Syllabus

Course Title

Robust and Reproducible Research

Lecturer Info

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Abstract

The number of scientific articles published in Computer Science (and similar fields) increases steadily every year. This is mainly due to breakthroughs like Deep Learning, and, more recently, Large Language Models.

Paradoxically, researchers are struggling even more to reproduce published research. This issue affects all possible aspects of research, including methodology, data curation, approach comparison, and implementation.

In this course, we'll introduce and discuss the concept of 'reproducibility' in research. In particular, we'll overview current issues in research and existing attempts to address them. We'll focus on data curation, experimental setup, model comparison, and programming best practices.

This course is recommended for all types of researchers, from those who have just embarked on their journey to those who have always wondered how certain research managed to get published. See Section Prerequisites for more details.

Program

Down below, you can find the course program. Please, be aware that the provided schedule may be subject to modifications (you'll be updated via email accordingly).

(2-hours) Lecture 1:	Reproducibility in Research (Pt. I)
(2-hours) Lecture 2:	Reproducibility in Research (Pt. II)
(3-hours) Lecture 3:	Data Collection and Annotation
(2-hours) Lecture 4:	Modeling and Experimenting
(2-hours) Lecture 5:	Responsible Research
(2-hours) Lecture 6:	Programming Best Practices (Pt. I)
(2-hours) Lecture 7:	Programming Best Practices (Pt. II)
(2-hours) Lecture 8:	Cinnamon: a lightweight python library for research

Course Info

Duration:	16 Hours
Credits:	3.2
Lecture Format:	2 hour-long hybrid lectures (**lectures will be recorded and made available**).
Exam:	See Section Exam
Period:	Spring 2024
How to Participate:	Please fill this Google Form to participate.
Reference:	Official Unibo course webpage

Prerequisites

Lectures are meant to be interactive. The official course GitHub repository[1] will be made available for participants. All lectures and corresponding material will be progressively updated on the official course Github repository.

Programming:	Intermediate
Deep Learning Theory:	Intermediate
Research Experience:	Beginner

Exam

If you need to certify your attendance to the course via an exam, you can submit a review as described below. **Please submit your report via email**.

Review You can submit a review you have made concerning a paper of your choice. Please submit your review in .pdf format (1-2 pages at most). The review should focus on issues related to the course topics and corresponding solution(s) suggested by you or proposed in the paper.

[1] https://github.com/federicoruggeri/phdlectures-rredls