The Importance of Interaction for Information Retrieval

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ABSTRACT

There has historically been a divide between the user-oriented and system-oriented research communities in information retrieval. In my opinion, this divide is based primarily on a difference in viewpoint about the relative importance of understanding how people search for information compared to developing new retrieval models and ranking algorithms. There is strong agreement, however, that the interaction between the user and the search engine is a fundamental part of the IR process. The IR field was one of the first in computer science to recognize the importance of the user-system interaction, which led to a number of core concepts such as relevance, ranking, result presentation, feedback, evaluation, and browsing. Continuing the discussion of interaction in the past two Salton Award lectures from Jarvelin and Belkin, the key message of this talk is that effective information access *requires* interaction between the user and the system, where both play a role. Additionally, there is growing evidence that even more effective information access can be achieved by a system that *actively* supports interaction, particularly in the limited-bandwidth environments provided by mobile devices and voice-based assistants.

In this talk, I will first give an overview of past IR research on user-system interaction. In much of this research, the system provides passive support for the retrieval process and much of the burden for effective retrieval stays with the user. There has been some research, however, that has attempted to actively support the interaction by designing expert intermediary systems. After this review, I will focus on two current areas of research where active support for interaction is crucial. These are question answering and conversational search. These areas have recently become popular in the NLP community but they have deep roots in IR. I will describe the specific lines of research we have followed at the Center for Intelligent Information Retrieval and RMIT, including interactive answer passage retrieval, studies of information-seeking dialogues, and neural models for selecting responses and answers. Although there are many aspects to this research, I will highlight the parts where interaction is important, how we have attempted to evaluate the research, and where significant progress needs to be made.

CCS Concepts/ACM Classifiers

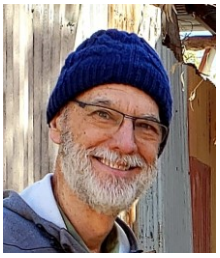
Information systems – Information Retrieval.

Author Keywords

information retrieval; user interaction; conversational search; interactive answer retrieval.

BIOGRAPHY

W. Bruce Croft is a Distinguished Professor Emeritus at the University of Massachusetts Amherst, Director of the Center for Intelligent Information Retrieval (CIIR), and Senior Research Fellow at RMIT University, Melbourne.



He is an ACM Fellow and has received four lifetime achievement awards for his research, including the Gerard Salton Award from ACM SIGIR. Five of his papers have received SIGIR Test of Time Awards and another three received honorable mentions. His Google h-index is currently 103.

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