

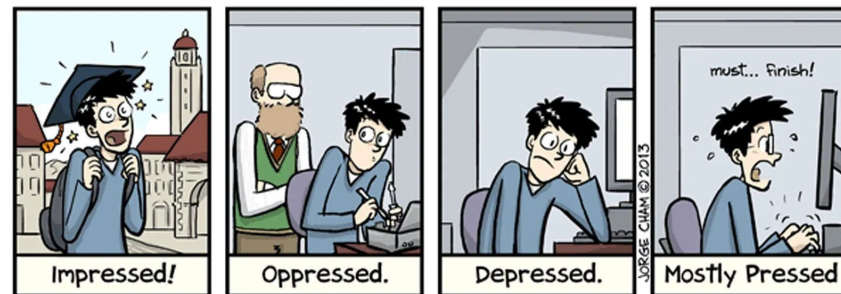


Practices to Improves Visibility and Outputs for Postgraduate Students!

By Batool Almarzouq (She/her)
Computational Biologist @batool664



Grad School:



WWW.PHDCOMICS.COM

Batool Almarzouq

Post-doc in KAIMRC



Community Lead



Committee member + Organisers



Honorary research Fellow



Core contributor



Organiser for Tutorial Series



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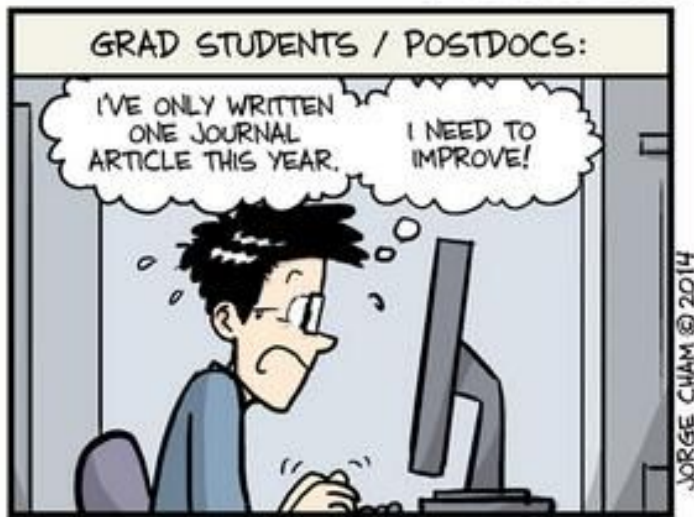


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Does this sound familiar to you?



Credit: phdcomics.com

THE EVOLUTION OF ACADEMIA



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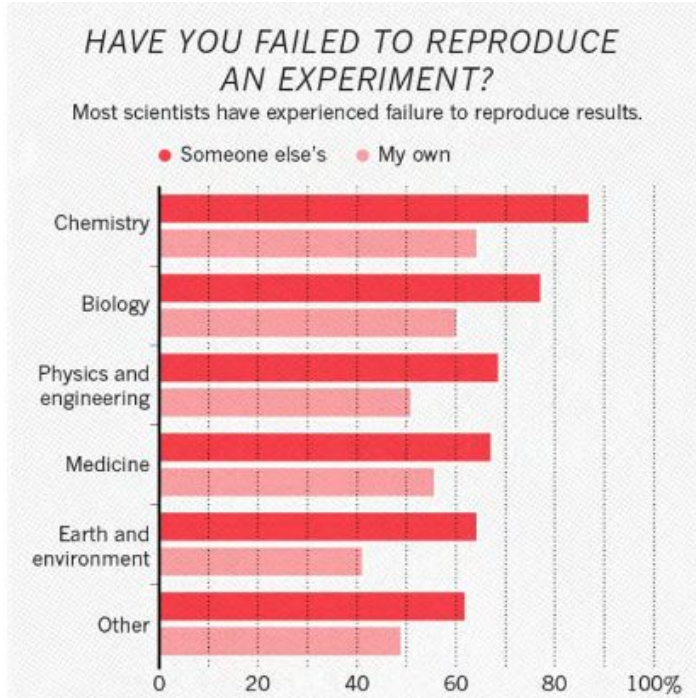


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Reproducibility Crisis



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



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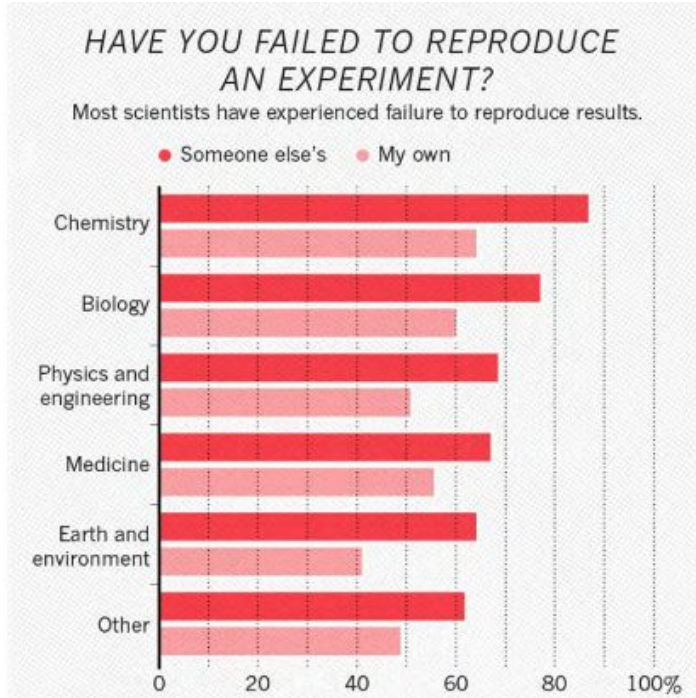


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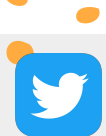


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Reproducibility Crisis



nature
human behaviour

LETTERS

<https://doi.org/10.1038/s41562-018-0399-z>

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

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SCIENCE

Psychology's Replication Crisis Is Running Out of Excuses

Another big project has found that only half of studies can be repeated. And this time, the usual explanations fall flat.

By Ed Yong

The \$28 Billion a Year Research Reproducibility Crisis

📅 October 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.



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What can we do to increase the visibility and reproducibility of my work!

Three tips increase the visibility and reproducibility of our work!

- 1- Adopt Open Science Practices
- 2- Incorporate Modern Tools in your research
- 3- Join a community of Practise



Open Science **misconceptions** !

Open science \neq **Giving away your work**

Open science \neq Open without license

Open science \neq Everything if Free



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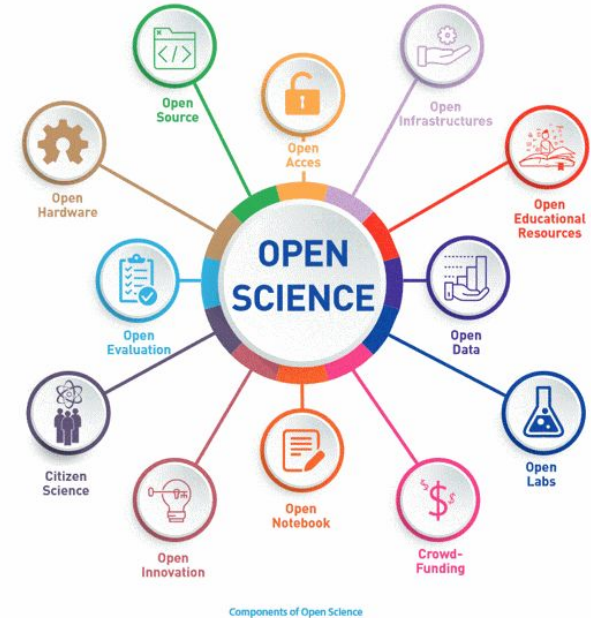
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What is Open Science Practices !

‘**Open Science**’ is an **umbrella** term that encompasses various practices to increase the **visibility, the transparency, useability** of the scientific work.

The ongoing **COVID-19 pandemic** has been **instrumental** in holding a **mirror to scientists and policymakers**, underlining the **importance** of adopting open science practices.

Image from UNESCO
recommendations



Components of Open Science



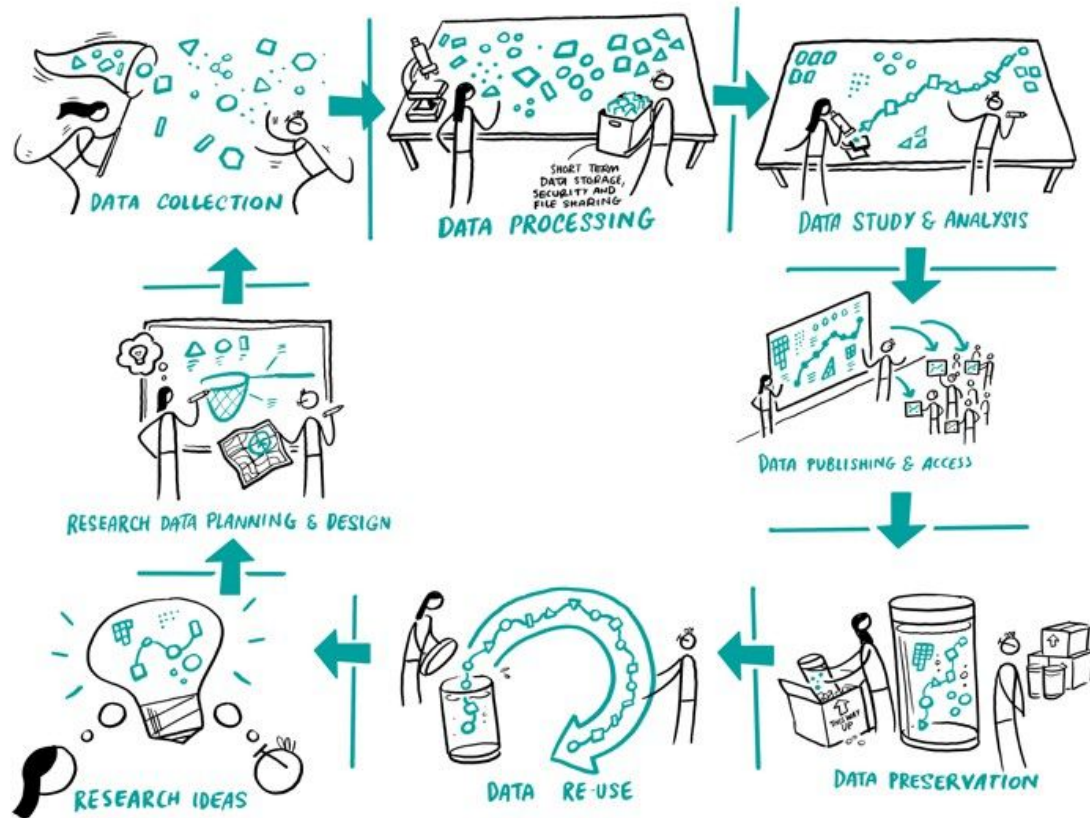
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Publish **all** the research cycle!

How?

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- Protocols -> Deposit in Repositories
- Data -> FAIR Data
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EXTERNAL LINK
<https://www.nature.com/articles/s41467-018-05347-6>

PROTOCOL CITATION

Johannes JWB Bagnoli, Christoph Ziegenhain, Aleksandar Janjic, Lucas Esteban LEW Wange, Beate Vieth, Swati Parekh, Johanna Geuder, Ines Hellmann, Wolfgang Enard 2018. mcSCR-seq protocol. protocols.io
<https://dx.doi.org/10.17504/protocols.io.nrkd4w>

MANUSCRIPT CITATION please remember to cite the following publication along with this protocol

Johannes W. Bagnoli, et al (2018) Sensitive and powerful single-cell RNA sequencing using mcSCR-seq. *Nature Communications*9:2937. doi: [10.1038/s41467-018-05347-6](https://doi.org/10.1038/s41467-018-05347-6)

PROTOCOL STATUS

Working
We use this protocol and it's working

KEYWORDS
molecular crowding, scRNA-seq, SCR-seq

LICENSE
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WIDGET

DOIs: Aid in **citation tracking**, ensuring a researcher has **accurate metrics** on how and where their research outputs are being used or referenced

License: It describe how the work can be used?

Are others allowed to use it?
Are others allowed to make modifications?



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mcSCR-seq protocol

Steps Guidelines Materials Forks Metadata Metrics

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Working
We use this protocol and it's working

KEYWORDS
molecular crowding, scRNA-seq, SCR-seq

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Johannes W. Bagnoli, Christoph Ziegenhain, Aleksandar Janjic, Lucas E. Wange, Beate Vieth, Swati Parekh, Johanna Geuder, Ines Hellmann & Wolfgang Enard

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May 22, 2018

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Steps Abstract Guidelines Materials Forks More

BEFORE STARTING

Wipe bench surfaces with RNase Away and keep working environment clean.

Preparation of lysis plates

1 Prepare Lysis Buffer according to the number of plates to be filled.

	A	B	C
1 Reagent	96-well plate	384-well plate	
2 NEB HF Phusion buffer (5x)	1.1 µL	4.4 µL	
3 Proteinase K (20 mg/mL)	27.5 µL	110 µL	
4 UltraPure Water	411.4 µL	1645.6 µL	
5 Total	440 µL	1760 µL	



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- Best practise!
- Recommended by many journal
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Credit: www.repro4everyone.org



Morgan Halane
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How to use appropriate Open License?

Conditions



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Make your dataset accessible!

We are surrounded by huge data but it's either **inaccessible** or **unusable!**

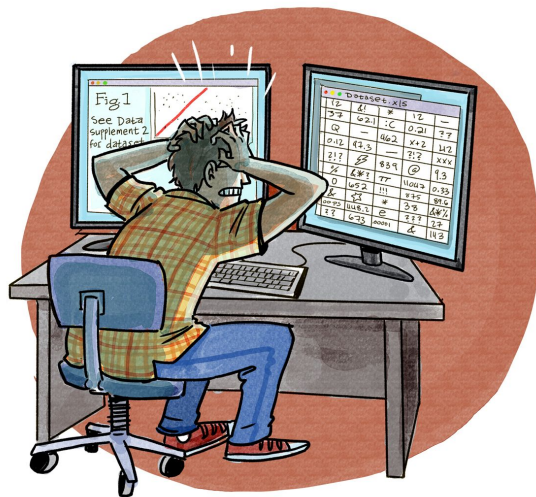


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Make your dataset FAIR!

SCIENTIFIC DATA

Amended: Addendum

OPEN

SUBJECT CATEGORIES

- » Research data
- » Publication characteristics

Comment: The FAIR Guiding Principles for scientific data management and stewardship

Mark D. Wilkinson *et al.*[#]

There is an urgent need to improve the infrastructure supporting the reuse of scholarly data. A diverse set of stakeholders—representing academia, industry, funding agencies, and scholarly publishers—have come together to design and jointly endorse a concise and measurable set of principles that we refer to as the FAIR Data Principles. The intent is that these may act as a guideline for those wishing to enhance the reusability of their data holdings. Distinct from peer initiatives that focus on the human scholar, the FAIR Principles put specific emphasis on enhancing the ability of machines to automatically find and use the data, in addition to supporting its reuse by individuals. This Comment is the first formal publication of the FAIR Principles, and includes the rationale behind them, and some exemplar implementations in the community.

Received: 10 December 2015

Accepted: 12 February 2016

Published: 15 March 2016

Findable 
Accessible 
Interoperable 
Reusable 



FAIR is a set of principles to enhance the value of digital resources!



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Make your dataset accessible!



The Turing Way project illustration by Scriberia. Used under a CC-BY 4.0 licence. DOI: [10.5281/zenodo.3332807](https://doi.org/10.5281/zenodo.3332807)

Steps toward FAIR data:

- Add your data to a **repository**
- Attach a rich **metadata**
- Community-accepted data **formats**
- Add a **license**



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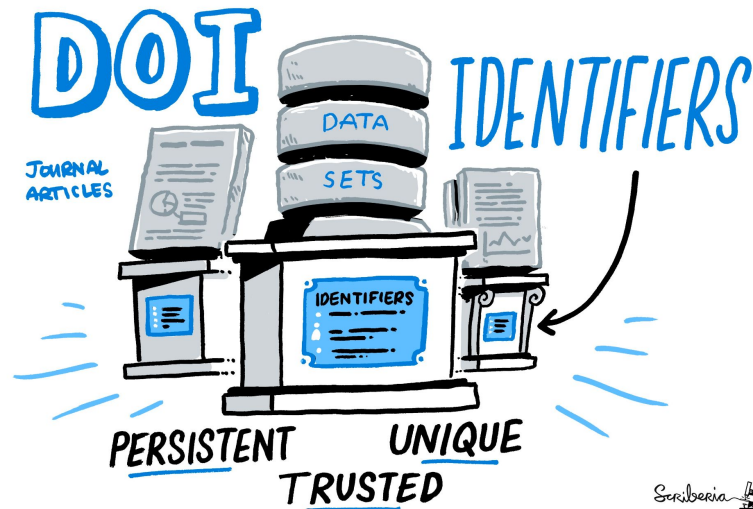
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Make your little activities discoverable!

Upload your activities/talks to a repository!

The repository (in most cases) will attach both a **license** and **DOI**.

- This will increase the **discoverability/visibility** of your work
- This will make your work **citable**
- Provide **metrics** for the use of your work



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Make your little activities discoverable!

The screenshot shows a Zenodo record page. At the top, the Zenodo logo is on the left, and a search bar, 'Upload' button, and 'Communities' link are in the center. On the right, the user 'batool@liverpool.ac.uk' is logged in. The record title is 'Reflection on Open Science practices and Research Software in the Kingdom in alignment with Saudi Arabia's Vision 2030', with a red box around the date 'March 11, 2022'. Below the title is the author 'Batool Almarzouq'. A paragraph describes the content, mentioning 'Saudi Arabia's Vision 2030' and its goals. A yellow box notes the presentation was part of the Asia Pacific Advanced Network (APAN53). A 'Preview' section shows a slide with the title and author. On the right, there are buttons for 'Presentation', 'Open Access', and 'Edit'. Below these, it says 'New version'. A 'Communities' section lists 'Open Science Community' and 'Saudi Arabia'. A statistics box shows '103 views' and '79 downloads'. Below that, it says 'Indexed in OpenAIRE'. At the bottom right, the 'Publication date' is 'March 11, 2022' and the 'DOI' is '10.5281/zenodo.6345895', both highlighted with red boxes.

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March 11, 2022 Presentation Open Access Edit

New version

Communities Open Science Community Saudi Arabia Remove

103 views 79 downloads See more details...

Indexed in OpenAIRE

Publication date: March 11, 2022 DOI: 10.5281/zenodo.6345895

Reflection on Open Science practices and Research Software in the Kingdom in alignment with Saudi Arabia's Vision 2030

Batool Almarzouq

Saudi Arabia's Vision 2030 has been the main driver for the growth of research (including research software) in the last few years. Vision 2030 is a reform plan and a package of economic and social policies designed to level up the research ecosystem in pursuit of a knowledge-based economy. The talk will present the local initiatives that introduce best practices in research software in the kingdom and will also address the economic value in alignment with Vision 2030 and the challenges in research software sustainability in the region.

This talk was presented with Research Software Alliance (ReSA) as part of Asia Pacific Advanced Network (APAN53)

Preview

VISION 2030
SAUDI ARABIA
Reflection on Open Science practices and Research Software in the Kingdom in alignment with Saudi Arabia's Vision 2030
By Batool Almarzouq (She/her)

This section shows the 'Share' and 'Cite as' options. The 'Share' section has icons for various social media and sharing services. The 'Cite as' section provides a citation template: 'Batool Almarzouq. (2022, March 11). Reflection on Open Science practices and Research Software in the Kingdom in alignment with Saudi Arabia's Vision 2030. Zenodo. https://doi.org/10.5281/zenodo.6345895'. A red box highlights the 'Cite as' section.

Share

Cite as

Batool Almarzouq. (2022, March 11). Reflection on Open Science practices and Research Software in the Kingdom in alignment with Saudi Arabia's Vision 2030. Zenodo. https://doi.org/10.5281/zenodo.6345895

Start typing a citation style...



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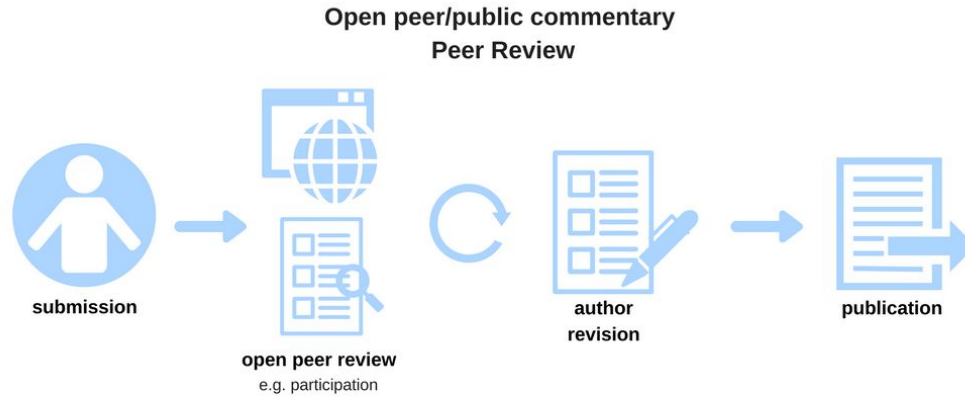


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Participate in Open Peer Review!



Credit: www.fosteropenscience.eu

Open peer review is "**any scholarly review mechanism providing disclosure of author and referee identities to one another at any point during the peer review or publication process**".



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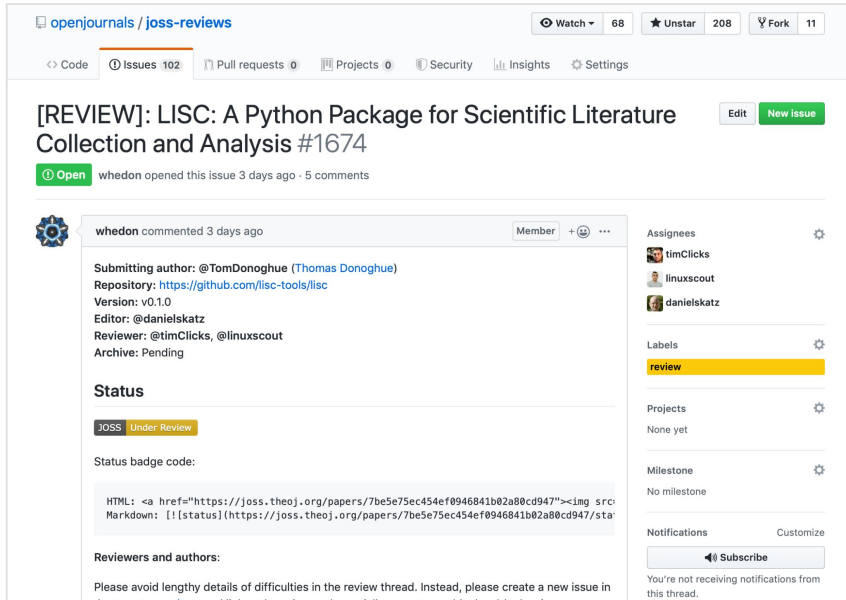


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Participate in Open Peer Review!



The screenshot shows a GitHub issue page for 'openjournals / joss-reviews'. The issue title is '[REVIEW]: LISC: A Python Package for Scientific Literature Collection and Analysis #1674'. It is marked as 'Open' and was opened by 'whedon' 3 days ago with 5 comments. The issue content includes submission details: author @TomDonoghue, repository <https://github.com/lisc-tools/lisc>, version v0.1.0, editor @danielskatz, reviewer @timClicks and @linuxscout, and archive status 'Pending'. The status is 'Joss Under Review'. A status badge code is provided. A code block shows HTML and Markdown for the status badge. Reviewers and authors are listed at the bottom, with a note to avoid lengthy details in the review thread.



TriP: A Python package for the kinematic modeling of serial-parallel hybrid robots

Jan Baumgärtner¹ and Torben Miller²

1 Heidelberg University 2 Independent Researcher

DOI: [10.21105/joss.03967](https://doi.org/10.21105/joss.03967)

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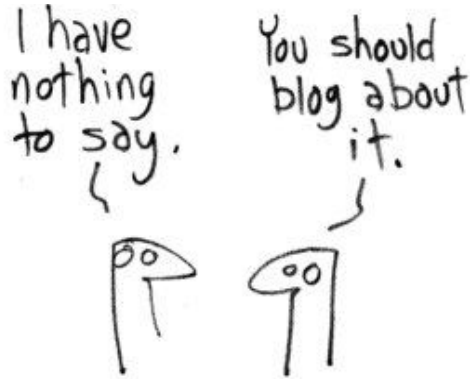
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Oct 23, 2020 · 3 min read ·  Listen



How to scrape google images and build a deep learning image dataset in 12 lines of code?

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I play at the crossroads of data science, bioinformatics, and life. I enjoy applying deep learning to biological problems. Ph.D from the University of Liverpool
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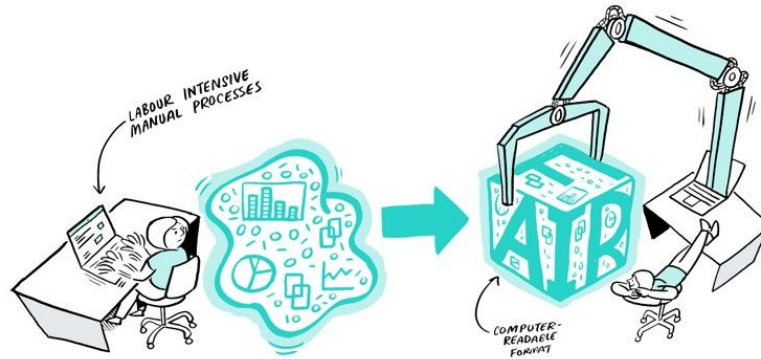
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Summary for Tip 1: Adopt Open Science Practices

- Deposit your protocols to **a repository** (e.g. Protocols.io)
- Always add **a license** and **DOI** to your work
- Make your data **FAIR**.
- Make your talks/activities **discoverable**
- Participate in **Open Review**
- Blogging!



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- Blogging!

Tip 2: Incorporate Modern Tools in your research



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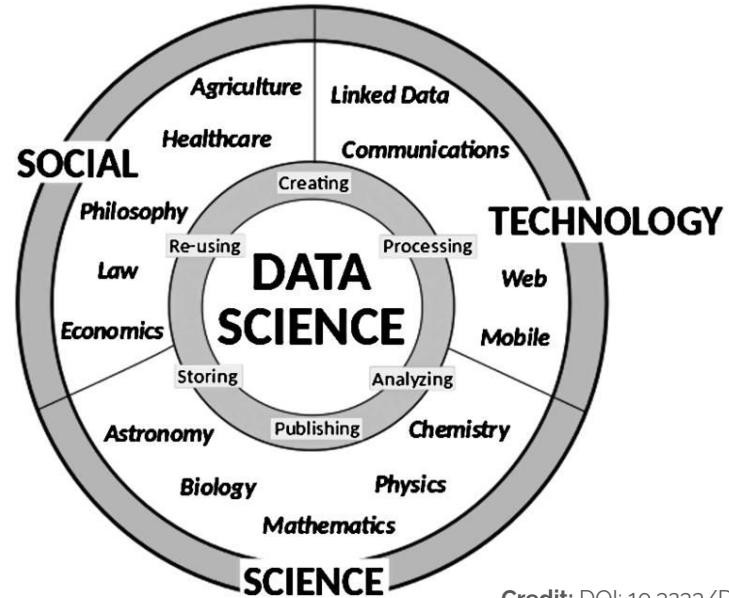


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Tip2: Incorporate Modern Tools in your research

Coding is **needed** in **any** discipline:

- Law
- Biology
- Mathematics
- Physics
- Chemistry
- Social sciences
- Linguistics
- ...etc



Credit: DOI: 10.3233/DS-170004



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Tip2: Incorporate Modern Tools in your research

How to **start** coding?

1. Start with a course!



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Tip2: Incorporate Modern Tools in your research

How to **start** coding?

1. Start with a course!



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Tip2: Incorporate Modern Tools in your research

How to **start** coding?

1. ~~Start with a course!~~
2. Start with a use case for your project!
 - a. Copy/Paste!



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Tip2: Incorporate Modern Tools in your research

How to **start** coding?

1. ~~Start with a course!~~
2. Start with a use case for your project!
 - a. Copy/Paste!
3. Watch YouTube Video to understand **ONLY** basics!
 - a. Variables
 - b. Data structures
 - c. If/else statement
 - d. Functions



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Tip2: Incorporate Modern Tools in your research

How to **start** coding?

- ~~1. Start with a course!~~
2. Start with a use case for your project!
 - a. Copy/Paste!
3. Watch YouTube Video to understand **ONLY** basics!
 - a. Variables
 - b. Data structures
 - c. If/else statement
 - d. Functions
4. Again **apply** it in your project



Tip2: Incorporate Modern Tools in your research



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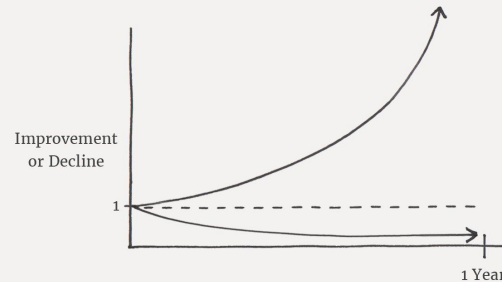
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The Power of Tiny Gains

1% better every day $1.01^{365} = 37.78$

1% worse every day $0.99^{365} = 0.03$



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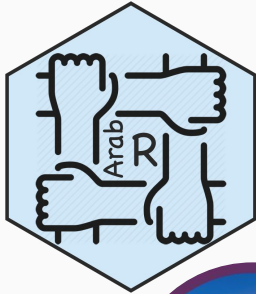


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Tip2: Incorporate Modern Tools in your research



A huge R community who meet up regularly to provide resources and teach newcomers to get started with R

More than 400 chapters around the world. [Here is more details!](#)



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Tip2: Incorporate Modern Tools in your research

R Community Explorer | R Calendar

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RStudio Community

R-GSoC

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Twitter - R Conferences

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Filter Calendar **All R User Groups Worldwide** < > today March 2022 month week day list

March 2, 2022 Wednesday

all-day Montreal R User Group: Convergence 2022 [Virtual] , Canada, US/Canada

March 3, 2022 Thursday

all-day R-Ladies Bariloche: GRUPO 3. TALLER DE ESTUDIO LIBRO "R PARA CIENCIA DE DATOS" [Virtual] , Argentina, Latin America

March 9, 2022 Wednesday

all-day Montreal R User Group: DSS Austin: AI & ML in the Enterprise (Virtual + In-Person Pop-Up Event), Canada, US/Canada

all-day R Users Group, Gainesville, FL: R Learning Community (novice) [Virtual] , United States, US/Canada

March 10, 2022 Thursday

all-day R-Ladies Freiburg: Coming soon! [Virtual] , Germany, Europe

March 15, 2022 Tuesday

all-day R User Group Rhein-Neckar: March 2022: Startup Meeting of the Year [Virtual] , Germany, Europe

all-day R-Ladies St. Louis: Creating Dynamic Reports from your Shiny App [Virtual] , United States, US/Canada

March 16, 2022 Wednesday

all-day R User Group - Philippines: #98 Ensemble Forecasting with Dr. Peter Cayton [Virtual] , Philippines, Asia

March 17, 2022 Thursday

all-day R-Ladies Bariloche: GRUPO 3. TALLER DE ESTUDIO LIBRO "R PARA CIENCIA DE DATOS" [Virtual] , Argentina, Latin America

all-day R-Ladies Montreal: R-Ladies Meeting: TBC, Canada, US/Canada

all-day R-Ladies Montreal: R-Ladies Meeting: TBC, Canada, US/Canada



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Tip2: Incorporate Modern Tools in your research

When you code, use any type of **version control**!



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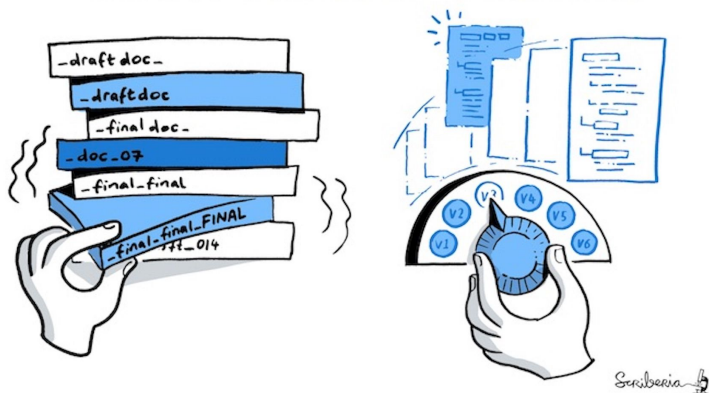


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TRACK PROJECT HISTORY



The Turing Way project illustration by Scriberia. Used under a CC-BY 4.0 licence. DOI: [10.5281/zenodo.3332807](https://doi.org/10.5281/zenodo.3332807)



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Why Version Control?



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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



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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!




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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).

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📖 University of Liverpool

🔗 <https://batool-almazrouq.netlify.app/>

🐦 @batool664

Highlights

☆ [PRO](#)

Overview Repositories 66 Projects Packages

Jupyter Notebook 4

PlantAI Public

This is a simple application which use a convolutional neural network (CNN) to characterise the plants in my home and help in taking care of them.

Jupyter Notebook ☆ 4

Collaborating-on-Open-Data-Science-Projects

This is the materials for a workshop titled "Collaborating on Open Data Science Projects", part of WIDS202

HTML

An-Open-Science-Approach-to-Machine-Learning Public

"An Open Science Approach to Machine Learning in Medical and Biological Research talk" in Saudi Data community

JavaScript

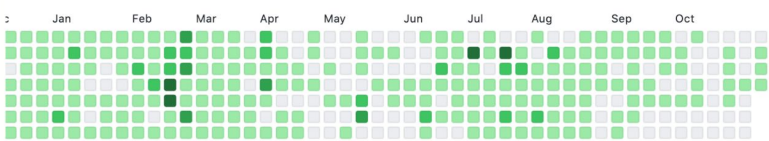
EV11

Study the phosphorylation of EVI1 through MD


Python ☆ 2

2,790 contributions in the last year

Contribution settings ▾



Learn how we count contributions

Less  More



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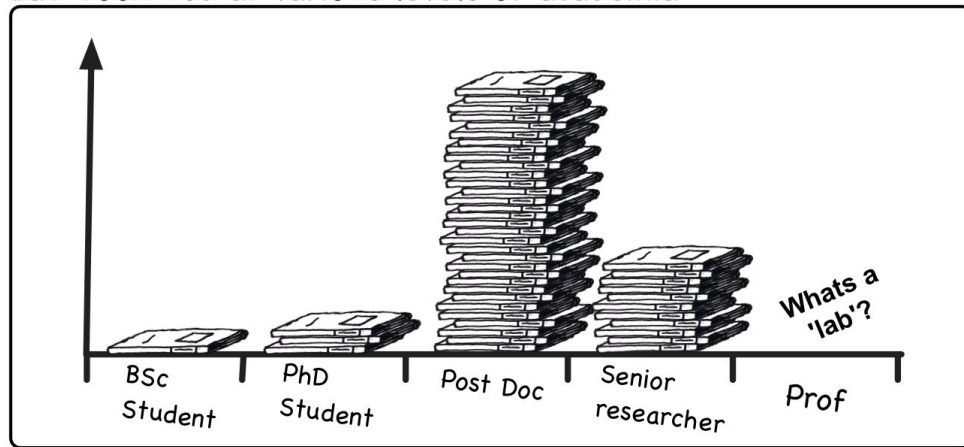


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Tip2: Incorporate Modern Tools in your research

Credit: www.repro4everyone.org

Lab book use at various levels of academia



Resources: errantscience.com



Not searchable!

Can be easily **damaged**, misplaced, not easy to back up



Hard to share with collaborators



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Tip2: Incorporate Modern Tools in your research

Use Electronic Lab notebooks (ELN)



Easily **shareable** with collaborators and broader community

Be kind to the future you!



Cartoon by Phil Johnson for MIT

Credit: www.repro4everyone.org



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Tip2: Incorporate Modern Tools in your research

Features	Specifications															
	Benchling	Biovia	Confluence	Doccollab	ECL	ELOG	Evernote	Exemplar	Findings	Hivebench	IBDS	LabArchives	LabCollector	LabWare	LabVantage	LabV
Interactivity																
Intuitive Interface Design	+	No response received	+	+	No response received	No response received	No response received	No response received	+	+	+	No response received	No response received	+	+	+
Auto Metadata Harvest	+	No response received	+	+	No response received	+	No response received	No response received	+	+	+	No response received	No response received	+	+	+
Search Functions can search across file formats and legend types	+	+	+	+	No response received	+	No response received	+	+	+	+	No response received	No response received	+	+	+
Ability to manipulate files and images	+	No response received	+	+	No response received	No response received	No response received	+	+	+	+	No response received	No response received	+	+	+
Support for multiple open windows	+	+	+	+	No response received	+	No response received	+	+	+	+	No response received	No response received	+	+	+
Ability to link out	+	No response received	+	+	+	+	+	+	+	+	+	No response received	No response received	+	+	+
Support for Researcher Documentation																
Hyperlink support	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Metadata Creation Prompts	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Rights Management (licensing)	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Protocol Integration	+	+	+	+	No response received	+	+	+	+	+	+	+	+	+	+	+
Adaptability to Lab workflows																
Accounts/Permissions Levels	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	+	+	+	+
Internal Data Sharing	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adaptable to a Variety of Workflows	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	+	+	+	+
Compatibility with authoring tools	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Windows Compatible	+	No response received	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Macintosh Compatible	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Linux Compatible	+	+	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Android Compatible	+	No response received	+	+	No response received	+	+	+	+	+	+	+	+	+	+	+
iOS Compatible	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Storage																
Cloud Storage	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	+	+	+	+
Local Storage	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Hybrid (cloud/local) Storage	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Versioning	+	+	+	+	No response received	+	+	No response received	+	+	+	+	+	+	+	+
File Redundancy	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	+	+	+	+
Creates stable URIs or persistent identifiers for entries	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Can computerized users access the data found at persistent links	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Storage Capacity - Users	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+
Storage Capacity - Max File Size	+	No response received	+	+	No response received	+	+	No response received	+	+	+	+	No response received	No response received	+	+

<https://datamanagement.hms.harvard.edu/electronic-lab-notebooks>

Default view + Add view				Filter Sort		New	
Electronic Lab Notebook							
Title	Tags	Lat edited by		Column 1			
Soil Sample Collections		January 1, 2022 12:53 AM		Batool Almarzouq			
Soil Storage		January 1, 2022 12:54 AM		Batool Almarzouq			
eDNA Samples Preparation for PCR Screening		February 3, 2022 3:07 AM		Leena S. ALMehlis			
PCR targeting-Ads		January 1, 2022 12:55 AM		Batool Almarzouq			
MiSeq Sequencing		January 1, 2022 12:55 AM		Batool Almarzouq			
Bioinformatics Screening		February 16, 2022 10:30 AM		Batool Almarzouq			
eDNA extraction for COSMID Library		January 1, 2022 12:56 AM		Batool Almarzouq			
COSMID library construction		January 1, 2022 12:57 AM		Batool Almarzouq			
eDNA sample Storage		January 1, 2022 12:58 AM		Batool Almarzouq			
Summary of the results		December 30, 2021 10:21 AM		Batool Almarzouq			



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Tip 1: Adopt Open Science Practices

- Deposit your protocols to **a repository** (e.g. Protocols.io)
- Always add **a license** and **DOI** to your work
- Make your data **FAIR**.
- Make your talks/activities **discoverable**
- Participate in **Open Review**
- Blogging!

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- Be kind to yourself and use ELNs



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Tip 3: Join a Community of Practise (CoP)



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Tip3: Join a Community of Practise (CoP)

Pay fees to **join a community** or a society!

Receive a discount for events and newsletter



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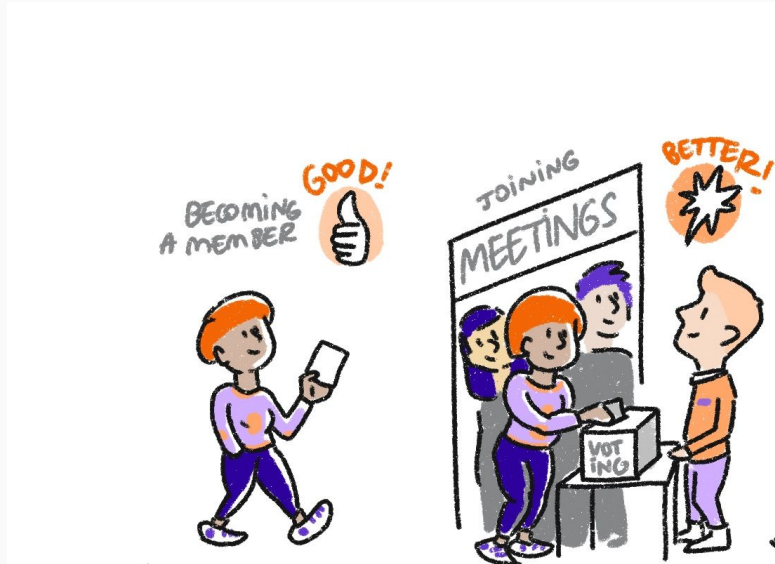


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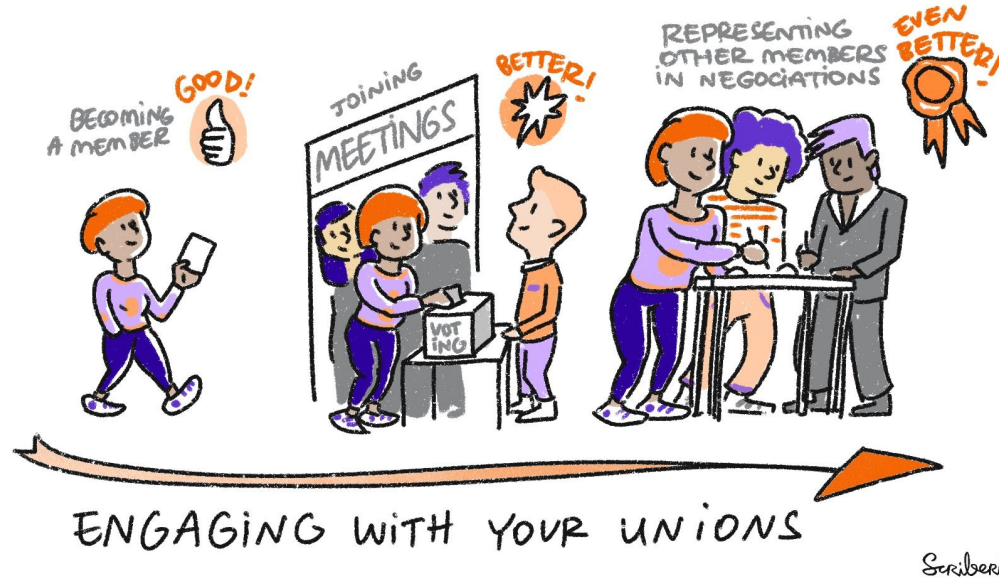


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And many more!!!

- Not join but actively participate
- Co-organising conferences/events
- Hosting sessions
- **Examples (R community, Turing Way, OSCSA)**



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Tip3: Join a Community of Practise (CoP)



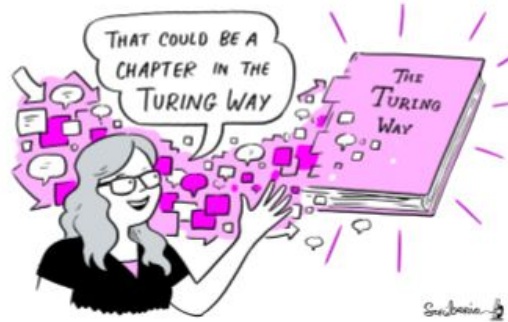
Book:

the-turing-way.netlify.app

GitHub:

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

A Book



An Open Source Project



A Community



A Culture of Collaboration



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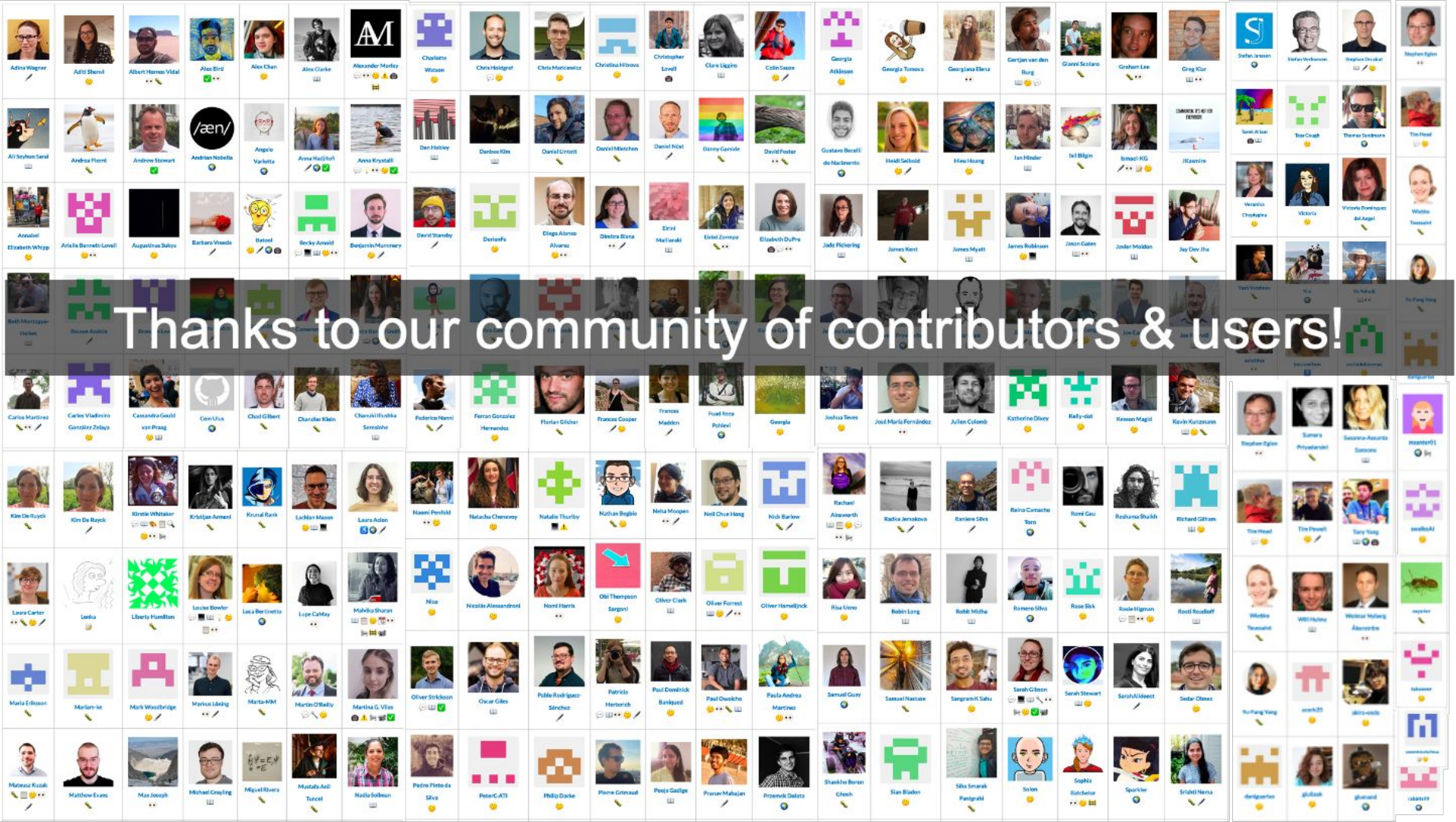
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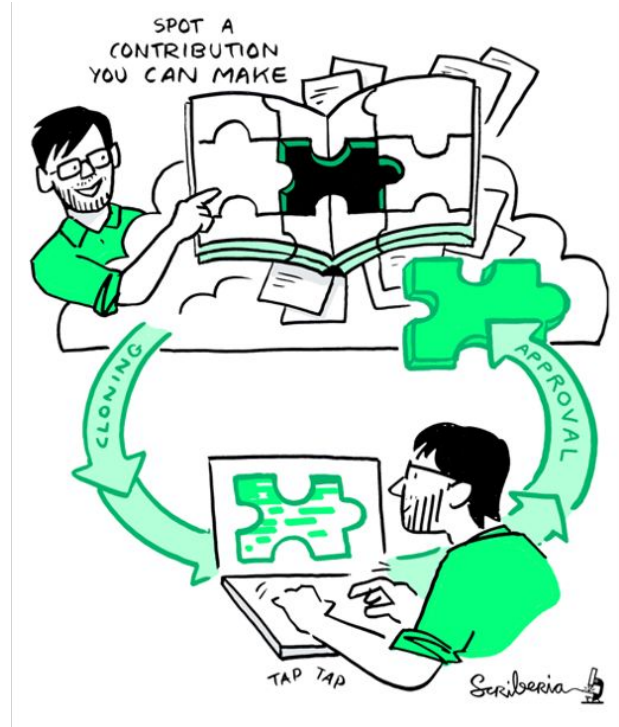


Thanks to our community of contributors & users!

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!



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رؤية 2030

المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

OSCSA
Open Science Community Saudi Arabia



مجتمع العلوم المفتوحة في المملكة العربية السعودية تم إنشاؤه تماشياً مع رؤية المملكة العربية السعودية لعام 2030، والتي تركز على تثبيت القيم و تعزيز المعرفة وتحسين تكافؤ فرص الحصول على التعليم

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مجتمع العلوم المفتوحة في السعودية هو جزء من الشبكة العالمية لمجتمعات العلوم المفتوحة



The International Network of Open Science Communities (INOSC)



Overview of the current Open Science Communities. As of May 2021, the International Network of Open Science Communities (INOSC) comprises Open Science Communities at 11 locations in the Netherlands, 1 in Ireland, 1 in Sweden, and 1 in Saudi Arabia. Image by [Anita Eerland](#), licensed under [CC BY-ND 3.0](#).



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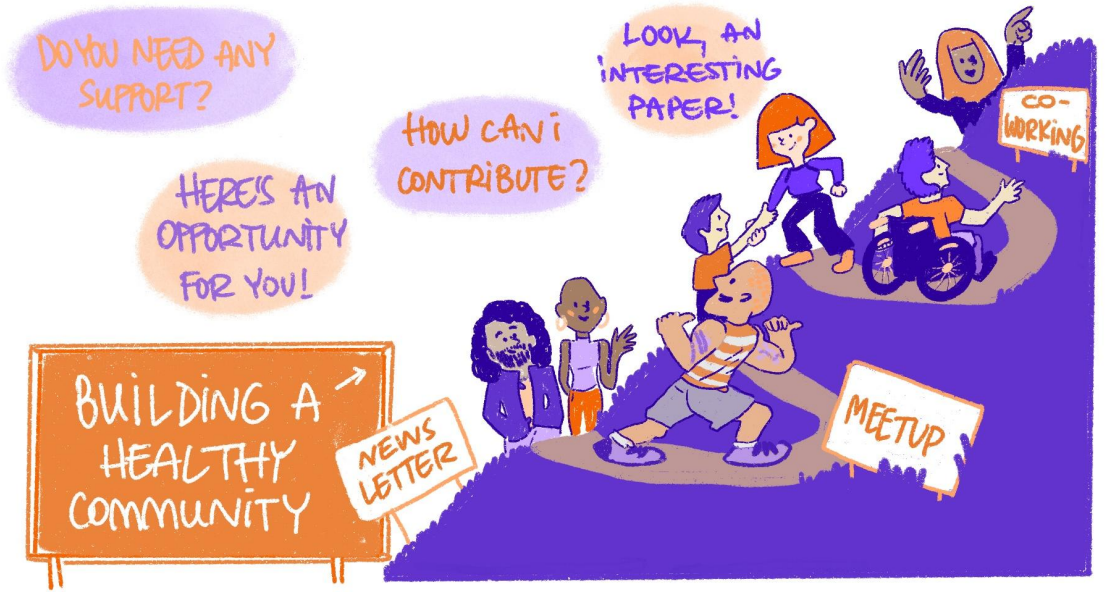
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Open Science Community Saudi Arabia

- Introduce resources about Open Science in Arabic.
- Connect local researches with the global community and increase their visibility
- **Provide training on best practices on research softwares.**



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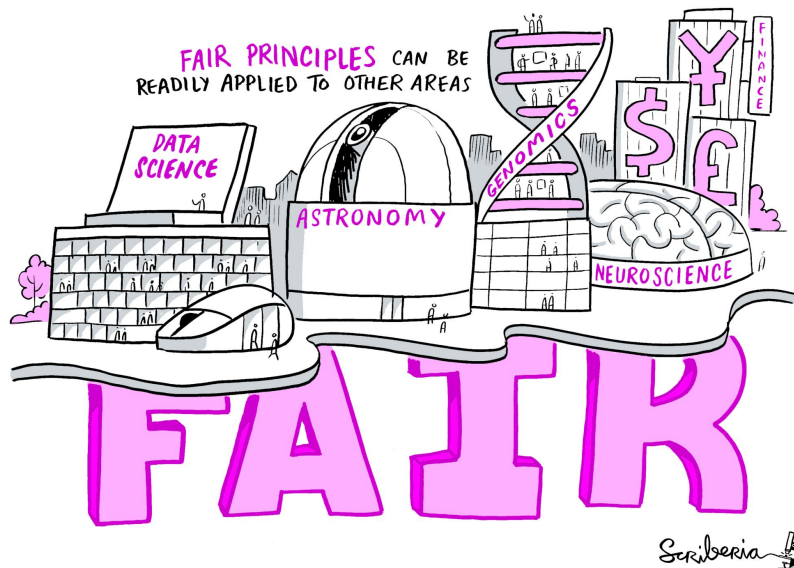
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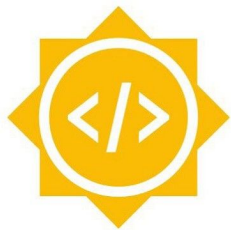
Code for
Science &
Society



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We are exploring limitation of the current digital infrastructure to **adopt FAIR data practice** in Arabic-speaking countries by identifying the needs of the local community towards recommendations that can **drive new policy that fosters a FAIR data culture.**

Google Summer of Code



Contribute to Open Source + Build your portfolio +Learn new skills +Get paid



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Conclusion!

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Your CV!



Credit: phdcomics.com



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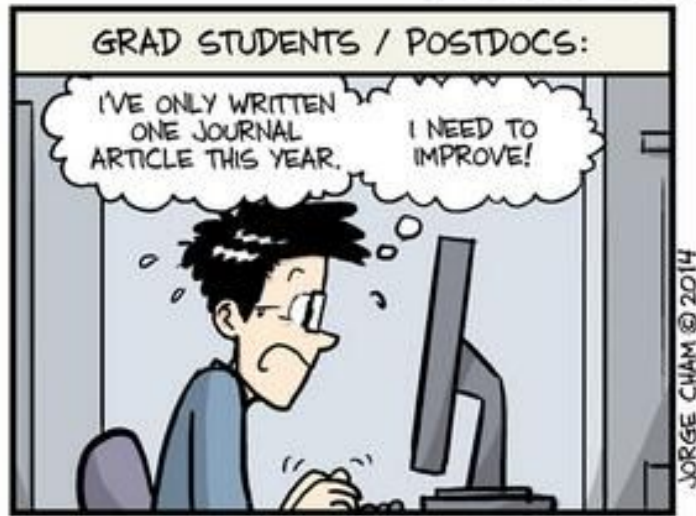


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Credit: phdcomics.com



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Your CV!

- Cited Protocols
- Developing Codes
- Contributing to Open Source
- Build a Portfolio in GitHub
- Developing R Packages
- Blog posts
- Shaping community
- Organising events/conferences
- Actively working with the international community!



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شكرا جزيلا



All GIFs are re-used from GIFY.com



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