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Information Quality in Information Interaction and Retrieval

Workshop proposal for CHIIR 2022

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CCS CONCEPTS

• **Information systems** → **Evaluation of retrieval results; Content ranking; Users and interactive retrieval.**

KEYWORDS

information quality, information interaction and retrieval, quality assessment, multiple-text comprehension

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1 WORKSHOP TITLE AND FORMAT

Full title: Information Quality in Information Interaction and Retrieval (IQIIR 2022)

Workshop format: Full-day workshop

2 ACADEMIC BACKGROUND

The explosive growth of user-generated content on the Web has shifted the responsibility for and burden of assessing the quality of information increasingly to the end user. Online information bypasses traditional gatekeepers of knowledge, which was initially well received as it had the potential to democratise the distribution of knowledge [22]. Recent campaigns on social media suggest that it indeed has become easier to raise awareness about social justice issues [e.g., 5, 9, but see [8, 15]]. Academic discourse has similarly shifted its focus away from information quality and the assessment thereof towards users' ability to assess whether a document and its source(s) seem credible [31]. Nevertheless, adapting to this new

responsibility appears to be challenging for users. Assessing the quality of information can prove to be an arduous task for an individual to perform for each document they encounter [16, 19, 21].

Search systems partly unburden users from their responsibility through their optimization for relevance, which both in conceptualisation and in practice includes a notion of quality. In contemporary conceptual models, relevance is considered equivalent to usefulness with respect to a task [24]. This implicitly subsumes a notion of quality: presumably, higher quality documents will also be more useful. In practice, relevance has been optimized for through expert-based (Cranfield) test collections, user (relevance) feedback, and through algorithmic proxies like PageRank. For example, Google employs experts to assess document quality based on the expertise, authoritativeness and trustworthiness of the content [11, sections 1-11]. At the same time, users provide implicit feedback about a document through their click behavior [1, 13] and through explicit signals through actions such as liking, flagging, and sharing.

Whilst search systems have undoubtedly become successful in offering their users relevant articles, they are arguably not as successful in offering quality. Societal and academic discussions have pointed at a perceived lack of quality in both search (e.g., the Google-Holocaust case [12]) and social media, as well as users' inability to recognise it [16]. In fact, 'fake news' is distributed farther, faster, deeper, and more broadly than truthful messages online [32], partially because it tends to be more ad-, eye-, or click-friendly [3, 10]. These discussions suggest not only that existing methods fail to offer sufficient safeguards against the spread of low-quality information, but also that they do not offer sufficient information in support of users' quality assessments. This raises the question as to how we can better support quality in interactive information retrieval. In line with CHIIR, we plan to explore this question with a particular interest in user-centered approaches.

2.1 Assessments and rankings

Quality assessments are currently mostly supported as an individual practice. Information systems typically aggregate individual feedback, such as 'likes' or tags. These aggregates foster a certain form of cooperation by making users aware of what others have liked or tagged [18]. They do not, however, foster collective decision making over how resources should be indexed and ranked, nor

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do they show users which considerations went into a particular ranking of information.

Some systems indirectly support quality assessments as a discursive, collective endeavour. For instance, users proactively discuss quality on online discussion fora [25] and in review websites. It remains hard, however, to appropriate these discursive elements for assessing and ranking information. Notable exceptions include: (i) Wikipedia, where editors discuss and decide on the quality of a document in a shared goal of improving the document [29, 30]; (ii) Question-answer sites, which offer voting and commenting mechanisms for users to collectively decide on the ranking of answers according to their quality [27]; and (iii) Attempts on integrating reviews in a search index, such as for book search [14]. With this workshop we intend to further discuss and explore the value of such discursive, collective elements for assessing and ranking information.

2.2 Signals of quality and comprehension

Traditionally, information literacy has been defined as skill for locating, accessing, evaluating, and using information [17]. Within that context, the notion of information quality is central to evaluation. As mentioned above, understanding how searchers use available information in assessing resource quality is an open research question. Equally important are research questions focused on how a user's process for evaluating quality contributes to their comprehension of the evaluated information, and how characteristics of the motivating task affect this process [7].

A robust research area in the learning sciences provides a theoretical and empirical framework for addressing these questions in the context of information retrieval. Research in *multiple-text comprehension* addresses questions focused on how readers use information in evaluating conflicting claims found within a text or across multiple texts [6]. Many of the areas and factors studied have direct parallels in research found in the CHIIR community. Of particular interest to the workshop are the effects of prior knowledge in a domain and of prior beliefs about topics and sources, as well as the role of explicit quality signals [20, 28]. These factors together influence the processes users undertake when attending to, evaluating, and using information about texts (i.e., knowledge-context [26]). During the workshop, we intend to explore prior findings from these areas and discuss how they can help researchers in interactive information retrieval design experiments and control for known factors.

3 RELEVANCE TO CHIIR

While the focus in information interaction and retrieval usually lies in the notion of relevance, user assessment of information quality when searching or using information has received significant attention before, also at CHIIR. In the past, CHIIR has had many contributions that studied the quality of retrieved or used information. Either directly, such as Aigner et al. [2], Muirhead [23], Wang et al. [33, 34], Zhang and Song [35], or indirectly, via addressing one of its attributes like completeness, accuracy, reliability, format, or timeliness [4].

We believe that, in light of emergent research themes at CHIIR, e.g., work on conversational search, search as learning, cognitive

biases, misinformation and fake news, or fairness and transparency of retrieval results, it is worth taking stock of different perspectives on information quality and their relation to these research themes. We aim to attract and discuss a wide range of ideas by embedding the workshop and the notion of quality within these broader research themes.

4 DESIRED KEY OUTCOMES

We expect the following outcomes of the workshop, including their dissemination:

- Accepted papers will be presented at the workshop and will be published open access at CEUR-WS.
- The organizers will compile a report on the results of the workshop to be submitted to SIGIR Forum or a similar venue.
- Authors of accepted papers will be invited to contribute to a collaboratively-written report that inventories different approaches to information quality along with research challenges and opportunities.

5 WORKSHOP ORGANIZERS

Frans van der Sluis (<https://comm.ku.dk/staff/?pure=en/persons/608897>) is an assistant professor at the Department of Communication at the University of Copenhagen, Denmark. He organized several seminars before in 2013 and 2020. His research focuses on the role of epistemic feelings and emotions during information interaction, with a particular interest in the stimulating roles of information complexity and epistemic uncertainties. In relation to this workshop, his particular interest is in designing information systems that can account for and reflect epistemic uncertainties and in evaluating how such designs affect users' feeling of confidence and curiosity.

Catherine Smith (<http://www.catherinesmith.com>) is an associate professor at Kent State University in Kent, OH. Cathy was a co-organizer for HCIR symposia (2010-2013) and contributed to the subsequent development of CHIIR. She was a program co-chair for CHIIR 2021. Her research interests bridge information retrieval and human-computer interaction, centering on the processes involved in learning to search and the role of search systems in formal education. Generally, this involves research questions addressing design goals for an interactive retrieval system that enriches self-regulated learning and comprehension for its users. Aligned with the goals of this workshop, she is interested in the construct of *knowledge-context*, meta information used by searchers making sense of SERPs, including quality signals. She is particularly interested in how knowledge-context is used by learners engaged in multiple source use and multiple-text comprehension.

Florian Meier (<https://vbn.aau.dk/da/persons/142274>) is an assistant professor at the Department of Communication and Psychology at Aalborg University in Copenhagen, Denmark. His research interests lie in the intersection of Computational Social Science, Digital Humanities and Information Behavior. In line with this workshop, he is interested in how users and technology interact to ensure the information quality of content on commons-based peer production systems like the open-collaborative online encyclopedia Wikipedia.

Toine Bogers (<http://www.toinebogers.com>) is an associate professor at the Department of Communication & Psychology at Aalborg University Copenhagen in Copenhagen, Denmark. He was one of the general chairs of RecSys 2019 in Copenhagen and has extensive experience organizing workshops at CHIIR (SCST 2017, BIIR 2018–2019) and at other conferences (CBRecSys 2014–2016, ComplexRec 2017–2020). His general research interests concern applying information access technologies to unlocking large information collections (e.g., recommender systems, search engines) and studying information behavior—how people interact with information and their devices. In the context of this workshop, he is particularly interested in methods for assessing the varying quality of information need descriptions on discussion fora and how this translates to better ranking algorithms.

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