

# **FAIR-BioRS: Actionable Guidelines for Making Biomedical Research Software FAIR**

**Bhavesh Patel, Ph.D.**  
Associate Research Professor



CALIFORNIA MEDICAL  
INNOVATIONS INSTITUTE



FAIR DATA  
INNOVATIONS HUB

Co-authors: Sanjay Soundarajan, Hervé Ménager, Zicheng Hu

# What Are Research Software?

Any software created **during the research process**  
**or for a research purpose**



Newsflash (not): It is important to make research software reusable!

# How to Make Research Software Reusable??

**FAIR** (Findable, Accessible, Interoperable, Reusable) Principles



FAIR Data Principles  
(2016)



FAIR Principles for Research  
Software a.k.a. FAIR4RS  
Principles (2022)

# Challenges

The FAIR4RS principles do **not provide actionable instructions**

Principle F1: Software is assigned a globally unique and persistent identifier



What identifier? How to get one?

# Our Solution

## FAIR Biomedical Research Software (FAIR-BioRS) Guidelines

Minimal, actionable guidelines for complying  
with each of the FAIR4RS principles



Literature  
review



Our  
assessment



External  
feedback

# Super Condensed Version of the Guidelines

1. Prior to starting the development
  - ☐ Work from **GitHub** (or similar)
  - ☐ Include license terms in a file called **LICENSE.txt/md**
2. During development
  - ☐ Have **code-level documentation**
  - ☐ Record dependencies (e.g. in a **requirements.txt** file for Python code)
3. Documentation
  - ☐ Maintain the documentation in a file called **README.md/txt**
  - ☐ Document changes between different versions of the software in a file called **CHANGELOG.md/txt**
4. Metadata
  - ☐ Include **codemeta.json** and **CITATION.cff** metadata files
5. Sharing
  - ☐ Share on a **deployment repositories** (e.g. PyPI), archive on a DOI-issuing repository (e.g., **Zenodo**) and on **Software Heritage**
6. Registering
  - ☐ Register on **bio.tools**

# FAIR-BioRS Guidelines



Full guidelines: [github.com/fair-biors](https://github.com/fair-biors)



Each step of the guidelines include clear instructions, specific suggestions, and links to supporting resources



A crosswalk is available between FAIR4RS and FAIR-BioRS

# Cool What's Next?

**We need community support!**

Let's make biomedical research software FAIR together



Like the guidelines?  
Use them!



Don't like the guidelines?  
Help improve them!



[github.com/fair-biors](https://github.com/fair-biors)



# Thank You!



[bpatel@fairdataaihub.org](mailto:bpatel@fairdataaihub.org)

Find these slides and  
all resources here

