Call for Papers
on
Canonical Workflow Frameworks for Research

Abstract Submission Deadline: March 1st, 2021

Data Intelligence (https://www.mitpressjournals.org/loi/dint) is seeking papers for a special issue devoted to "Canonical Workflow Frameworks for Research". Deadline for abstract submissions: March 1, 2021.

Call for Papers: Canonical Workflow Frameworks for Research

The journal is seeking papers describing practical experience on the design and deployment of effective workflows, supporting major phases of the research data lifecycle; especially those phases surrounding (either side of) the core activities of experimentation, data processing and analysis i.e., those phases concerned with hypothesis and investigation planning, data management planning, organization and operation, reproducibility planning, provenance recording, and data curation and publication in successive steps.

A workflow refers to a sequence of activities used with regularity in the research process. Workflows may be more or less based on use of computer tools and some tasks may be done manually.Mixed workflows with computers and humans 'in the loop' are frequently used. Modern trends in data science indicate clearly that automated workflows or workflow fragments will make data practices in data labs much more efficient. Looking at the practices in different laboratories across multiple discipline, it is evident that common workflow patterns exist, but are in most labs not currently facilitated by technical tools. Further, scientifically motivated workflows empowered by FAIR Digital Objects[1] could help the researcher in his/her daily work, making many steps more efficient by using automated workflow methods that would immediately create FAIR compliant data without bothering the researcher with details. These Canonical Workflow Frameworks for Research (CWFR)exploit common patterns to build on top of existing workflows. They offer libraries of components and are based on FAIR Digital Objects as the integrative standard. CWFR components can be reusable independent of particular technologies such as the Common Workflow Language, Jupyter notebooks, Taverna or any other orchestration or description technology which is existing or will emerge over time according to new needs and fashions. For more details about the concept of CWFR, please, have a look at the CWFR Position paper

[1]De Smedt K, Koureas D, Wittenburg P. FAIR Digital Objects for Science: From Data Pieces to Actionable Knowledge Units. Publications. 2020 Jun;8(2):21. https://doi.org/10.3390/publications8020021

(https://osf.io/3rekv/), the CWFR examples that have been worked out so far (https://osf.io/umhy5/) and/or at the CWFR Use cases presented at the CWFR workshop (https://osf.io/9ut4p/).

This special issue welcomes submissions from researchers, data professionals, data managers and curators, IT specialists and others who are using, developing, or experimenting with the effective use of canonical workflows and workflow patterns for data intensive research. Submissions from lab researchers and practitioners are particularly encouraged, as are contributions from industry and open-source movements.

Submissions can be made in one of four categories or can bridge across topics, as follows:

1. **CWFR and the use of FAIR Digital Objects**. FAIR Digital Objects offer a viable vehicle to integrate different components emerging in a distributed manner and for preserving workflow results from one step or fragment of workflow to another, capturing all necessary information to avoid later 're-entry'. We encourage papers dealing with the questions how such FDOs need to be structured and how existing integration standards and best practices are addressing these issues.
2. **CWFR and current workflow technologies**. In particular, the implementation of abstractions needed to decouple from future changes in underlying workflow technologies, languages and engines is of relevance. We encourage papers addressing the question of how research can be protected against the ever-changing technological fashions.
3. **Research-driven workflows**. Practical examples of workflow use cases driven by research that indicate recurring patterns and how these can be addressed with canonical pattern libraries. We encourage papers describing recurring patterns of work within or across institutions and research communities from a researcher point of view even if they have not been implemented yet.
4. **Advanced workflow technology(ies)**. Much workflow technology has been developed during the last decades which seems to be of increasing usability for research purposes. We encourage papers that describe core elements of such technologies and relate the technologies to the core ideas of CWFR.

Submissions can be of two types:

1. **Concept Papers** expound upon the concept of CWFR and its application in view of the current research ecosystem and infrastructure. These papers make a substantial contribution to knowledge and understanding in the subject matter and should be supported by relevant figures and (where appropriate) data.
2. **Practice Papers** report on or critique a specific implementation, design, tool, or context relating to CWFR. Practice Papers can either describe the finished output of a project, or the procedures, protocols, and models of a proposed or in-progress project.

Submission details

Papers should be no longer than 8 pages/3000 words in length for the main text (excluding first page/abstract and references). [To submit an abstract link to…]

Important dates

- March 1, 2021: Extended abstracts due (1-2 pages)

- April 1, 2021: Authors invited to submit full papers
- July 1, 2021: Full papers due (8 pages)
- December 1, 2021: Special issue publication (anticipated)

Special-issue Guest Editors (in alphabetical order)
Alex Hardisty
Margareta Hellström
Limor Peer
Peter Wittenburg