AI-aided systematic reviewing

Dates: 30.8.2021-03-09.2021

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Day	Time	Lectures	Description	Location
Monday	09:00 – 10.00	*Rens van de Schoot & Laura Hofstee*	**Introduction of the participants** We will start this course with an introductory meeting, in which we will get to know each other, our research areas, expertise and goals for this summer school. **Introduction of the course** Rens van de Schoot and Laura Hofstee will explain about the course; about the program, its goals and the people involved in the course.	Via MS. Teams
	10:00 – 12:00	*Rens van de Schoot & Laura Hofstee*	**A systematic review: classical** We will start with a lecture in which we explain the classical manual- based pipeline of performing a systematic review, using the PRISMA steps. We assume participants are familiar with PRISMA. If not, you are requested to read the information on the PRISMA-website before the start of the summer school. http://prisma-statement.org/ **A systematic review: AI** We continue this lecture, by explaining the AI-aided approach using screening prioritization. We compare this approach to the classical pipeline.	Via MS. Teams
	13:15 – 16.00	*Sofie van den Brand, Laura Hofstee & Yongchao Terry Ma*	**ASReview LAB: demonstration** We start the afternoon with a demonstration of ASReview LAB by Sofie van den Brand and Laura Hofstee. **ASReview LAB: do-it-yourself** The demonstration is followed by a do-it-yourself workshop, so that you can experience the benefits of using active learning. During this workshop there is a team ready if you need assistance. https://asreview.nl/#!/quick-start You can tryout ASReview LAB by making use of one of our benchmark datasets. Another option is to try it out with your own dataset. https://asreview.readthedocs.io/en/latest/intro/datasets.html Make sure to have installation rights on your pc!	Via MS. Teams

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Tuesday	09:00 – 12:00	*Jan de Boer, Felix Weijdema & Bianca Kramer*	**The perfect dataset** This morning consists of interactive sessions about how to obtain the perfect dataset in a systematic way. We will discuss the basics of searching online databases, how to compose a search query and how to get the highest quality of data (e.g., complete abstracts). **Literature search** When making use of active learning, the size of the dataset can be different compared to a classical systematic review. How does this affect your search? Is there still a need to search multiple databases? How do you process these large datasets? With the same effort a much larger dataset can be screened, for example the CORD19 database containing over 350K papers on the Coronavirus. Imagine screening such a database in a couple of days instead of a lifetime!	Via MS. Teams
	13:15 – 16.00	*Sofie van den Brand, Laura Hofstee & Yongchao Terry Ma*	**Search LAB: do-it-yourself** In the afternoon there is a do-it-yourself workshop in which you will create a dataset yourself. During this workshop there is a team ready if you need assistance.	Via MS. Teams

Wednesday	09:00 – 12:00	*Daniel Oberski*	**Models** This morning you will enjoy an in-depth explanation of the different feature extraction techniques (TF-IDF, word2vec, sBert) and classifiers (e.g., Naive Bayes, SVM, neural nets) that can be used, the query strategies (certainty, uncertainty, random sampling) and balancing strategies which deal with the extremely sparse relevant papers in the dataset. Although this part of the course is technical, we consider it important to better understand how AI works if you want to use AI-aided tools (and also to answer questions of your supervisors, reviewers, peers and friends).	Via MS. Teams
	13:15 – 16.00	*Sofie van den Brand, Laura Hofstee & Yongchao Terry Ma*	**ASReview simulation mode: demonstration** We will start this afternoon with a demonstration of the ASReview simulation mode, in which we show you how to run simulations yourself. **ASReview simulation mode: do-it-yourself** This is followed by a do-it-yourself workshop in which you can experiment with all the different models yourself. You will run simulations, look at some statistics and visualize the results. During this workshop there is a team ready if you need assistance. You can tryout ASReview simulation mode by making use of one of our benchmark datasets. Another option is to try it out with your own dataset. https://asreview.readthedocs.io/en/latest/intro/datasets.html	Via MS. Teams

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Thursday	09:00 – 11:00	*Bianca Kramer, Laura Hofstee & Sofie van den Brand*	**Thought experiment** This morning we will do a thought experiment about (open) science. A scenario will be laid out. You will work on this in smaller groups. After working on the thought experiment in smaller groups, we will continue by sharing these thoughts with the rest of the group.	Via MS. Teams
	11:00 – 12:00	*Bianca Kramer, Laura Hofstee & Sofie van den Brand*	**Discussion** Based on all your ideas from the thought experiment and the current ways of the scientific world, we will have an interactive discussion about open science.	Via MS. Teams
	13:15 -16.00	*Bianca Kramer, Laura Hofstee & Sofie van den Brand*	**Open science for systematic reviews** Although sharing the search query and data is part of the PRISMA checklist, actually sharing the complete (meta)data underlying a systematic review, including all labelling decisions, is not standard. Therefore, we will discuss a data-sharing protocol, including the importance of persistent identifiers (DOIs), abstract retrieval and trusted repositories. **Open science: AI-aided systematic reviews** Moreover, when using AI-aided tools it is not enough to make the search query and the meta-data FAIR (Findable, Accessible, Interoperable and Reusable), but the AI also makes decisions throughout the process which should be made FAIR. Therefore, all settings of the AI and every iteration of the model have to be stored and made human-readable. We will explain this process, and demonstrate how this can be done.	Via MS. Teams

Friday	09:00 -16:00	*Rens van de Schoot, Sofie van den Brand, Bianca Kramer, Jan de Boer, Felix Weijdema & Laura Hofstee*	**Consultations** This last day of the course consists of consultations.	Via MS. Teams

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