Chapter XI

Agent-Mediated Knowledge Acquisition for User Profiling

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ABSTRACT

This chapter presents a tool for knowledge acquisition for user profiling in electronic commerce. The knowledge acquisition in e-commerce is a challenging task that requires specific tools in order to facilitate the knowledge transfer from the user to the system. The proposed tool is based on a hierarchical user model and is agent-based. The architecture of the tool incorporates four software agents: processing agent maintaining the user profile, validating agent interacting with the user when information validation is needed, monitoring agent monitoring the effects of the changes made to the user profile, and a filtering agent ensuring the safe information exchange with other software.

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INTRODUCTION

In the past few years, Internet shopping has been growing rapidly. Most companies now try to offer a web service for online purchase and delivery in addition to their traditional sales and services. For consumers, this means a broader range of online stores from which to buy products. At the same time, this also means that users face more complexity in using these online services. This complexity, which arises due to factors such as information overloading or lack of relevant information, reduces the usability of e-commerce sites.

This fact is supported in a study presented by Schaffer and Sorflaten (1999) that revealed serious usability problems with e-commerce sites. In this study, respondents gave the following top three reasons for abandoning a web site during personal shopping: inability to find the sought item (56%); the site is disorganized or confusing (54%); and low speed in downloading the pages (53%).

Usability is a prerequisite for the success of e-commerce. If people cannot easily find a product, then they cannot buy it. It does not matter how cheap the products are (Nielsen Norman Group, 2001a). Besides that, customer loyalty depends on positive branding, which is associating a logo or a product with a positive emotional experience. When someone has a negative experience with a web site, being unable to find a product or navigate the site, they associate that negative experience with the brand. Firsthand experience is much more powerful in determining whether a customer will remain loyal to a brand, and no amount of marketing can overcome a negative experience such as being unable to use or find information on a web site (Rohn, 1998).

Since its very beginning, the Internet has been growing in popularity and complexity; the largeness makes it difficult for the user to find the information he needs. Often, it is more difficult for users to shop on the Internet than by conventional means. On the Internet, the user finds himself either “flooded” with irrelevant information mixed with some relevant information, or lacking relevant information altogether. In the context of B-to-C e-commerce type, we note the following:

- User interfaces play an important role in achieving user acceptance.
- Queries usually return more matches than the user can consult or fewer matches than expected.
- The user is “flooded” by unwanted and sometimes unsolicited information (e.g., advertisement banners that pop-up or appear as part of the main window of the browser).
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