



The Turing Way:

Four Selfish reasons to work openly

By Batool Almarzouq (She/her)

Computational Biologist @batool664







Batool Almarzouq

Post-doc in KAIMRC

Community Lead

Committee member + Organisers









Honorary research Fellow





Core contributor







I will talk about ..

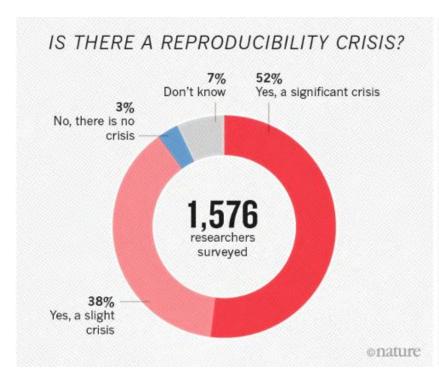
- Why should we care about **Open Science**?
- What is *The Turing Way Community*?
- **Four reasons** why you might want to adopt open Science practices in your research!
- **Tips** to get started now?

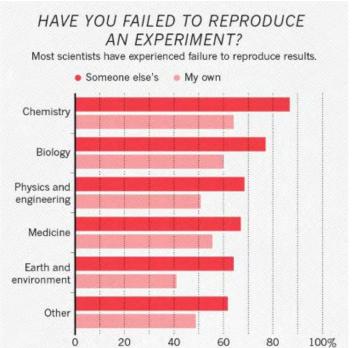






Why Open Science?





Baker, M. 1,500 scientists lift the lid on reproducibility. Nature 533, 452–454 (2016). https://doi.org/10.1038/533452a





Why Open Science?



Evaluating the replicability of social science experiments in *Nature* and *Science* between 2010 and 2015

THE LANCET



The \$28 Billion a Year Research Reproducibility Crisis

Ctober 19, 2015

The biggest crisis in the future of healthcare has nothing to do with the kind of issues that politicians talk about, such as payment systems and accessibility. Since cost-effective solutions to tragic and costly conditions like heart disease, dementia, diabetes, and cancer depend on bringing to market new treatments that rely upon genomics, nanotechnology, and molecular biology, the *biggest* problem is that at least half of the research money we invest in them is wasted. How can this be? What are the implications? What are the solutions? We'll show you.







What is Open Science?





The picture was taken from the <u>UNESCO Open Science brochure</u>lence







What is Open Science?





The picture v

Components of Open Science





The Turing Way

An Open Source project, handbook, community & lots of collaboration!

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



The Turing Way project illustration by Scriberia. Used under a CC-BY 4.0 licence. DOI: 10.5281/zenodo.3332807









Q Search this book...

Welcome

Guide for Reproducible Research

Guide for Project Design

Guide for Communication

Guide for Collaboration

Guide for Ethical Research

Community Handbook

Afterword

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.









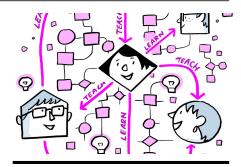
The Turing Way Guides



Reproducibility



Project Design



Communication



Collaboration



Ethical Research



Community Handbook





What is it for me?



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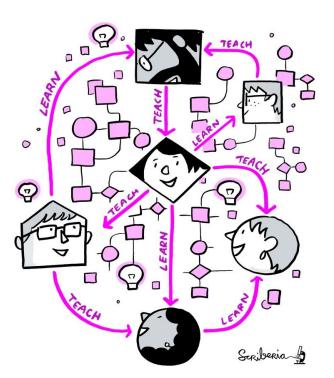






1st Reason



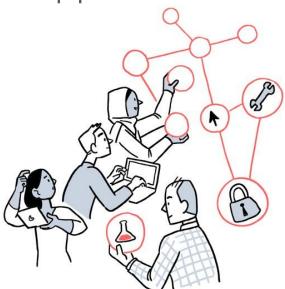


Working openly increase your visibility & opportunities for acknowledgment, collaboration, and advancement

More in "Open Research" Sub-chapter in the TW

2nd Reason

Open science **grants you access** to new data and applications



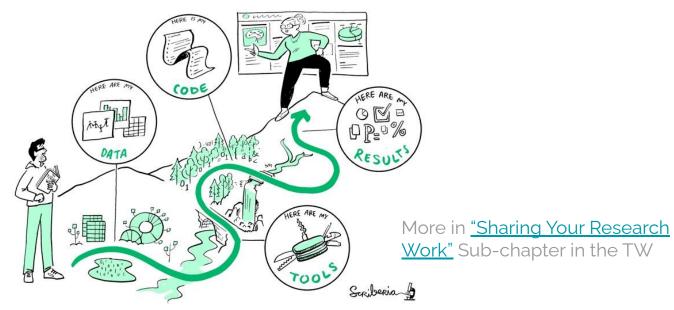
More in "<u>Added Advantages</u>" Sub-chapter in the TW



3rd Reason



Working Openly make reviewing your work easier



4th Reason



Working Openly save you time!



NICE AND READABLE

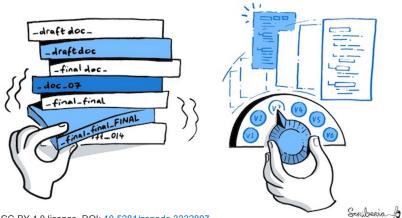
More in "<u>Added Advantages</u>" Sub-chapter in the TW





Tip 1: Use any type of **version control!**

TRACK PROJECT HISTORY



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Tip 1: Use any type of **version control**!



Reference: <u>Library Carpentry: Introduction to Git</u>

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- Version control allows us to define formalized ways we can work together
- It allow us to have a robust and rigorous log of changes to a file, without renaming files (v1, v2, final_copy)
- Allow us to quickly undo a set of changes
- Help you understand the code and debug
- Backup











Git is one of the most widely used version control systems in the world. It is a free, open source tool

GitHub on the other hand is a **popular website for hosting** and sharing Git repositories remotely. It offers a web interface!

Reference: Library Carpentry: Introduction to Git









Batool Almarzouq

BatoolMM

Ph.D. in Biochemistry. Experience in cancer bioinformatics, RNA-Seq, network biology, pathway enrichment, and integrated –omics analyses, Docker, HPC (She/her).

Edit profile

At 45 followers · 89 following · ☆ 371

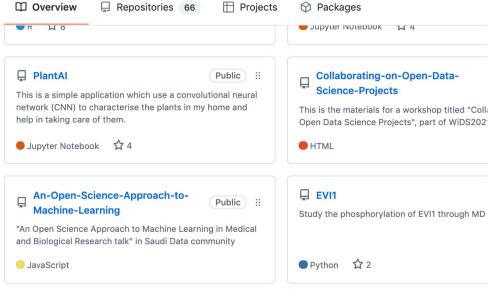
University of Liverpool

https://batool-almarzouq.netlify.app/

@batool664

Highlights

☆ PRO



2,790 contributions in the last year

Contribution settings ▼







Tip 2: Join a community of practice!







And many more!!!



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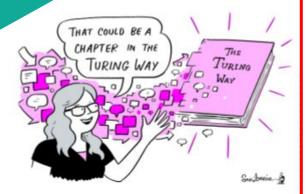
Book:

the-turing-way.netlify.app

GitHub:

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

A Book



An Open Source Project





A Culture of Collaboration







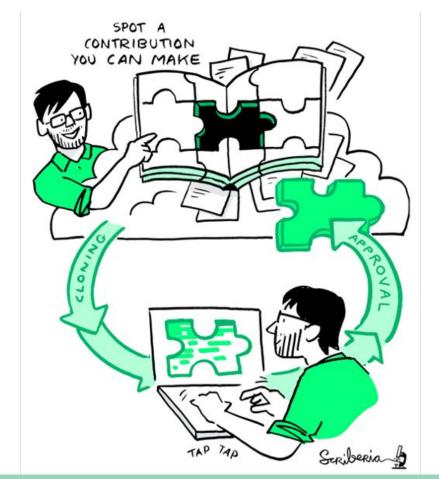
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Meeting where you are!

- I. Connect with others
- II. Learn a new skill
- III. Share your skills
- IV. Discuss ideas & collaborate
- V. Mentor others' contributions
- VI. Represent this community

We value your participation!

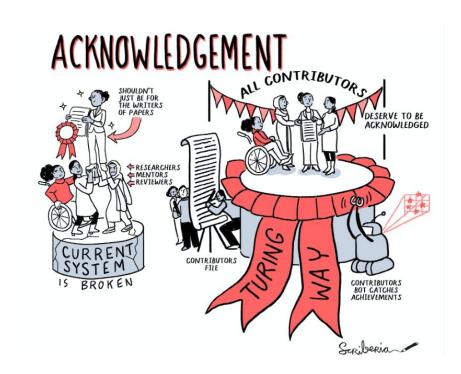






Acknowledging your work

- All-contributors bot to add your name to the README.md
- Adding your personal highlights and impact story in contributors.md
- Published on the afterword of online Contributors Record









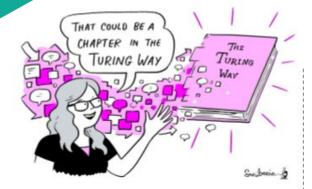
Book:

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GitHub:

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A Book



A Community



An Open Source Project



A Culture of Collaboration











Open Source Project

- Everyone can freely read, reuse, distribute, modify and develop.
- The project belongs to *The Turing* Way community.
- Built on open source infrastructure:
 - Git, Jupyter Book, Binder, Nelify: the-turing-way.netlify.app/welcome







Book:

the-turing-way.netlify.app

GitHub:

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

A Book



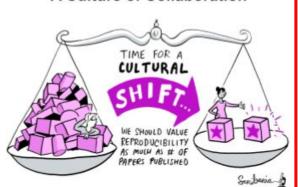
A Community

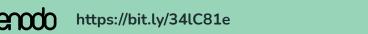


An Open Source Project



A Culture of Collaboration









Every contribution counts

The Turing Way fosters a

culture of collaboration







Open Leadership principles





Pathways for Collaboration

MENTORED CONTRIBUTIONS



Develop & share



Review and update



Maintain &



Make it global



Share resources



Share best practices

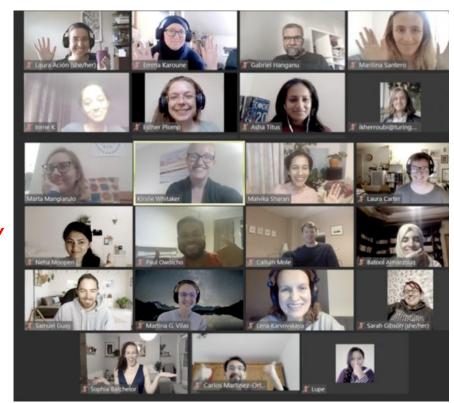


Bookdash Share-out

A book sprint is a method of creating a book collaboratively in an intense five days work

Join us this <u>Friday</u> for The Turing Way Community Share-out and Contributor Celebration

- Open/Free to everyone
- Two Sessions: 11:00 am 17:00pm





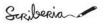


Conclusion

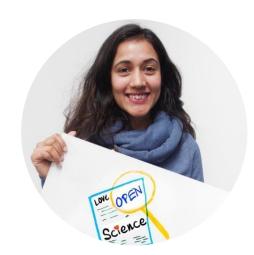
"Making research results openly available is not an afterthought when the project is over, but, rather, it is an effective way of doing the research itself."

Open Science by Design: Realizing a Vision for 21st Century Research. Washington, DC: The National Academies Press.https://doi.org/10.17226/25116.





Acknowledgment



Malvika Sharan, Co-lead, Senior Researcher



Kirstie Whitaker, Project Lead, Director



Mai Alajaji, Associate Dean



Mealle Salmon, R-Ladies Global Committee



All The Turing Way Community

Resources:

- How Open Science Helps Researchers Succeed
- Markowetz, F. Five selfish reasons to work reproducibly. Genome Biol 16, 274 (2015). https://doi.org/10.1186/s13059-015-0850-7
- Allen C, Mehler DMA (2019) Open science challenges, benefits and tips in early career and beyond. PLOS Biology 17(5): e3000246.
 https://doi.org/10.1371/journal.pbio.3000246



