

2nd Workshop on Augmented Intelligence in Technology-Assisted Review Systems (ALTARS)

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Abstract. In this second edition of the workshop on Augmented Intelligence in Technology-Assisted Review Systems (ALTARS), we focus on the evaluation of High-recall Information Retrieval (IR) systems which tackle challenging tasks that require the finding of (nearly) all the relevant documents in a collection. In fact, despite the number of evaluation measures at our disposal to assess the effectiveness of a “traditional” retrieval approach, there are additional dimensions of evaluation for these systems. During the workshop, the organizers as well as the participants will discuss these issues and prepare a set of guidelines for the preparation of a correct evaluation of these kinds of systems.

Keywords: Technology-Assisted Review Systems · Augmented Intelligence · Evaluation · Systematic Reviews · eDiscovery

1 Introduction

Technology-assisted review (TAR) systems use a kind of human-in-the-loop approach where classification and/or ranking algorithms are continuously trained according to the relevance feedback from expert reviewers, until a substantial number of the relevant documents are identified. This approach has been shown to be more effective and more efficient than traditional e-discovery and systematic review practices, which typically consists of a mix of keyword searches and manual review of the search results.

The first edition of the ALTARS workshop was successfully held at ECIR 2022⁴ [4]. During (and after) that workshop, there was a lively discussion about open questions that still need to be addressed and clarified in this research area.

⁴ <https://altars2022.dei.unipd.it/>

In this second edition of the workshop, we aim to study innovative approaches to fathom the effectiveness of these systems. In fact, despite the number of evaluation measures at our disposal to assess the effectiveness of a “traditional” retrieval approach, there are additional dimensions of evaluation for TAR systems. For example, it is true that an effective high-recall system should be able to find the majority of relevant documents using the least number of assessments. However, this type of evaluation discards the resources used to achieve this goal, such as the total time spent on those assessments, or the amount of money spent for the experts judging the documents.

2 Workshop Goals and Objectives

The main goal of this workshop is to focus on the evaluation of the different definitions of the effectiveness of TAR systems which is a research challenge itself. The idea is to go beyond a “traditional” retrieval approach and study the problem from different perspectives.

In the first edition of the workshop, we organized a special issue for the *Intelligent Systems with Applications* journal dedicated to the extended version of the papers presented at the workshop⁵.

The desired outcome of this second workshop is having a collection of high-quality papers that will be published on CEUR-WS. Then, a selected number of papers will be invited in a new special issue and gather momentum in this interdisciplinary area together with researchers and stakeholders in the fields⁶ as well as international projects⁷.

The goals of the workshop are threefold:

- To foster cross-discipline collaborations between researchers with different perspectives and research backgrounds in the TAR systems;
- To combine and analyze existing theoretical and empirical contributions in order to determine shared issues, and novel research questions;
- To create a set of shared datasets dedicated towards the evaluation of TAR systems, thus enabling a wider research community to benefit from the outcomes of the workshop.

One last goal of the workshop is to discuss open issues and challenges and have as a final product a Horizon Europe/NSF proposal to strengthen the network of researchers in this topic.

3 Format and Structure

This workshop will be a full-day workshop and will be structured in four sessions: two sessions in the morning and two in the afternoon.

⁵ <https://www.journals.elsevier.com/intelligent-systems-with-applications/call-for-papers/technology-assisted-review-systems>

⁶ Such as ICASR, <https://icasr.github.io/about.html> and Zylab <https://www.zylab.com/en/>

⁷ Such as DOSSIER <https://dossier-project.eu>.

The call for papers of the workshop will include both full and short papers. All the authors of the accepted papers will have the possibility to give a talk; moreover, during an afternoon coffee break, we plan to organize a poster session to have some additional time for extra discussions that may arise during the day.

There will be an invited keynote speaker in the morning (to be confirmed) and a panel/general discussion in the afternoon after all the paper presentation.

4 Organizing Team

All the three organizing committee members have been active participants in the past editions of the TREC , CLEF and FIRE evaluation forum for the Total Recall and Precision Medicine TREC Tasks, TAR in eHealth tasks, and AI for Legal Assistance. The committee members have strong research record with a total of more than 400 papers in international journals and conferences. They have been doing research in technology-assisted review systems and problems related to document distillation both in the eHealth and eDiscovery domain and made significant contributions in this specific research area.

Giorgio Maria Di Nunzio is Associate Professor at the Department of Information Engineering of the University of Padova. He has been the co-organizer of the ongoing Covid-19 Multilingual Information Access Evaluation forum,⁸ in particular for the evaluation of high-recall systems and high-precision system tasks. He will bring to this workshop the perspective of alternative (to the standard) evaluation measures and multilingual challenges [5, 3, 7, 2].

Evangelos Kanoulas is Full Professor at the Faculty of Science of the Informatics Institute at the University of Amsterdam. He has been the co-organizer CLEF eHealth Lab and of the Technologically Assisted Reviews in Empirical Medicine task.⁹ He will bring to the workshop the perspective of the evaluation of the costs in eHealth TAR systems, in particular of the early stopping strategies [6, 9].

Prasenjit Majumder is Associate Professor at the Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT), Gandhinagar and TCG CREST, Kolkata, India. He has been the co-organizer of the Forum for Information Retrieval Evaluation and, in particular, the Artificial Intelligence for Legal Assistance (AILA) task.¹⁰ He will bring to the workshop the perspective of the evaluation of the costs of eDiscovery, in particular of the issues related to legal precedent findings [8, 1].

⁸ <http://eval.covid19-mlia.eu>

⁹ <https://clefehealth.imag.fr>

¹⁰ <https://sites.google.com/view/aila-2021>

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