REPRODUCIBLE RESEARCH RESULTS

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Problem statement

Due to the increasing complexity of research environment, lack of availability of data, algorithms & source code and no standardized operating procedures, it is largely not feasible to reproduce findings based on published material in peer-reviewed articles.

In this project, we aim to implement a reproducibility layer across the different research groups and define a framework to help academic institutions in achieving a similar environment. Ultimately, the goal of reproducible science is to provide the reader with all the information required to accurately reproduce scientific results.

R3 supports multiple groups and various projects throughout LCSB

Increase quality of research with the R3 reproducibility layer

Goals of the reproducible research layer

Structured data (confidentiality, integrity, availability)

Source code versioning

Managed computational environment

Standard operating procedures for data handling

Legend

Traditional
Reproducible

Reviewer

Carry out experiments

Analysis

Results

Data

Collaborate / Discuss

Traditional research

Reproducible research layer

Backups

Ensure that your data is never lost

Database

Support and develop adequate storage for your data

GitLab

Source code

Push and pull with everyone

Galaxy

Workflow manager

Transform your workflow into an easy to use and share web interface

Virtual machine

Strengthen your research with more computational power

docker

Freeze

Freeze your program and make it reproducible

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