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Making Biomedical Research Software Findable, Accessible, Interoperable, Reusable (FAIR) with FAIRshare

Why Make Software Reusable?

Software has become an essential part of biomedical research

Data processing, analysis, visualization, computational modeling, etc.



Research software: Python scripts, Jupyter notebooks, R code, Web apps, etc. that are integral parts of a research outcome.

Making research software reusable is therefore crucial to:



Ensure reproducibility of research results



Increase the pace of scientific progress

What's the Problem?

No clear actionable guidelines are available to make software reusable!

The FAIR4RS Principles provide a framework but remain general, for example:

- "Software is described with rich metadata"
- "Software must have a clear and accessible license"

Review of the 4,000+ biomedical repositories created in 2021 on GitHub:



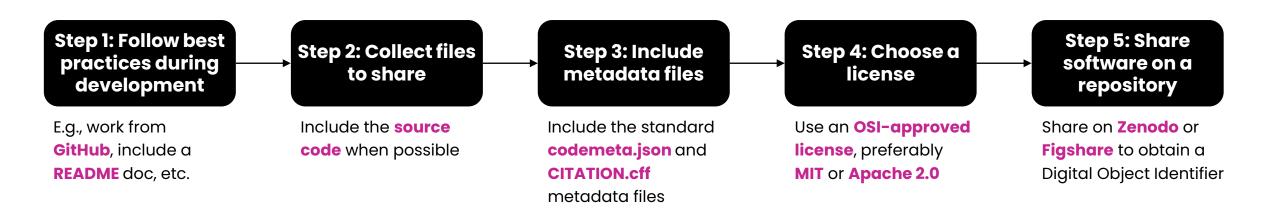


Don't have any standard high-level metadata files (codemeta.json or CITATION.cff)

Our Solution: FAIR-BioRS guidelines

Actionable guidelines for making biomedical research software FAIR as per the FAIR4RS Principles

Based on a review of relevant literature and resources (including NIH guidelines)
 Details available in our preprint: https://doi.org/10.1101/2022.04.18.488694



• Open for community feedback https://github.com/fairdataihub/FAIR-BioRS-quidelines

Our Solution: FAIRshare



Cross-platform desktop software

https://github.com/fairdataihub/FAIRshare



Open source and free (MIT license)



Goal: Simplify for researchers the process of making biomedical research data and software FAIR



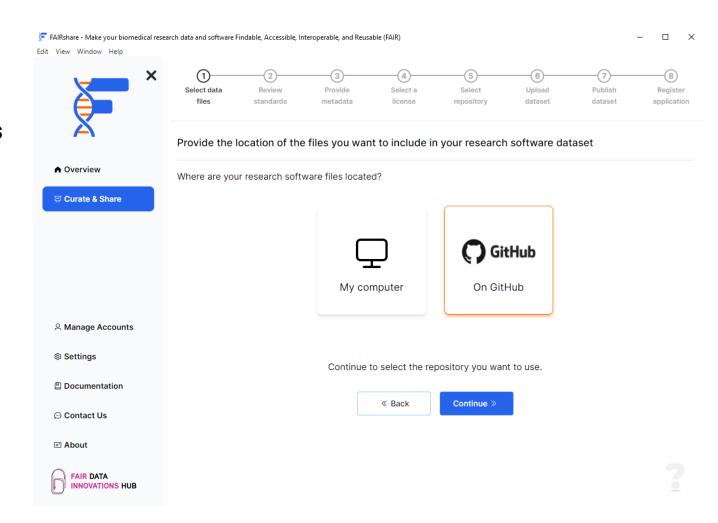
How? Combine intuitive user interface and automation

Our Solution: FAIRshare



Includes a workflow for guiding users step-by-step into making their biomedical research software FAIR as per the FAIR-BioRS guidelines

- Works with software files located on the computer or on GitHub
- Provides convenient interface to enter metadata and automatically create codemeta.json and CITATION.cff files
- Provides intuitive interface to select a license and view license terms
- Supports sharing on Zenodo and Figshare
- And much more!



Takeaways

What do we need to do?

Optimize the reusability of biomedical research software

How do we do it?

Follow the FAIR-BioRS guidelines

What can make our life easy?

FAIRshare is available to assist

How can everyone help in this effort?

Use FAIRshare and provide feedback on the FAIR-BioRS guidelines!

Thank you!



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