Second International Workshop on Conversational Approaches to Information Retrieval (CAIR'18)

Workshop at SIGIR 2018

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CCS CONCEPTS

• **Information systems → Information retrieval**;

KEYWORDS

Conversational Search, Information Retrieval, Discourse and Dialogue

1 MOTIVATION

Recent advances in automatic speech recognition (ASR) have changed the way people interact with devices and search for information [5]. For example, based on a 2014 survey of 1,400 U.S. smartphone users, 50% of teenage users and 41% of adult users reported issuing at least one mobile voice search per day [1]. Services such as Apple Siri, Google Assistant, and Microsoft Cortana enable users to find information using natural language spoken requests rather than conventional keywords. Additionally, products such as Amazon Echo, Apple HomePod, and Google Home have extended the context of speech-based information access from the mobile setting to the office and home settings. Currently, these voice-enabled search systems are able to respond to well-formulated commands and queries. However, they are less capable of responding to ill-defined information requests in a conversational manner.

The report from SWIRL 2012 also identified conversational approaches to information retrieval (IR) as an important area for future research [2]. Moreover, research on evaluating speech-based search interfaces has demonstrated that replicating the standard approach of listing search results in response to a query is not an effective mode of interaction over a speech-only channel [4]. Finally, at SWIRL 2018, conversational information seeking (CIS) was identified as an area of research with great challenges and opportunities.

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We believe there is sufficient interest within the IR, dialogue, and speech recognition/generation communities for CAIR'18. The 1st International Workshop on Conversational Approaches to Information Retrieval (CAIR'17) was held at SIGIR 2017 [3] and had over 70 registered participants. The program included eight peer-reviewed full paper presentations, two keynote talks, a panel discussion, and a final open discussion. Ron Kaplan, Chief Scientist for Amazon Search (A9.com), and Jason D. Williams (Microsoft Research), President of SIGDial (the leading community/conference on dialogue systems), gave the keynote presentations and shared their perspectives on the current state of the art in speech-based services. The panel discussion was chaired by Mark Sanderson (RMIT University) and focused on setting an agenda for future research in conversational search. The panelists included Nick Belkin (Rutgers University), James Allan (University of Massachusetts at Amherst), Jason D. Williams, and Emine Yilmaz (University College London).

CAIR'17 also had several follow-up activities. For example, JASIST had a special call for papers on conversational approaches to information access and retrieval and SIGDial 2018 will be hosting a special session on Conversational Approaches to Information Search, Retrieval, and Presentation.

2 THEME AND PURPOSE OF THE WORKSHOP

The 2nd International Workshop on Conversational Approaches to Information Retrieval (CAIR'18)[1] will bring together academic and industry researchers and developers to advance conversational approaches to search applications. We are open to a variety of modalities of conversation, including speech-based interaction, text-based interaction, or multimodal interaction (e.g., audio-in, text-out or multiple simultaneous modalities). We also welcome studies investigating human-human interaction (e.g., collaborative search), which can inform the design of conversational search applications.

[1] https://sites.google.com/view/cair-ws/cair-2018

2.1 Topics of interest

The workshop welcomes a broad range of studies that can contribute to the development of conversational approaches to IR. Topics of interest include (but are not limited to):

Query understanding and search process management.

- Processing verbose natural language queries
- Processing noisy ASR queries
- Query intent disambiguation, clarification, confirmation
- Relevance feedback in conversational search
- Voice-based search engine operations
- Dialogue schema for conversational search

Search result description (presentation).

- Audio-based search result presentation and summarization
- Conversational navigation of search results
- Knowledge graph presentation in conversational search
- Conversational navigation of search results
- Advertisements in audio-based search result presentation

Ranking algorithms.

- Ad-hoc spoken search
- Spoken search in session

Evaluation.

- Building test collections for conversational search
- Development of new metrics to measure effectiveness, engagement, satisfaction of conversational search

Applications.

- Intelligent personal assistance
- Intelligent home assistance using voice / speech oriented devices
- Proactive search/Recommendation
- Collaborative search
- Hands free search (e.g., in car, kitchen)
- Search for visually impaired users
- Search for low literacy users
- Integration with existing technologies

3 FORMAT AND PLANNED ACTIVITIES

CAIR'18 plans to organize a full-day workshop, consisting of two keynote presentations, a hands-on interactive session with existing devices (e.g., Amazon Echo and Google Home), a panel discussion, and a final open discussion. Additionally, the workshop will have 5–10 long- and short-paper presentations. A tentative schedule of events is shown in Table 1. To attract participants to the workshop, we plan to have two keynote presentations—one from a leading industrial organization that works on speech-based products and another leading expert from an academic institution.

Table 1: A tentative schedule.

Duration (min)	Event
05	Opening
60	Invited talk 1
15	Hands-on with commercial devices
15	Coffee break
45	Paper session 1 (2–4 talks)
60	Panel discussion
90	Lunch break with Poster presentation
60	Invited talk 2
45	Paper session 2 (2–4 talks)
15	Coffee break
45	Paper session 3 (2–4 talks)
60	Open discussion + Closing

4 ORGANIZERS

Jaime Arguello (University of North Carolina at Chapel Hill) is an Associate Professor at the School of Information and Library Science at UNC Chapel Hill. His research interests include aggregated search, task-based search, and spoken query understanding and re-formulation. Jaime was co-organizer of CAIR'17, co-organizer of the SIGIR 2015 RIGOR Workshop, Treasurer of CHIIR 2016, co-organizer of the 2013 Workshop on Task-based Search (sponsored by NSF), and is currently the SIGIR Travel Awards Chair (2015–present).

Filip Radlinski (Google) is a research scientist at Google, London, UK and an honorary lecturer in computer science at University College London. His recent research interests include conversational recommendation, personalized search and search evaluation. He was recently PC co-chair of WSDM 2016. Filip is a co-organiser of Special Session on Conversational Approaches to Information Search, Retrievals, and Presentation at SIGDial 2018, and was a co-organiser of CAIR'17.

Hideo Joho (University of Tsukuba) is an Associate Professor at the University of Tsukuba, and visiting scholar of NII and RMIT University. His recent research interests include collaborative search, lifelog search, and test collections. Dr. Joho is a PC co-chair of CHIIR 2019, and has been a General co-chair of SIGIR 2017, and associate editor of IP&M (2014–16). Hideo is a liaison officer of SIGIR and SIGDial, co-organiser of the SIGDial 2018 special session on conversational search, and was a co-organiser of CAIR'17.

Damiano Spina (RMIT University) is a Research Fellow at RMIT University. His recent research interests include interactive information retrieval and evaluation. Dr. Spina is an editorial board member of IP&M. Damiano is a co-organiser of the SIGDial 2018 special session on conversational search and was a steering committee member of CAIR'17.

Julia Kiseleva (UserSat.com & UvA) Julia is currently running the spin-off UseSat.com and is a postdoctoral researcher at University of Amsterdam. She received her PhD from the University of Eindhoven in 2016. The focus of Julia's research is on understanding and predicting user satisfaction with a variety of search systems. Currently, Julia is mostly focused on understanding user interaction patterns with personal assistants such as Siri, Google Assistant and Cortana.

4.1 Steering Committee

The steering committee includes the organisers and the following members.

- Lawrence Cavedon (RMIT University)
- Fernando Diaz (Spotify)
- Dilek Hakkani-Tür (Google)
- Mark Sanderson (RMIT University)
- Milad Shokouhi (Microsoft)

4.2 Current PC Members

The CAIR'18 PC members include:

- Jeffrey Dalton (University of Glasgow)
- Ido Guy (Yahoo Research)
- Claudia Hauff (Delft University of Technology)
- Jiepu Jiang (UMass Amherst)
- Gareth Jones (Dublin City University)
- Karthik Raghunathan (MindMeld)
- Paul Thomas (Microsoft)
- Johanne R. Trippas (RMIT University)
- Imed Zitouni (Microsoft)

5 RELATED WORKSHOPS

Several workshops related to conversational IR were held in 2016 and 2017. The Search-Oriented Conversational AI Workshop (SCAI'17) was held in conjunction with the 3rd ACM International Conference on the Theory of Information Retrieval (ICTIR'17) in October 2017 and the second edition will be co-located with the 2018 Conference on Empirical Methods in Natural Language Processing (EMNLP) in late 2018.[2] The workshop has an emphasis on artificial intelligence (AI) technologies on this subject. While AI technologies are important, CAIR'18 welcomes a broader range of approaches to conversational search. The Conversational Agents in Collaborative Action Workshop[3] was held in conjunction with the 20th ACM conference on Computer-Supported Cooperative Work and Social Computing (CSCW'17) in February 2017. Finally, the First Intelligent Conversational User Interface Workshop (ICUI'17)[4] was held at the 22nd Annual Meeting of the Intelligent User Interfaces Community (IUI'17) in March 2017. These workshops indicate a strong interest in conversational interfaces for different applications. CAIR'18 will focus on search application and behaviors.

Somewhat related to CAIR'18, the ProActive Information Retrieval Workshop (ProActIR)[5] was held in conjunction with the 38th European Conference in Information Retrieval (ECIR'16) in March 2016. This workshop focused on the development and evaluation of systems that are able to anticipate and address users' information needs in a proactive manner.

REFERENCES

[1] [n. d.]. OMG! Mobile voice survey reveals teens love to talk. https://googleblog.blogspot.ru/2014/10/omg-mobile-voice-survey-reveals-teens.html. Accessed: 2018-04-30.

[2] James Allan, Bruce Croft, Alistair Moffat, and Mark Sanderson. 2012. Frontiers, Challenges, and Opportunities for Information Retrieval: Report from SWIRL 2012 the Second Strategic Workshop on Information Retrieval in Lorne. *SIGIR Forum* 46, 1 (2012), 2–32.

[3] Hideo Joho, Lawrence Cavedon, Jaime Arguello, Milad Shokouhi, and Filip Radlinski. 2017. CAIR'17: First International Workshop on Conversational Approaches to Information Retrieval. *SIGIR Forum* 51, 3 (2017), 114–121.

[4] Nuzhah Gooda Sahib, Anastasios Tombros, and Tony Stockman. 2012. A Comparative Analysis of the Information-seeking Behavior of Visually Impaired and Sighted Searchers. *JASIST* 63, 2 (2012), 377–391.

[5] W. Xiong, J. Droppo, X. Huang, F. Seide, M. Seltzer, A. Stolcke, D. Yu, and G. Zweig. 2016. Achieving Human Parity in Conversational Speech Recognition. *ArXiv e-prints* (2016).

[2] http://scai.info/

[3] https://talkingwithagents.wordpress.com/

[4] https://iuiworkshop.github.io/

[5] https://sites.google.com/site/proactir/