Cross-device Web Search

Description

Cross-device Web Search

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What is cross-device search?

Suppose you were searching on a shopping site to buy a book, a friend suddenly called you to go out for dinner. On the way to the destination, you turned on the phone and continued the search. And so, a cross-device search happened.

Ownership and use of multiple devices, such as desktops, smartphones, and tablets, is increasing rapidly. Search is widespread, and people often perform search tasks that span device boundaries. As cross-device search behavior is becoming more and more common, Internet service providers are paying more and more attention to the data analysis of users’ cross-device behavior, so research related to cross-device search behavior is necessary.
Why do we need *Cross-device Web Search*?

*Cross-device Web Search* is the first book to examine cross-device search behavior when people utilize multiple devices and several sessions to research the same topic.
Providing a comprehensive examination of cross-device search behaviors, the book also models and analyses their most essential features and, by doing so, helps to elucidate the motivations behind such behaviors. Drawing on various methods and sources, including system design, user experiments, and qualitative and quantitative analysis, the book introduces cross-device search, relates it to relevant conceptual models, and identifies cross-device search topics. The book discusses a comprehensive range of behaviors in the context of cross-device searches, including querying, gazing, clicking, and touching. The book also presents the design and development to support cross-device search cross-device search behavior modeling and predicts users’ search performance.

We hope that *Cross-device Web Search* can provide fascinating insights to practitioners and others interested in information search retrieval, information-seeking behavior, and human-computer interaction communities.

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**What exactly is in *Cross-device Web Search***?

In this book, we collected descriptions and detailed information of cross-device search experiences in real situations through the global crowdsourcing survey, revealed the cross-device search motivations through the reasons for the cross-device search, and summarized eight cross-device search motivations: planned cross-device search, unsatisfied information needs, forced interruption of search, helping memory, complementing existing search results, device advantage, user preference, and device access.

We also further analyzed the correlations among cross-device search task characteristics, including
motivation, and it was found that cross-device search motivation was related to task complexity of cognitive dimension and device switch; search topic was related to task complexity of knowledge dimension and cognitive dimension, search environment, and device switch; and task type was related to task complexity of knowledge dimension. The results provide a reference for designing the controlled experimental cross-device search in the successive study.

Afterward, we selected four cross-device search motivations obtained in the crowdsourcing survey, i.e., planned cross-device search (planned), forced to interrupt the search (forced), helping memory (memory), and complementing existing search results (complement). Simulating the context of these motivations, we conducted a controlled experiment and analyzed the effects of motivation on cross-device search behaviors.
In addition, we performed cross-device search behavior modeling under controlled and autonomous motivation using the cross-device search behavior features, aiming to analyze the critical behavioral features that distinguish cross-device search under different motivations.


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