

Enabling reproducibility in (data) science

Wednesday 15 February 2023 09:00 (1h 30m)

Moderation: Antonia Schrader, Helmholtz Open Science Office

Abstract:

This session, organized by the German Reproducibility Network, will focus on digital reproducibility and its importance for open and robust science from different perspectives. Research is reproducible when it is possible to (independently) recreate the same results from the same data and same code/analysis as used by the original researcher or team of researchers. Reproducibility enhances collaboration and transparency in science and supports reusability of scientific products. This closely links with the open science endeavor towards the cultural change in science and science communication.

To truly enable reuse underlying data sets of research results are published in a FAIR manner for instance. The FAIR principles can be transferred to research software with some adaptations and also define important prerequisites in the context of reproducibility in order to be able to reproduce results. On the other hand, doing actual reproduction attempts (meaning success / failure) need to be an integral part of scholarly communication and should be incentivized accordingly.

The session is divided into the following contributions:

<h3>Introduction on the importance of reproducibility for open and robust science</h3>

<h4>Antonia C. Schrader (Helmholtz Association / GRN Chair)</h4>

The presentation introduces the topic and the GRN and also emphasizes the importance of reproducibility for open and robust science.

<h3>Open data as the basis for scientific innovation and public trust</h3>

<h4>Felix Schönbrodt, LMU and Ulf Tölch, Berlin Institute of Health at Charité</h4>

Presenting the outcomes of the GRN position paper.

<h3>Reproducibility in Data Science and Machine Learning</h3>

<h4>Peter Steinbach, Helmholtz AI</h4>

Machine Learning is becoming ubiquitous in many scientific domains. However, practitioners struggle to apply every new addition to the Machine Learning market on their data with comparable effects than published. In this talk, I'd like to present recent observations on reproducibility of Machine Learning results and how the community strives to tackle related challenges.

<h3>Research communication system for computational reproducibility</h3>

<h4>Guido Scherp, ZBW, Felix Schönbrodt, LMU and Bernadette Fritzsche, AWI</h4>

To make research reproducible, scholarly communication needs to enable sufficient sharing of information about the results and their derivation to enable others to attempt reproduction. This talk will outline the functions, features, and roles of the ideal research communication system that supports computationally reproducible research. The talk reflects the status of a corresponding discussion paper currently involving several international reproducibility networks led by the GRN.

For each presentation time for an ensuing questions and discussion slot is planned. The aim is to make the session as dialogical and interactive as possible. The session will be accompanied in a pad. All materials will be made openly available in the spirit of Open Science.