Chapter 2
Rich and Dynamic Library Catalogs:
A Case Study of Online Search Interfaces

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ABSTRACT

The authors redesign the user interface of an online library catalog, leveraging current Web technologies that allow dynamic and fine-grained user interaction. Over the course of their iterative design and test cycle, they identified four key areas where such dynamic Web technologies can be used to improve the support for typical information seeking strategies, namely: 1) the use of overview + details, 2) a tabular data display, 3) using tabs as a history mechanism, and 4) embedding a suggestion bar. The authors believe that the revised affordances created by their changes in these four areas will inform the design of future search interfaces.

INTRODUCTION

In the past decade, many integrated library systems have migrated their patron library catalog to Web-based applications. The resulting Online Public Access Catalogs (OPACs) embraced the advantages and limitations of the HTML medium. With HTML 2.0, vendors had access to a simple and uniform user interface toolbox that was limited to clicking hyperlinks and submitting fill-in forms for receiving user input and sending an entire HTML page to report relevant results. While the resulting systems were instantly accessible worldwide, they were static, having limited or no interaction with the user after page rendering.

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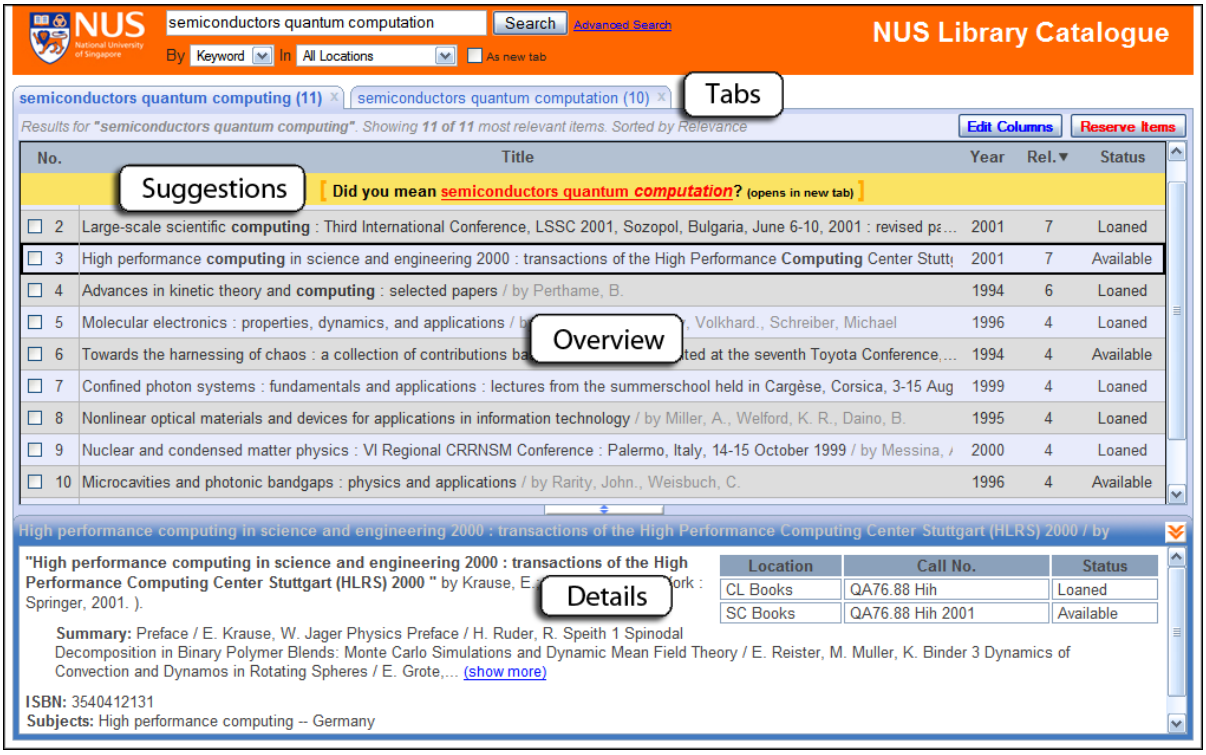
Figure 1. Prototype OPAC user interface with AJAX



In the past decade, a set of new technologies has changed this interaction pattern. These technologies push the computational load of handling the interaction to the client's Web browser. Dynamic HTML (DHTML), the Document Object Model (DOM), and JavaScript enable the client to respond to fine-grained user interactions with a Web page to update and redraw parts of the page. Asynchronous XML + JavaScript (AJAX) extends this notion of interactivity further, allowing the client to both pull data from and push data to the server. Similarly, CSS and XSLT offload the burden of rendering a logical document to the client, easing the transmission load. When coupled together appropriately, these "dynamic" Web technologies enable Web-based applications to interact with the user in a much more immediate and fine-grained manner than is possible using earlier Web technology. Contrast this to "static" interfaces that use a click-and-wait paradigm and require an entire page refresh to respond to any type of interaction.

How can such technologies improve UI design in online catalogs? Such dynamic Web technologies enable a tighter loop of interactivity between the user and the data presentation. We believed that such interactivity could be leveraged to better support the information seeking tasks of library patrons in their catalog use.

In 2007, we have done several iterations of design, implementation, and focus group testing, resulting in a new design for our university's catalog system. While our redesign touches on many different usability aspects, we focus on the four areas that are enabled as a direct result of employing dynamic Web technologies (Figure 1).

- **Overview + Details Panes:** We replace the separate pages for results and item details