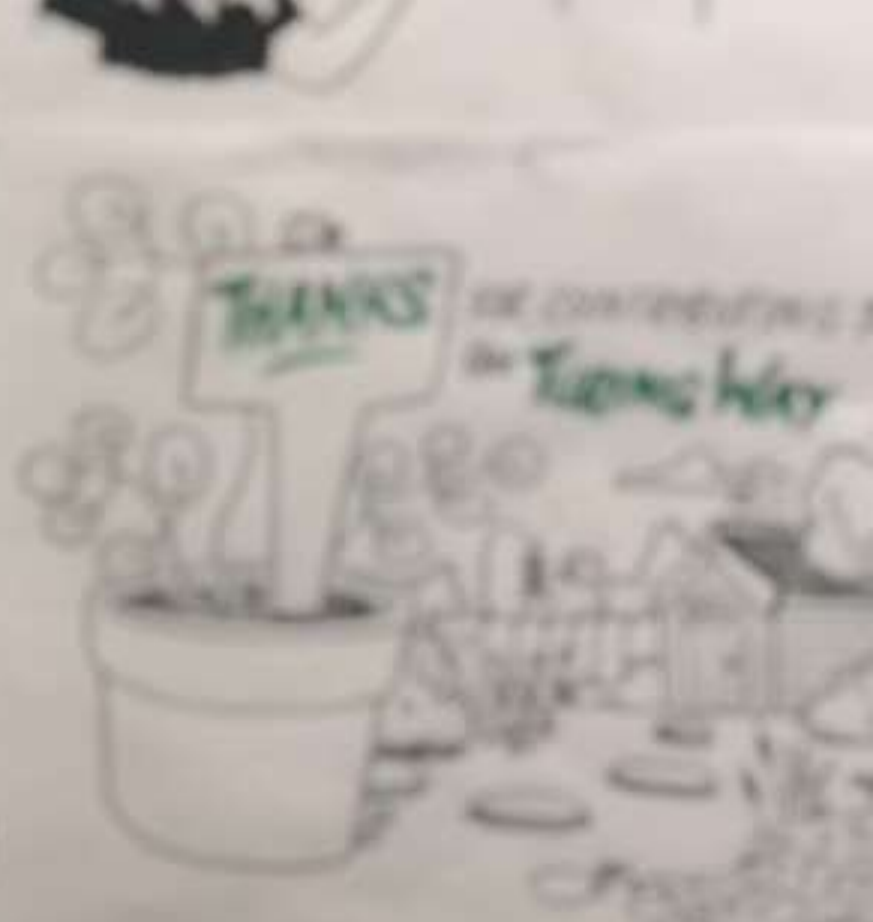
- You can help in so many ways!
- Collaboration cafés twice per month, co-working sessions every week
- Use any of these skills. Do high quality work. You are changing the world with every bug fix.



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- If you are not kind to yourself,
you can not be kind to others
- And if you are not kind, none
of the other stuff matters



#GrootGif

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Spectacular card from Elizabeth DuPre

Thank you

The
Alan Turing
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- Book: <https://the-turing-way.netlify.com>
- Newsletter: <https://tinyletter.com/TuringWay>
- GitHub: <https://github.com/alan-turing-institute/the-turing-way>
- Slack: <https://tinyurl.com/jointuringwayslack>
- Next Collaboration Café: 16 June at 3pm UK, 10am EST
- Original artwork by Scriberia: <https://doi.org/10.5281/zenodo.3332807>
- This work was supported by The UKRI Strategic Priorities Fund under the EPSRC Grant EP/T001569/1, particularly the "Tools, Practices and Systems" theme within that grant, and by The Alan Turing Institute under the EPSRC grant EP/N510129/1.

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