# First International Workshop on Conversational Approaches to Information Retrieval (CAIR'17)

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## ABSTRACT

Recent advances in commercial conversational services that allow naturally spoken and typed interaction, particularly for well-formulated questions and commands, have increased the need for more human-centric interactions in information retrieval. The First International Workshop on Conversational Approaches to Information Retrieval (CAIR'17) brings together academic and industrial researchers to create a forum for research on conversational approaches to search. A specific focus is on techniques that support complex and multi-turn user-machine dialogues for information access and retrieval, and multi-model interfaces for interacting with such systems. We invite submissions addressing all modalities of conversation, including speech-based, text-based, and multimodal interaction. We also welcome studies of human-human interaction (e.g., collaborative search) that can inform the design of conversational search applications, and work on evaluation of conversational approaches.

## CCS CONCEPTS

•**Information systems → Information retrieval;**

## KEYWORDS

Conversational Search; Information Retrieval; Discourse and Dialogue

## 1  MOTIVATION FOR THE WORKSHOP

Recent advances in automatic speech recognition (ASR) technologies [3] have changed the way people seek information and interact with devices. For example, search engine companies report that approximately 20% of mobile queries are now via speech inputs from mobile devices. Services such as Apple Siri and Google Now enable users to find information using naturally spoken questions rather than conventional keywords. In addition, products such as Amazon Echo and Google Home have extended the context of speech oriented interaction from mobile to office and home. These technologies are currently designed to answer well formulated queries, questions, or commands.

However, search engines have been effective at retrieving relevant information for ill-defined poorly expressed information needs, which is not yet achieved by existing speech-based applications. A report from SWIRL 2012 also identified conversational approaches to IR as one of the most important directions in Information Retrieval [1]. Moreover, work evaluating spoken interfaces to search engines demonstrate that replicating the standard approach to listing results is ineffective over a speech-only channel [2]. Therefore, the new ways of speech-based access to search offers many opportunities and challenges in Information Retrieval to make search interactions more conversational, and to develop innovative search applications.

There have been several workshops related to CAIR'17. ProActive Information Retrieval (ProActIR)[1] was held in the 38th European Conference in Information Retrieval (ECIR'16) in March 2016. It focused on proactive approaches to IR applications. Talking with Conversational Agents in Collaborative Action workshop[2] was held in the 20th ACM conference on Computer-Supported Cooperative Work and Social Computing (CSCW'17) in February 2017. Finally, First Intelligent Conversational User Interface Workshop (ICUI'17)[3] was held in the 22nd annual meeting of the intelligent user interfaces community (IUI'17) in March 2017.

These workshops indicate strong interests in conversational approaches to computers and information systems. However, none seems to focus on search applications and searching behaviour, which are the strength of the proposed workshop.

## 2  THEME AND PURPOSE OF THE WORKSHOP

The 1st International Workshop on Conversational Approaches to Information Retrieval (CAIR'17) aims to 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 such as voice/speech based interaction, text based interaction, or multimodal interaction. We also welcome studies of human-human interaction (e.g., collaborative search) that can inform the design of conversational search applications.

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[1]https://sites.google.com/site/proactir/
[2]https://talkingwithagents.wordpress.com/
[3]https://iuiworkshop.github.io/

## 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
- Query suggestion
- 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 WORKSHOP DESIGN

CAIR'17 is a full day workshop. Two prominent speakers, Ron Kaplan (Amazon) and Jason Williams (Microsoft Research) are invited to give a talk at the workshop, in addition to oral and poster presentations. The workshop concluds with a round table discussion for future directions of conversational approaches to information retrieval.

## 4 ORGANISATION

Organising team consisted of the active members on this topic both from industry and academic as follows.
- Jaime Arguello (University of North Carolina at Chapel Hill)
- Lawrence Cavedon (RMIT University)
- Hideo Joho (University of Tsukuba)
- Filip Radlinski (Google)

- Milad Shokouhi (Microsoft)

Organisation was also strengthened by the steering commmittee members:
- Fernando Diaz (Spotify)
- Dilek Hakkani-Tür (Google)
- Mark Sanderson (RMIT University)
- Damiano Spina (RMIT University)

and program committee members:
- Fabio Crestani (University of Lugano)
- Roi Blanco (University of A Corua)
- Jeffrey Dalton (Google)
- Ido Guy (Yahoo Research)
- Jiepu Jiang (UMass Amherst)
- Gareth Jones (Dublin City University)
- Ben Lambert (Spotify)
- Karthik Raghunathan (MINDMELD)
- Ruihua Song (Microsoft)
- Amanda Stent (Yahoo!)
- Paul Thomas (Microsoft)
- Johanne R. Trippas (RMIT University)

## 5 ENDORSEMENT

SIGdial (Special Interest Group on Discourse and Dialogue)[4] provided their endorsement to the workshop due to the relevance of IR issues to their community. SIGdial also offered an opportunity for a student travel grant. The collaboration greatly reinforced our view of bridging relevant communities to advance the research and development of effective conversational search applications.

## ACKNOWLEDGMENTS

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[4]http://www.sigdial.org