Current research in supporting complex search tasks

Koolen, Marijn; Kamps, Jaap; Bogers, Toine; Belkin, Nicholas J.; Kelly, Diane; Yilmaz, Emine

Published in:
Proceedings of the Second Workshop on Supporting Complex Search Tasks

Publication date:
2017

Document Version
Publisher's PDF, also known as Version of record

Link to publication from Aalborg University

Citation for published version (APA):
Current Research in Supporting Complex Search Tasks

Marijn Koolen
Huygens ING, Amsterdam
Netherlands
marijn.koolen@huygens.knaw.nl

Jaap Kamps
University of Amsterdam
Netherlands
kamps@uva.nl

Toine Bogers
Aalborg University Copenhagen
Denmark
toine@hum.aau.dk

Nicholas J. Belkin
Rutgers University
USA
belkin@rutgers.edu

Diane Kelly
University of Tennessee, Knoxville
USA
dianek@utk.edu

Emine Yilmaz
University College London
UK
emine.yilmaz@ucl.ac.uk

ABSTRACT
There is broad consensus in the field of IR that search is complex in many use cases and applications, both on the Web and in domain specific collections, and both professionally and in our daily life. Yet our understanding of complex search tasks, in comparison to simple look up tasks, is fragmented at best. The workshop addresses many open research questions: What are the obvious use cases and applications of complex search? What are essential features of work tasks and search tasks to take into account? And how do they evolve over time? With a multitude of information, varying from introductory to specialized, and from authoritative to speculative or opinionated, when to show what sources of information? How does the information seeking process evolve and what are relevant differences between different stages? With complex task and search process management, blending searching, browsing, and recommendations, and supporting exploratory search to sensemaking and analytics, UI and UX design pose an overconstrained challenge. How do we evaluate and compare approaches? Which measures should be taken into account? Supporting complex search tasks requires new collaborations across the fields of CHI and IR, and the proposed workshop will bring together a diverse group of researchers to work together on one of the greatest challenges of our field.

KEYWORDS
Interfaces, Information Interaction, Information Access, Interactive Information Retrieval, Search Processes, Search Tasks

1 INTRODUCTION
One of the current challenges in information access is supporting complex search tasks. A user’s understanding of the information need and the overall task develop as they interact with the system. Supporting the various stages of the task involves many aspects of the system, e.g. interface features, presentation of information, retrieving and ranking. Many search systems treat the search process as a series of identical steps of submitting a query and consulting documents. Yet information seeking research has shown that users go through different phases in their search sessions, from exploring and identifying vague information needs, to focusing and refining their needs and search strategies, to finalizing their search. To be able to support exploring and discovering strategies we need to understand the characteristics of different tasks including open-ended, leisure-focused sessions. This is a highly complex problem that touches upon and bridges areas of information seeking, interactive information retrieval, system-centered (ranking, evaluation) and user interface design.

The background for this workshop is derived from the Interactive Track (2014–2016) of the Social Book Search Lab at CLEF [11], which investigates scenarios with complex book search tasks and develops systems and interfaces that support the user through the different stages of their search process. But the aims of the workshop are broader and addresses all aspects of supporting complex search tasks.

2 GOALS AND OBJECTIVES
The overall goal of the workshop is to create and foster an interdisciplinary forum where researchers can exchange and contribute to the development of alternative experiments and prototypes. The main aim is to better understand how to support complex search tasks, addressing many open research questions to be explored, including:

Context What are the obvious use cases and applications of complex search? In what sense are these "complex"? What generic characteristic do they share? How can search become an integral part of its context, and the context integral part of search?

Tasks What are essential features of work tasks and search tasks to take into account? And how do these evolve over time? How can complex tasks be decomposed into manageable sub-tasks, and partial results composed into comprehensive answers? How can we monitor and support task progress?

Heterogeneous sources With a multitude of information, varying from introductory to specialized, and from authoritative to speculative or opinionated, when to show what sources of information? When to show more or other types of information than directly requested by the searcher? Do we know when the user has gotten enough?

Search process How does the information seeking process evolve and what are relevant differences between different
3 WORKSHOP FORMAT

SCST 2017 was a half day workshop on supporting complex search tasks—a workshop proper where discussion is central, and all attendees are active participants.

The workshop started with a full round of introductions of all participants, making everyone feel welcome and part of the workshop. Then, the workshop continued with two short keynotes to set the stage and ensure all attendees are on the same page.

3.1 Keynote Speakers

Mark Hall (Edge Hill University, UK) gave a keynote on “Where does it end? Complex Search Tasks and Evaluation” [12]. He takes an academic perspective and explores the blurring boundary between complex search tasks and the larger work tasks that motivate the search. This has important implications for what aspects of the process we should evaluate and how we do the evaluation in a meaningful and measurable way.

Jussi Karlsgren (Gavagai, Sweden) gave a keynote on “Complex Aspects of Seemingly Simple Information Needs” [15]. He presented the industrial views and discussed how the typical information needs of corporate customers are often posed in short and basic questions but are surprisingly hard to formulate in meaningful queries, and answering them requires complex processes of curating and aggregating diverse and disparate data.

3.2 Paper Contributions

The workshop invited short paper contributions that are presented as posters. We received 11 submissions and accepted 9 (for an acceptance rate of 81%). Each paper was reviewed by at least three reviewers. Paper contributions are presented as a 1-minute booster talk and as a poster during the interactive poster session.
3.3 Breakout Discussions

The second half of the workshop consists of 3-4 breakout groups, seeded from the open research questions (see §2) and the contributed papers, each group thoroughly prepared by a chair who guides the discussion, with examples from relevant IR evaluation campaigns such as the TREC Session and Tasks Tracks and the SBS Interactive and Suggestion Tracks, and from concrete examples of complex support systems with their UX and UI challenges. One of the topics will be an Interactive IR task that is planned for the TREC Tasks Track. Finally, the breakout groups report to the audience and a panel of experts, with continued discussion on what we have learned. A report of the workshop including a summary of the break-out discussions will be published as a SIGIR Forum report.

The discussion will continue during a social event in a more informal way over food and drinks, deep into the Oslo night. The organizers have gained a proud reputation for their open and inclusive workshops, leading to new research collaborations, other workshops, and new evaluation tracks.

The workshop will bring together a varied group of researchers —bridging CHI and IR in a natural way—with experience covering both user and system centered approaches, to work together on the problem and potential solutions, and identify the barriers to success and work on ways of addressing them. The format allows us deal with a relatively large number of participants while still preserving the interactive workshop character – the last edition at ECIR’15 had 41 paid registrations (and the head count was even higher on the day of the workshop).

4 RELATED WORKSHOPS

This workshop is a follow-up to the first SCST workshop at ECIR 2015 [8, 9] and is closely related to the Interactive Track of the CLEF Social Book Search Lab of 2015 and 2016 [10, 11]. The Interactive track is focused on the domain of book search, whereas the proposed workshop addresses issues around the search process and system interaction from a broader perspective.

Some of the organizers were involved in the SIGIR 2011 Workshop on "Entertain me" Supporting Complex Search Tasks [3] and in the spin-off TREC Contextual Suggestion Track [5, 6]; in related discussion within the SWIRL ’12: Strategic Workshop on Information Retrieval in Lorne [1]; and the NSF Task-Based Information Search Systems Workshop [16]. There is a broad research agenda emerging that attracts interest from research in all areas of HCI and IR.

The workshop builds on the results of the earlier discussion, and through the CLEF Social Book Search Lab [18] has already been pushing this line of research with a range of user studies, novel user interfaces, and analysis of large scale social data. The workshop will be held to have a more focused discussion based on the results so far.

The workshop provides a comprehensive overview of current work on supporting complex tasks in a variety of settings, and fosters new collaboration within across the fields of CHI and IR, on one of the most important topics in the coming years.

5 ACKNOWLEDGMENTS

We thank the CHIIR workshop chair Preben Hansen and the local organizers for their support. We also thank the programme committee members for their timely and constructive reviews. We gratefully acknowledge EasyChair\textsuperscript{2} and CEUR-WS\textsuperscript{3} for providing platforms for submitting, reviewing and publishing the contributions of this workshop.

REFERENCES


\textsuperscript{1}Information about the 2017 Tasks Track is available at http://www.cs.ucl.ac.uk/taske-track-2017/
\textsuperscript{2}See http://easychair.org/
\textsuperscript{3}See http://ceur-ws.org/


