Using Visualization to Support Web Search Tasks

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In many information-intensive computer applications, the ability to automatically generate interactive visual representations of the information are of great value. For example, stock trading software that interactively generates graphs depicting the stock price fluctuations over a period of time can be very useful to stock traders. Such a system can allow the user to easily determine the relationships between the data values, identify exceptionally high and low values, and recognize general trends in the data.

However, there are many types of information-intensive applications for which the automatic generation of graphs or diagrams is not an easy task. One such application is web search, where the information is primarily textual. Web search queries are often only one to three terms in length, and web searchers seldom view more than three pages of search results. This indicates that there may be problems in the primarily textual interface used by search engines. There is a great opportunity to use information visualization techniques to not only assist users in formulating accurate queries, but to also make it easier for them to decide which documents in the search results may be worth viewing.

In this presentation, we will discuss our recent advances in using interactive visual interfaces for both generating effective queries, and for interactively exploring the results of a web search. Our studies have shown that these tools can both assist the users in building better queries, and allow them to become more efficient at evaluating the search results.