

The Alan Turing Institute

The Turing Way:

Guide to Reproducible, Ethical and
Collaborative Research

Malvika Sharan

Pronouns: she/her



The Turing Way



An Open Source guide on Data Science.

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

The Alan Turing Institute

The national institute
for data science and
artificial intelligence



Tools, Practices and Systems

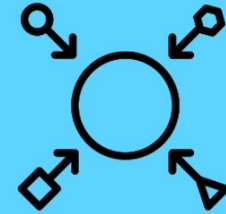
- Trustworthy systems
- Transparent reporting
- Inclusive interoperable design
- Ethical integrity
- Respectful co-creation
- Leadership in open research



Trust



Transparency



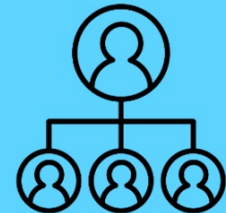
Inclusivity



Integrity



Respect



Leadership

The Turing Way Book on Reproducibility



Kirstie Whitaker

Lead of Tools, Practices
& Systems Programme

The Turing Way is a lightly opinionated guide to reproducible data science.

Our goal is to provide all the information that researchers need at the start of their projects to ensure that they are easy to reproduce at the end.

This also means making sure PhD students, postdocs, PIs, and funding teams know which parts of the "responsibility of reproducibility" they can affect, and what they should do to nudge data science to being more efficient, effective, and understandable.



Reproducibility

		Data	
		Same	Different
Analysis	Same	Reproducible	Replicable
	Different	Robust	Generalisable

Guide for Reproducible Research

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

Welcome

The Turing Way is an open source community-driven guide to reproducible, ethical, inclusive and collaborative data science.

Our goal is to provide all the information that data scientists in academia, industry, government and the third sector need at the start of their projects to ensure that they are easy to reproduce and reuse at the end.

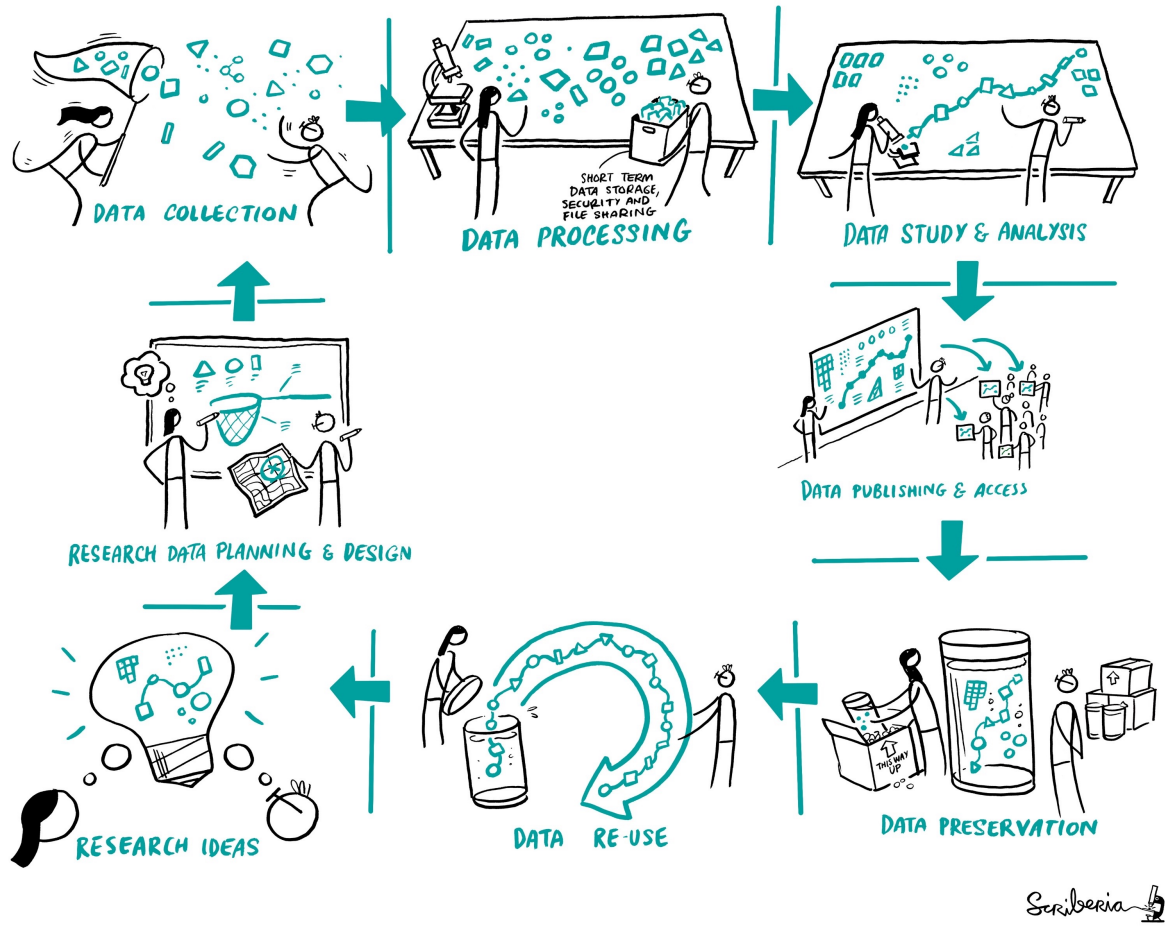
The book started as a guide for reproducibility, covering version control, testing, and continuous integration. However, technical skills are just one aspect of making data science research "open for all".

In February 2020, *The Turing Way* expanded to a series of books covering reproducible research, project design, communication, collaboration, and ethical research.



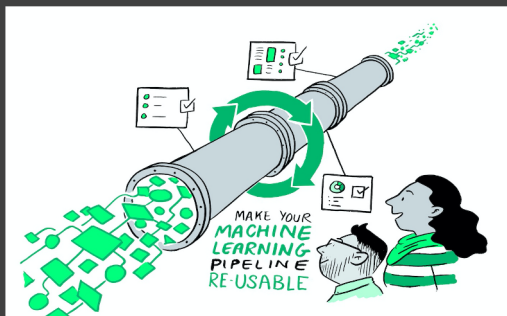
Reproducibility

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Scriberia

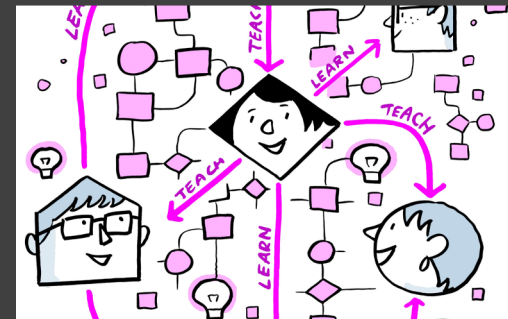
The Turing Way Guides



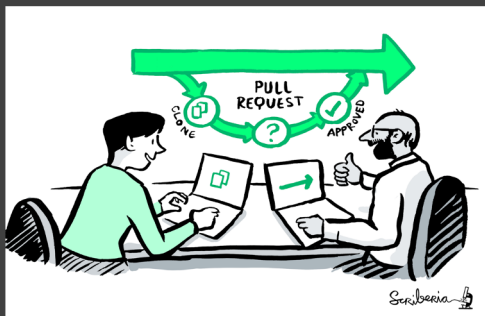
Reproducibility



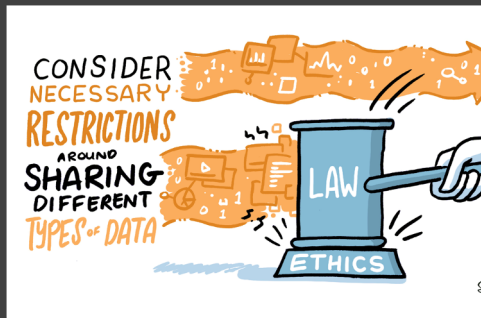
Project Design



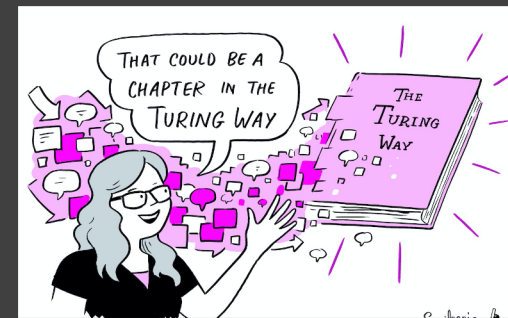
Communication



Collaboration



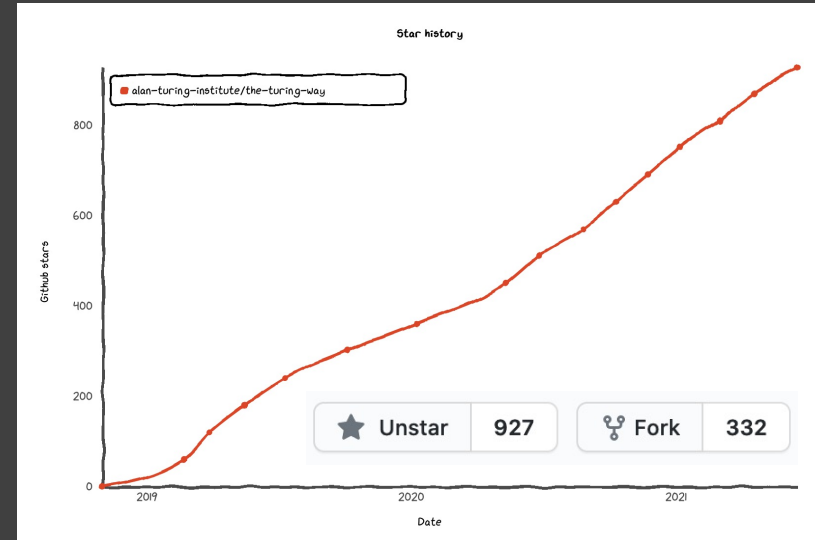
Ethical Research



Community Handbook

Project and Community Growth

- 2.5 years, >170 pages
- Community resources, events, guidance, templates, training
- 275 direct GitHub contributors and thousands of users



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

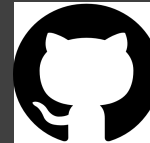


4,711

views

5,683

downloads



Overview of Project Design

Planning for Project Design

Communication and
Collaboration

Reproducibility Methods

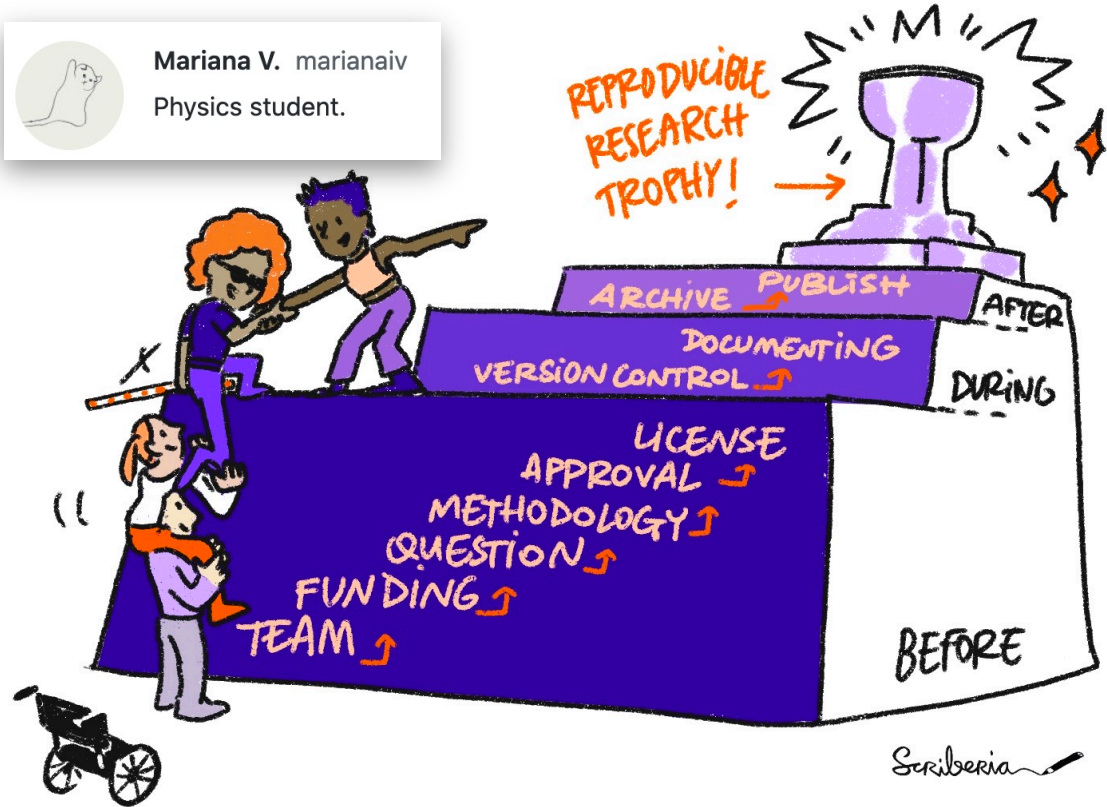
Version Control and
Documentation

Sharing Your Research
Work

Creating Project Repositories



Mariana V. marianaiv
Physics student.



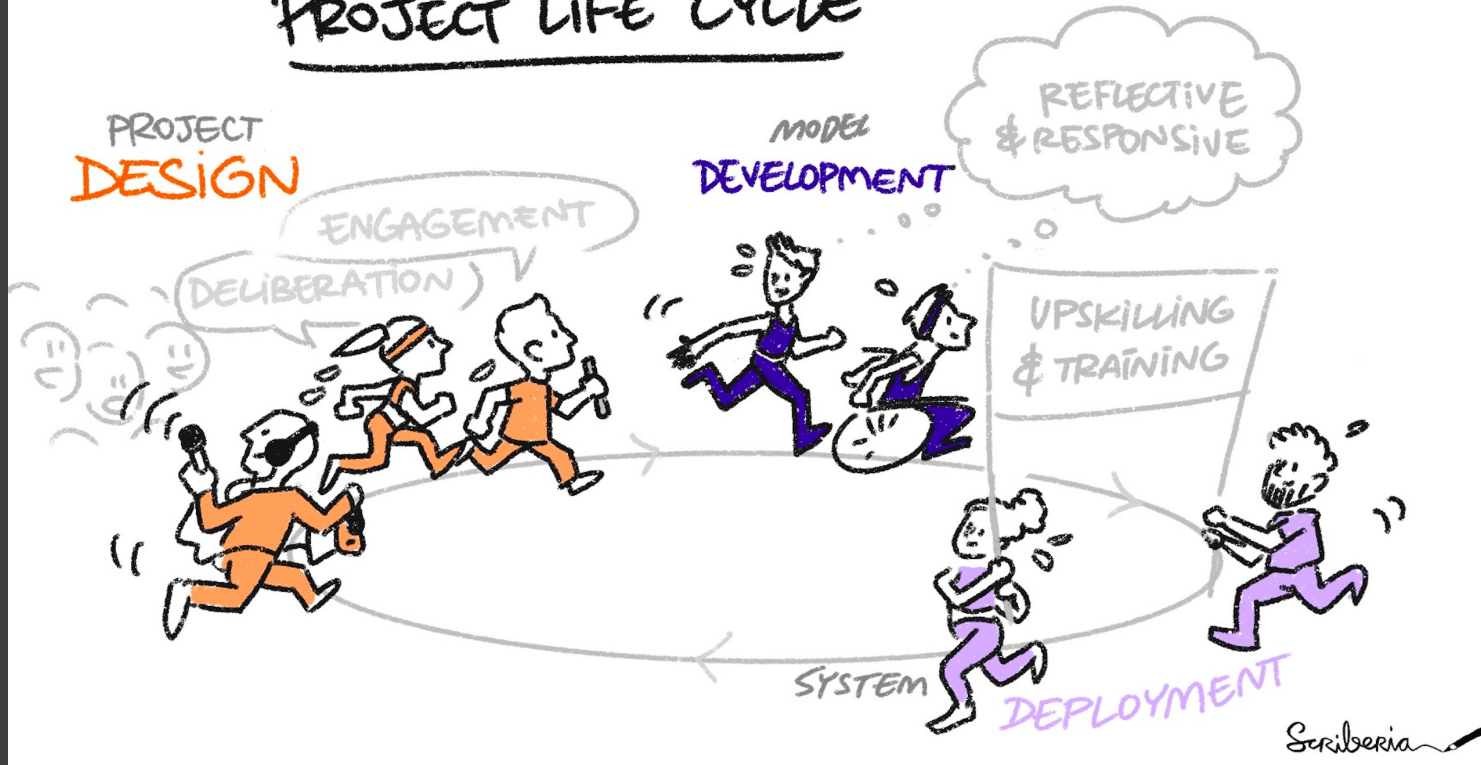
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Ethical Research

Researchers in data science have an obligation to consider the ethical standards and their impact of people's lives.



PROJECT LIFE CYCLE



Guide for Ethical Research ^

Introduction to Research Ethics

Research Ethics Committees

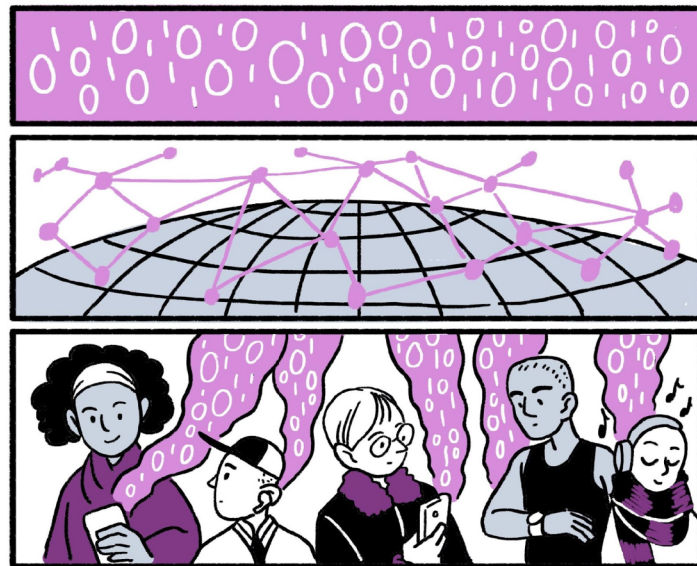
Workflows

Ethical Decisions in Preclinical
Research

Law, Policy and Human Rights
in Ethics v

Activism for Researchers v

Internal Policy Advocacy



DATA ARE PEOPLE

Scriberia 

Core contributors: Laura Carter, Ismael Kherroubi-Garcia, Arielle Bennett, Laura Acion

Areas of ethical concerns:

1. Project description
2. Data & Methodology
3. Consent
4. Privacy & Security
5. Societal Consequences



Ismael-KG

Researchers and data scientists should ensure that they respect, protect, and fulfil human rights.



! Attention

This is not legal advice. Please read for information only!

Read the legal-disclaimer for why you should not use The Turing Way for legal advice.



LauraCarter

BECOMING
A MEMBER



BETTER!

REPRESENTING
OTHER MEMBERS
IN NEGOTIATIONS

EVEN
BETTER!



Arielle-Bennett



LauraCarter

ENGAGING WITH YOUR UNION.



*The questions we ask,
the analysis we
conduct the patterns
are heavily influenced
by the lenses by which
we view the world.*

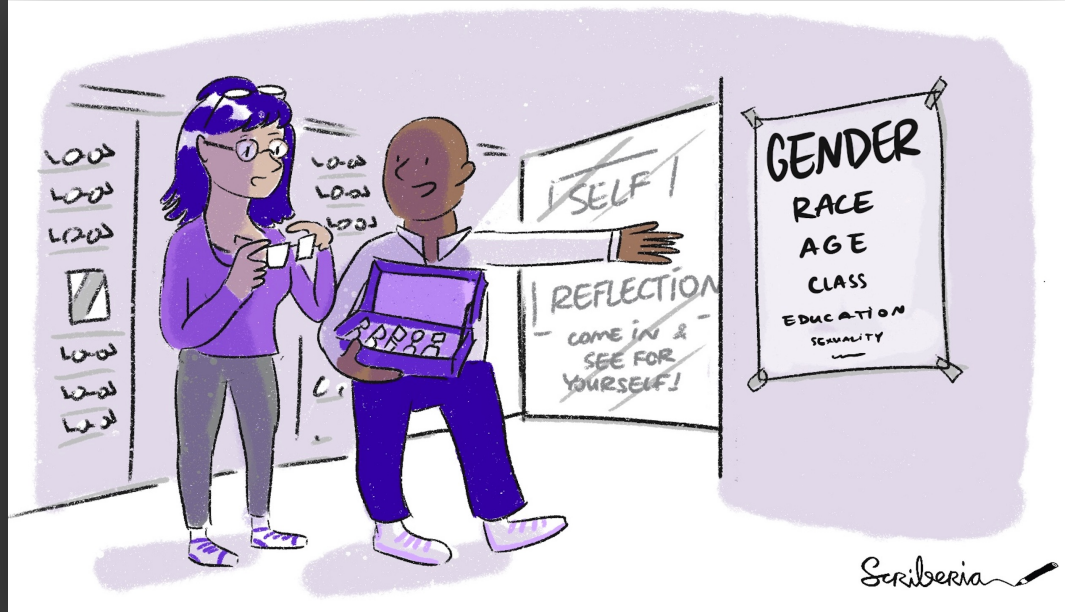
Draft by Nina Di Cara



[WIP] Self-reflection prompts on ethical research practice #1919

Open

ninadicara opened this issue on 18 May · 3 comments



The Turing Way GitHub issue: <https://github.com/alan-turing-institute/the-turing-way/issues/1919> ,

Haraway, D. (1988). Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.

Ricker, B. (2017, February 04). Reflexivity, Positionality and Rigor in the Context of Big Data Research.

[INVITATION] Data Feminism meets _The Turing Way_ #1205

Open

malvikasharan opened this issue on 10 Jun 2020 · 5 comments



malvikasharan commented on 10 Jun 2020 · edited

“Data Feminism” has not only shed light on imbalanced power structures underlying data science but also started a timely discussion around research ethics.



The Turing Way Community Framework

We avoid individual authorship in favour of establishing shared ownership and agency in this project. The project belongs to the community and is always a ‘work in progress’.



Open leadership is a set of practices and skills people can use and build projects that allows them to collaborate within inclusive communities.

Design for Collaboration



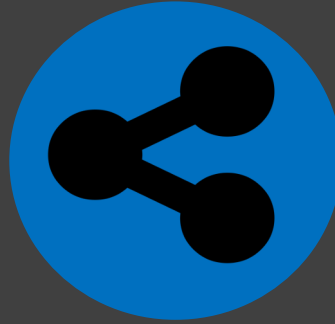
Understanding

Your work is clear, authentic
and widely accessible

Design for Collaboration



Understanding



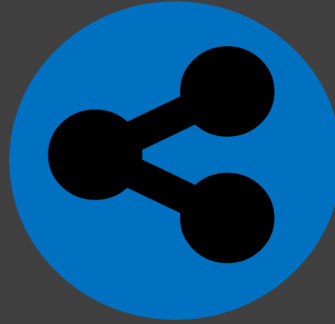
Sharing

Your work can be adapted,
reproduced, and built upon

Design for Collaboration



Understanding



Sharing

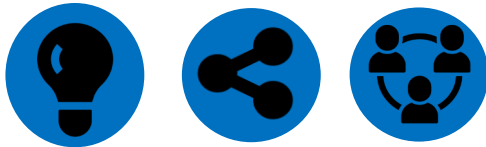


Participation & Inclusion

Creates a shared ownership
that inspires contributions

Every contribution counts

The Turing Way fosters a culture of collaboration



Open Leadership principles

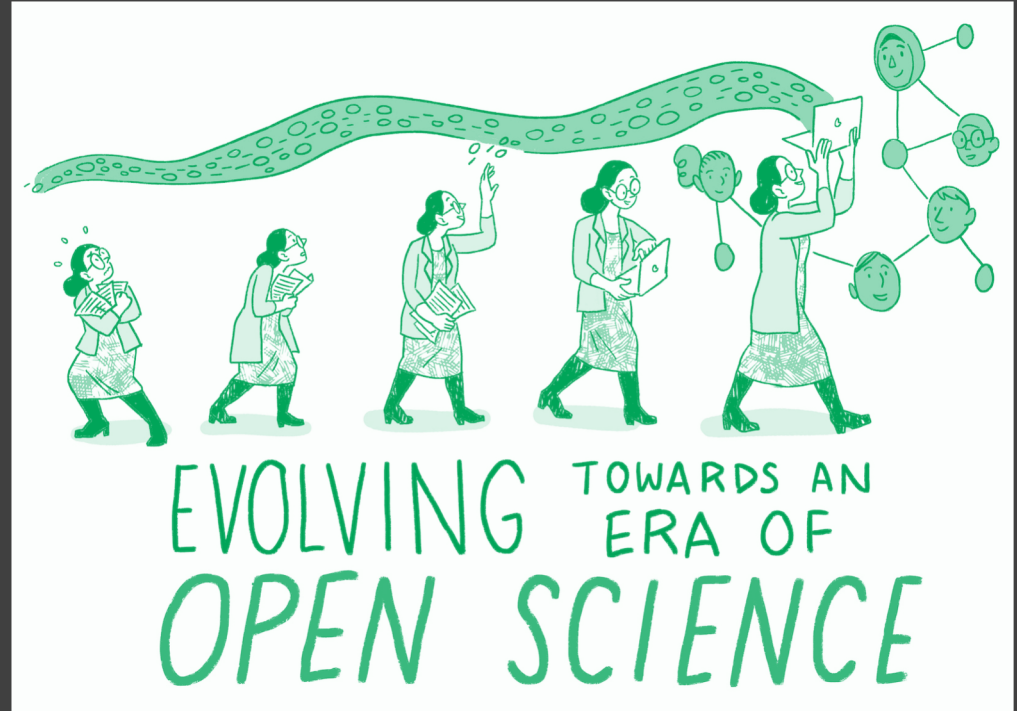
Scriberia 

Building an Open and Collaborative Community

Open is by default not:

- Inclusive
- Accessible
- Community-led

Intentional designing



Pathways for Collaboration



Develop & share



Maintain & improve



Share resources



Review and update

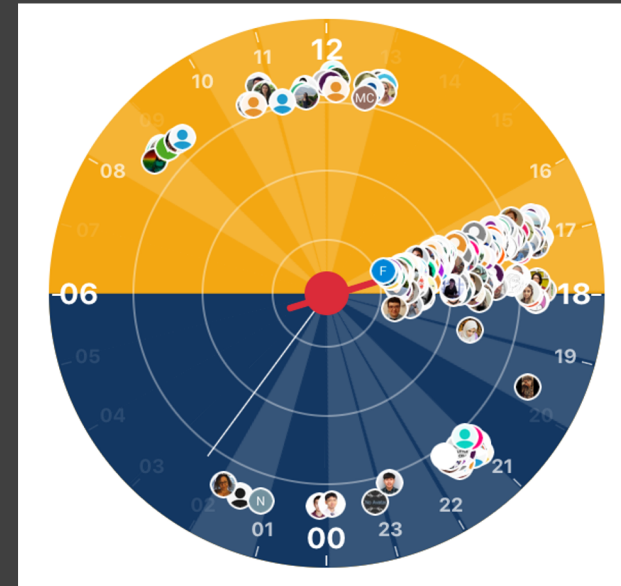
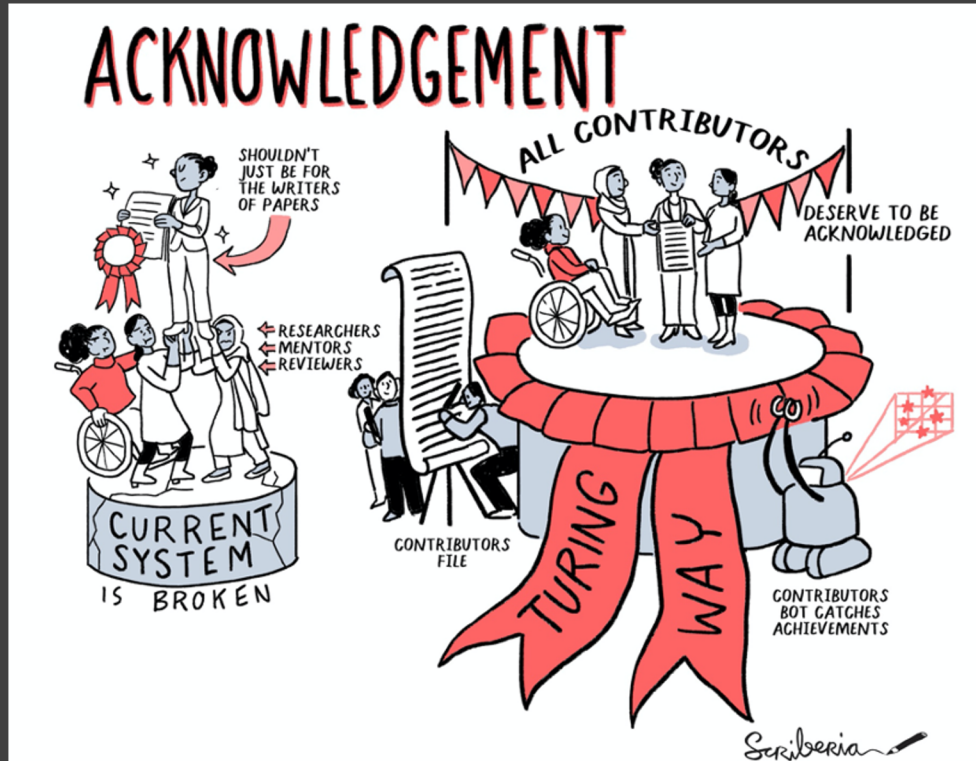


Make it global



Share best practices

A community-oriented collaborative book



Community members from Slack in different time zones



Book:
the-turing-way.netlify.app/

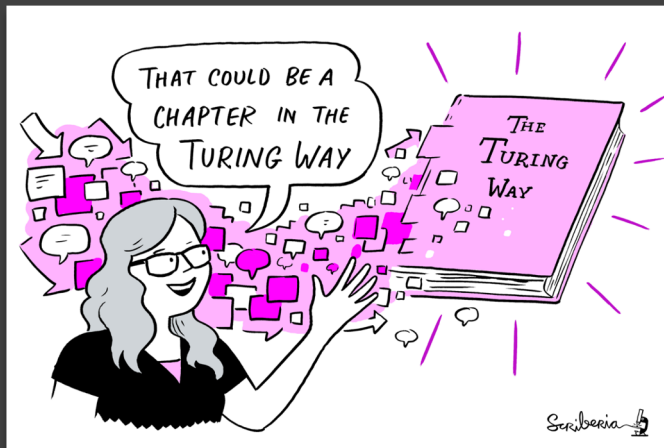
GitHub:
github.com/alan-turing-institute/the-turing-way

Twitter:
twitter.com/turingway

Email:
theturingway@gmail.com

CC-BY 4.0, *The Turing Way*

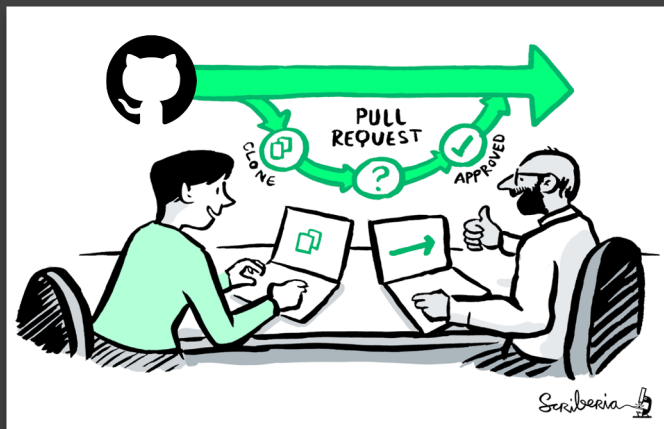
A Book with Five guides



A Community



An Open Source Project



A Culture of Collaboration



Notable Impacts Beyond the project

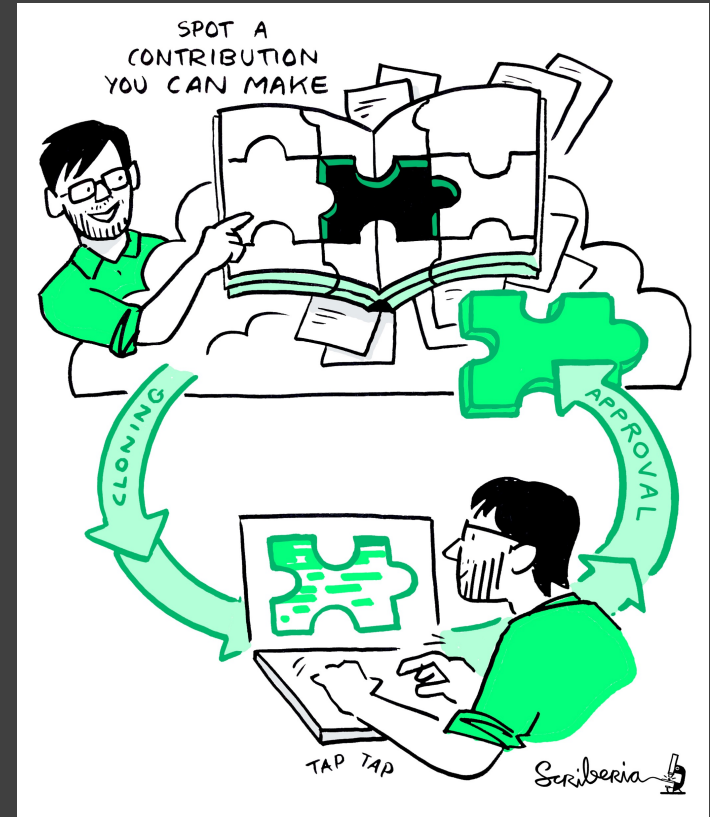
Resources are being used by learners, educators, community builders, policy makers and researchers globally

- Reproducibility of scientific results in the [EU 2020 \(report\)](#)
- An Emerging Technology Charter by [Mayor of London \(policy\)](#)
- Innovation Scholars: [UKRI grant 2020 \(funding\)](#)
- CodeRefinery and Library Carpentries ([training materials](#))
- Projects by data scientists including at the [Office for National Statistics](#)
- Cited by [10+ peer-reviewed articles](#) & [10+ open source projects](#)

Meeting you where you are!

- i. Join the community
- ii. Learn a new skill
- iii. Share your skills
- iv. Collaborate with others
- v. Mentor others' contributions
- vi. Represent this community

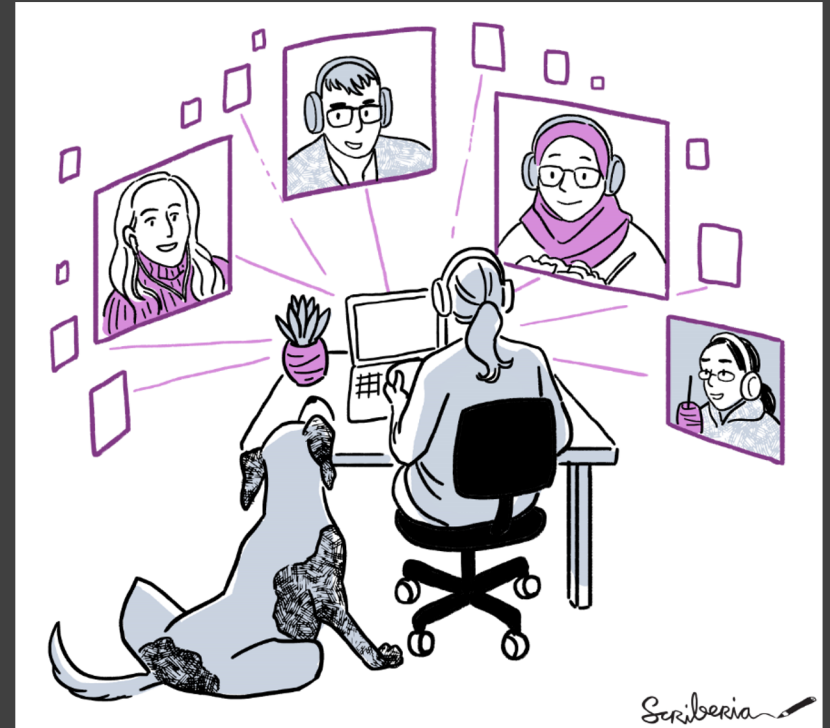
We value your participation!



Join a Community Event

- *Collaboration Cafes*
 - 1st & 3rd Wednesdays (14:00 UTC)
- *Coworking Calls*
 - Mondays (10:00 UTC)
- *Onboarding Calls*
 - Fridays (17:00 UTC)
- *More ways to connect*

bit.ly/turingway



Job Opportunities

- Community Manager, AI for Science and Government
- Senior Community Manager, Early Detection of Neurodegenerative diseases
- Community Manager, Turing Roche Partnership
- More opportunities will be announced

bit.ly/turingway



Open Life Science

Sharing

Connecting

Empowering



@openlifesci

@turingway

Email: team@openlifesci.org

A mentoring & training program for Open Science Ambassadors

Special call under: **OLS-4 for Turing**



1:1 mentoring



Training calls on Open Science

Talks from experts

Break out discussions



Training for mentors

OLS-3 period: February to May 2021

Apply individually or in team to join the cohort

Visit our website: openlifesci.org

OLS-4 Timeline

Application period

15 June - 15 July 2021

OLS-4 Q&A Webinars

Week of 5 July 2021

Cohort announcement

mid-August 2021

OLS-4 Cohort begins

mid-September 2021

OLS-4 Cohort ends

January 2022

The Alan Turing Institute

Acknowledgements:

- Kirstie Whitaker, Whitaker Team Members
- *The Turing Way* community, friends & collaborators
- Book: the-turing-way.netlify.com
- Twitter: twitter.com/turingway
- Newsletter: tinyletter.com/TuringWay
- Chat: gitter.im/alan-turing-institute/the-turing-way
- GitHub: github.com/alan-turing-institute/the-turing-way
- Original artwork by Scriberia: <https://doi.org/10.5281/zenodo.3332807>

