

DUMPERS: Boosting the efficiency of web menus

Vera Hollink, Maarten van Someren
Human-Computer Studies Laboratory, University of Amsterdam
{vhollink,maarten}@science.uva.nl

With the development of the internet an enormous quantity of information has become publically available. Unfortunately, nowadays the amount of available information makes it very hard to find a required piece of information. Part of the problem is that web sites are often poorly structured. In addition, many originally well designed structures over time become unsuitable due to changes in user populations and the sites' contents.

Aim of the DUMPERS project is to develop methods to automatically improve navigation structures of web site to make it easier for users to find the information they are looking for. We analyze the behavior of a site's users and identify suboptimal elements of the structure. Methods are developed to automatically adapt these elements to make them more tailored to the users' information needs. For the evaluation of the methods we collaborate with the SeniorGezond site, a site with information for elderly people developed by TNO and the Leiden University.

The first part of the DUMPERS project focused on the use of exploration techniques to accelerate adaptation. Subsequently, we investigated possibilities to automatically create navigation structures for users who are not able to accurately formulate their information needs. The work presented in this talk concerns the optimization of hierarchical menus for users with more specific questions.

Hierarchical menus are a widely used means of navigation. When developing a menu one has to decide how the information in the menu will be categorized. To help the users best one needs to choose the structure that allows the fastest access to the site's contents. However, finding an efficient structure is a non-trivial task. Even for a moderate sized site there are numerous possible arrangements.

Most research on automatic menu optimization focuses on creating maximally coherent categories. The categories contain pages that are similar to each other and dissimilar from the pages in the other categories. Although coherence is indisputably an important aspect of a menu structure, we argue that coherence alone is not enough. In a maximally efficient menu the hierarchical structure reflects not only the site's contents but also the preferences of its visitor population.

In this talk we present a menu optimization method that actively tries to minimize the time users need to find their target information. This method combines category coherence with the probabilities that each of the pages contains the users target information. Frequently accessed pages are automatically moved to more prominent positions in the menu, while less important information is hidden deeper in the hierarchy. We present experimental results that confirm the advantage of the algorithm over traditional menu optimization methods. The talk is concluded with a demonstration of the algorithm on the menu of the SeniorGezond site.