With Open Peer Review Towards FAIRness in Mechanical Engineering: Quality KPIs for a Scientific Journal

Master Thesis

Start: immediately

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What is the challenge?

Sharing research data and code is quickly becoming the new normal in the engineering sciences. The scientific method is being expanded to include data literacy, data management and data infrastructure. As a result, Research Data Management (RDM) in engineering sciences becomes a focused subject of research in its own right. However, creating a community around this subject and ensuring the quality of the results is still an ongoing challenge.

How do we solve it?

The scientific journal ing.grid – FAIR Data Management in Engineering Sciences [1] was established in 2021 as a platform for discussion on and recognition of good scientific practice in RDM, such as making scientific data and code findable, accessible, interoperable, and reusable (FAIR) [2].

ing.grid has developed its own unique open peer review process in which the peer review does not take place behind closed doors: the comments of the reviewers, the authors and the editors are publicly available. Moreover, the journal accepts not only manuscripts but also datasets and software, which also undergo open peer review (Fig. 1).
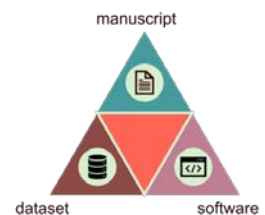
Fig. 1: Publication scope at ing.grid

After the first submissions have been published, it is necessary to check how well the open peer review process in ing.grid helps to meet the ing.grid guidelines, especially those related to the FAIRness of the submissions. It is also important to assess whether ing.grid lives up to its goal of driving forward the discussion on RDM practices in engineering sciences.

How can you contribute?

You will create a set of quality KPIs to serve as the evaluation scheme for the open peer review process in ing.grid. In the first step, you will analyse whether the reviews helped the authors to fit the ing.grid author guidelines for the publication of manuscripts, software and data. For this purpose, you will evaluate the open peer review process of the existing submissions (approx. 3-5). You will also assess whether the FAIR principles are well implemented. Your work will lead to the creation of an evaluation scheme that can be used by the journal management team in order to see whether the journal meets its goals in terms of quality and whether it can drive the discussion about RDM in engineering sciences forward.

What do we offer?

You will gain first-hand experience with independent scientific publishing and an exciting insight into the current discussion about the future of open peer review. You will also have the opportunity to work with an interdisciplinary group and to understand the functioning of a scientific journal. You will also learn about RDM, which is a topic gaining a lot of attention currently [3,4]. Last but not least, you can also improve your communication, writing and presenting skills.

We can discuss the focus and tasks together in an interview in presence or over Zoom. Please contact us by mail if you have any questions.

References

[1] ing.grid – FAIR Data Management in Engineering Sciences. https://www.inggrid.org.

[2] FAIR Principles. https://www.go-fair.org/fair-principles/.

[3] German Research Foundation (DFG), "Handling on Research Data", 2023. [Online]. Available: https://www.dfg.de/en/research_funding/principles_dfg_funding/research_data/

[4] Technische Universität Darmstadt. "Leitlinien zum Umgang mit digitalen Forschungsdaten an der TU Darmstadt", 2022. [Online]. Available: https://tuprints.ulb.tu-darmstadt.de/23200/