IWILDS'22 – Third International Workshop on Investigating Learning During Web Search

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ABSTRACT

Since its inception, the World Wide Web has become a major information source, consulted for a diversity of informational tasks. With an abundance of information available online, Web search engines have been a main entry point, supporting users in finding suitable Web content for ever more complex information needs. The IWILDS workshop series invites research on complex search activities related to human learning. It provides an interdisciplinary platform for the presentation and discussion of recent research on human learning on the Web, welcoming perspectives from computer & information science, education and psychology.

CCS CONCEPTS

• **Applied computing** → **Interactive learning environments**; *Psychology*; • **Information systems** → **Web searching and information discovery**; **Information retrieval**; • **Security and privacy** → Human and societal aspects of security and privacy.

KEYWORDS

Search as Learning, Educational psychology, Information retrieval, Information Science, Web-based Learning

1 INTRODUCTION

Web search is one of the most ubiquitous online activities and often used as a starting point to learn, i. e., to acquire or extend one's knowledge about certain topics or procedures. When learning by searching the Web, individuals are confronted with an unprecedented amount of information in various forms and varying quality. In consequence, successful learning on the Web is influenced by a range of individual and external factors [14]. It requires high

degrees of self-regulation from the individual; and should be supported by the adequate design of search interfaces, recommendation engines, and training tools.

The question how to best support human learning on the Web creates a highly interdisciplinary research area at the intersection of information & multimedia retrieval, human-computer interaction, psychology, and educational sciences: *Search as Learning* (SAL) research examines the relationships between querying, navigation, media consumption behavior, and the learning outcomes during Web search, how they can be measured, predicted [8], and supported [10]. Leveraging the knowledge about learning processes and outcomes during search, SAL researchers also seek to incorporate learning factors into search evaluation and system design for supporting complex learning tasks [4, 11].

Building on the growing attention in SAL research, IWILDS covers multiple central research topics in SIGIR community (e.g. interpretation of user behavior [6] and user modeling [9], task understanding [3], search education [5], learning-centric re-ranking [12], datasets, measurement and evaluation [7, 13]) and provides an interdisciplinary forum in a half-day workshop that includes keynotes, paper presentations, and discussion. The intended audience consists of researchers and practitioners from computer science, information science, psychology, and educational science. The research findings and insights generated through the workshop will deepen our understanding of learning-related intents and activities in Web search and help push the boundary of current IR research in the context of learning and search education.

More specifically, IWILDS aims to (a) draw interest to this interdisciplinary topic; (b) bring together interested researchers from related disciplines; (c) provide space for the presentation of novel research insights and cross-discipline discussion; (d) discuss future directions of SAL research and foster interdisciplinary collaborations. In doing so, IWILDS will provide the platform for the SAL community in 2022.

2 SCOPE & TOPICS

IWILDS'20[1] and IWILDS'21[2] aimed at bridging the gap between SAL and educational/psychological research. In these past a few years, various works have been published in the context of SAL (e.g. [1, 2, 8, 15]) and largely extended the understanding of the human learning. In IWILDS'22, we keep the same scope as past versions while having a stronger focus on exploring IR techniques

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[1]https://iwilds2020.wordpress.com/
[2]https://iwilds2021.wordpress.com/

in supporting human learning, by featuring scientific works addressing topics such as:

Understanding and measuring learning during Web search: This includes works on the role of personal characteristics, interests, attitudes, and information literacy in Web-based learning; characterizing learning tasks; methods of data collection and analysis (including crowdsourcing, lab experiments, log analysis, multimodal data analysis); modeling, recognizing, measuring, and predicting learning processes; and the role of Web-based learning and search in formal and semi-formal scenarios.

Supporting learning during Web search: e.g., interventions, tools, and user interfaces to foster effective SAL; information/ multimedia retrieval and learning to rank for SAL; learning analytics and educational data mining in search-based learning; fusion and summarization techniques for aggregating learning resources; evaluation and benchmarking of SAL systems; and personalization of retrieval and ranking in SAL.

Learning-oriented evaluation of Web search: e.g., offline evaluation for learning-related ad hoc retrieval; designing and meta-evaluating evaluation metrics for capturing learning progresses in session search; evaluating learning activities in conversational IR; standardizing and reusing user study materials for replicable learning-oriented IR evaluation.

3 FORMAT

IWILDS'22 will be a half-day workshop. In accordance with the SIGIR'22 format, it will be a hybrid event which combines onsite participation with the option of remote attendance. Feedback on workshop's last occurrences showed a strong demand for real-life interaction and discussion which will be enabled by an onsite event. We are, however, aware that not all researchers will be able to travel to Spain, for a diversity of reasons. Thus, even during an onsite event, we will give those attendees a chance to present their research, and to partake in the other presentations. Two of the organizers will be able to be present at SIGIR to moderate the event.

The planned program includes an invited keynote talk, introducing current progress and challenges in interdisciplinary SAL research. We plan for the presentation of 3-6 papers; minor contributions will be afforded a presentation time of 15 minutes, major contributions will get 20 minutes for presentation and discussion. Our experience with previous workshops shows that interdisciplinary topics often spark extended discussions to adjust cross-domain perceptions of discussed concepts. The schedule will provide buffer time for this.

Previous editions of the workshop used a Slack workspace for in- and after-workshop discussion. This opportunity was readily used by participants who shared opinions and further resources. In case of an onsite event, this workspace can be a hub for after-workshop networking, and an option for remote participants to connect to the ones present at SIGIR. Otherwise, it has proved a valuable tool to allow participants to engage with each other.

4 ORGANIZERS

Anett Hoppe (Ph.D. Computer Science) is a postdoctoral researcher at Leibniz Information Centre for Science and Technology (TIB) and the L3S research Centre, both in Hannover, Germany. Her research focuses on the support of human learning with current technologies, with a focus on Information Retrieval, Video Analysis, User Modeling, and Semantic Web. She is involved in a number of interdisciplinary projects, collaborating with researchers from educational sciences and psychology. She has been a member of numerous program committees and co-organizer of SALMM'19, IWILDS'20 & '21 workshops.

Jiqun Liu (Ph.D. Information Science) is currently an assistant professor of data science and adjunct assistant professor of psychology at the University of Oklahoma. He holds a Ph.D. in Information Science from Rutgers University. His research focuses on the intersection of human-computer interaction (HCI), interactive information seeking/retrieval (IS&R), and cognitive psychology and seeks to apply the knowledge learned about people interacting with information in user modeling, adaptive recommendation, IR system evaluation, and intelligent nudging.

Ran Yu (Ph.D. Computer Science) is a senior researcher in the Data Science & Intelligent Systems (DSIS) research group at the University of Bonn. Her research interests are in Information Retrieval, User Modeling, Knowledge Graphs, and their application to Web data analytics problems, specifically in learning scenarios. Her work has been published in major conferences and journals; she is a member of numerous program committees such as SIGIR, WSDM, TheWebConf and CIKM, and has organized several academic events.

5 PROGRAM COMMITTEE

IWILDS'22 will draw upon its established network of program committee members. Invitation have been extended to:

Sören Auer (Leibniz University of Hannover), **Nilavra Bhattacharya** (The University of Texas at Austin), **Kevyn Collins-Thompson** (University of Michigan), **Stefan Dietze** (GESIS – Leibniz Institute for the Social Sciences), **Ralph Ewerth** (Leibniz University of Hannover), **Sherzod Hakimov** (Leibniz Information Centre for Science and Technology), **Markus Huff** (Leibniz-Institut für Wissensmedien), **Jiepu Jiang** (University of Wisconsin-Madison), **Xiaolong Jin** (Institute of Computing Technology, Chinese Academy of Sciences), **Yvonne Kammerer** (Hochschule der Medien), **Gábor Kismihók** (Leibniz Information Centre for Science and Technology), **Marie Christin Krebs** (University of Giessen), **Yuan Li** (The University of North Carolina at Chapel Hill), **Chang Liu** (Peking University), **Catherine Smith** (Kent State University), **Sihang Qiu** (Delft University of Technology), **Nadia Said** (University of Tübingen).

6 SELECTION PROCESS

IWILDS'22 welcomes papers ranging from 2 to 8 pages plus references. Any page length in between is allowed. Authors are expected to adapt the length of their submission based on contribution size; appropriateness of the chosen length will be a reviewing criterion. This allows for a wide variety of submissions, relaxing the artificial requirement to condense or extend the written presentation to fit a certain paper category.

All submissions must be written in English and formatted according to ACM format. Double-blind submission will be set up using Easychair. Each submission will be reviewed by at least 3 PC members based on (a) quality of its contribution, (b) quality

of presentation and suitable length, (c) fit to the workshop's topics. The PC consists of renowned experts in the areas of Search as Learning, from information/multimedia retrieval, educational psychology, learning analytics, and information science.

Accepted papers will be invited for presentation during the workshop. Presentation time and format (talk or poster) will be allocated based on the presented contribution.

7 ACKNOWLEDGMENTS

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