Paid Search as an Information Seeking Paradigm

By Bernard J. Jansen

Bernard J. Jansen is in the School of Information Sciences and Technology, The Pennsylvania State University, 329F Information Sciences and Technology Building, University Park, PA, 16802, USA. URL: http://ist.psu.edu/faculty_pages/jjansen/. He can be reached via email at jjansen@acm.org or by phone at 814-865-6459.

There is growing interest in information searching research that focuses on the environmental aspects of searchers, as evidenced by the series of workshops on contextual IR at the SIGIR conferences and the SIGUSE symposium on special populations at ASIST 2005. However, there has been little consideration of paid search, an increasingly popular and uniquely contextual form of information interaction on the Web. Paid search is a distinctive type of interaction that combines both information push-and-pull and is increasingly important in locating information on the Web.

Consider the economic impact of paid search. Major Web search engines are commercial entities that require revenue streams to support the free information access that they provide every day to millions of searchers. The primary business model for these search engines is sponsored links, which commercial corporations and small businesses (along with some other entities and individuals) pay for and which appear on results pages when searchers enter certain key phrases as queries. In 2004, paid search was an $8 billion industry and vital to the success of most major search engines. For example, Google received 99% of its $3.1 billion revenue from paid search in 2004; Yahoo! received 84% of its $3 billion, and AOL received 12% of its $1 billion, according to Tim McCarty of *Time* magazine.

Despite this economic impact, paid search has attracted limited attention as an information science research area. An exception is the 2005 workshop at the ACM Conference on Electronic Commerce (EC'05) (http://research.yahoo.com/workshops/ssa2005/sched.html), in which some research from the searching perspective was presented. But, because of its uniquely dynamic contextual interplay among participants, paid search has implications for information searching theories, models, and systems, along with information architecture.

Bill Gross of Idealab (http://www.idealab.com) is credited with creating the paid searching paradigm in 1998 with the launch of Goto.com, which later became Overture, and is now Yahoo! Search Marketing. The two largest paid search entities, Yahoo! Search Marketing and Google, account for the majority of the paid search traffic. But the verdict may be out on whether the paid search paradigm provides relevant information to searchers. Although there have been no definitive published studies (there are some underway), indications are that sponsored results are just as relevant as non-sponsored results for searcher queries. If so, this equivalent effectiveness is an amazing feat for a searching model less than a decade old.

Paid search is analogous to a dynamic form of meta-tagging. Content providers develop campaigns of terms and search phrases that they believe are (1) likely to be submitted by searchers and (2) applicable to their Web content. These content providers also tailor the presentation of the search results to conform to the targeted queries, with possibly several results-listing presentations linked to particular sets of queries. These paid listings are known as sponsored results to differentiate them from the organic, or non-sponsored, listings on the search engine results page. Search engines provide the mechanism for this paid search process to occur. The content providers pay the search engines to present their tailored Web results whenever a searcher submits one of these terms and/or clicks on the result.

However, multiple content providers may want to pay a search engine for the same term or phrase. In these cases, ranking (i.e., which result goes on top) is handled by an electronic auction, with the highest bidder getting the top most rank, the next highest bidder get the next rank, etc.. More bidders on a term or phrase cause higher minimum and maximum bids. Content providers can change terms or phrases, the price they are willing to bid, the degree of term matching, and even the price they pay in a given time period. By engaging in and "buying" key search phrases, these content providers become active participants in the information seeking process of searchers in a very dynamic way.

This dynamic information seeking process has ramifications for how one views human information behavior in this vibrant, multi-actor environment. There are certainly economic ramifications and potential consequences in terms of political discussions, educational issues, and social participation. Paid search, in other words, is both a rich area for research and an area with significant implications for systems, searchers, and content.

The paid search model appears to be an area of increasing impact, as new players enter the field. In the aforementioned workshop on sponsored auctions at EC'05, nearly a third of the participants were from Microsoft Research. Although this may be just an indication of ample travel budgets, many took it as a sign of growing interest from Microsoft in entering the paid search market.

There are important research topics within the paid search paradigm with significant ramifications for information sciences, including:

- **Algorithmic**: How can one best match user queries and content? How can one execute the bidding in a fair, effective, and efficient manner? What is the future search engine functionality needed to further support paid search? What are the changes needed in content creation and information architecture?
- **Business:** Can paid search be used as product branding? How can one make paid search more effective for businesses, search engines, and searchers?
- **Communications**: What effect does paid search have as an interpersonal and mass communication tool?
- **Domains**: Can non-commercial entities adopt the paid search model of information dissemination? Can we transfer the paid search model from Web e-commerce to other domains, such as education or health? Can the model be implemented on Intranets?
- **Searching**: What are the possible long-term effects on information seeking, sharing, and exchange practices for Web users? How does one define a "document" in a space where the meta-data can change within seconds?
- **Social**: Can searchers trust sponsored links? What are searcher perception issues? What are the long-term effects of paid search?
- **Theory**: How must we refine our theoretical views and models of information searching and e-commerce? How can we modify our current theories and models to incorporate and include the content providers as active participants in the information searching process?

The diverse articles in this special issue present paid search from various perspectives. In many cases, the phraseology is difference, with paid search begin viewed as marketing, advertising, or service fulfillment. However, the underlying viewpoint of each is the same – providing the searcher with relevant information. The articles address both some of the areas outlined and some additional topics, including fraud. The intentional act of trying to get a search engine to

present a non-optimal result is an area many researchers do not consider, but it a vitally important concern with Web search.

One view that is not represented in this set of articles (not from want of trying though!) is the perspective of a content provider. For this perspective, I refer the interested readers to Webmasterworld.com (www.webmasterworld.com), which may be the largest community of practice of e-commerce content providers in existence. If one is ever in doubt concerning the impact and significance of information searching and retrieval research, the discussions on Webmasterworld.com are certainly eye-opening.

Selected Texts for Further Reading

Jansen, B. J. and Resnick, M. 2005. *Examining searcher perceptions of and interactions with sponsored results*. Workshop on Sponsored Search Auctions, The Sixth ACM Conference on Electronic Commerce (EC'05). Vancouver, Canada. 5-8 June.

Jansen, B. J. and Molina, P. Forthcoming. *The effectiveness of Web search engines for retrieving relevant ecommerce links*. Information Processing & Management.