

# **Adaptive Hierarchical Menus: A Usage-based Approach**

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## **ABSTRACT:**

Hierarchical menus are a popular navigation tool for websites. Compared with search they have the advantage that the user does not have to invent keywords but only to recognize the most relevant option from a set offered in the form of a menu. The design of a good menu-based navigation structure for a website is difficult because the interest of the users and how this is expressed is often unknown at design time. Here we present several methods for automatically identifying weaknesses in the menu structure and for automatically evaluating candidate improvements. We make the simplified assumption that the user wants to find some information efficiently, that is in the shortest possible time. Our approach is to develop a usage model that enables the prediction of time that users need. Parameters of the model are obtained from the usage data and then the model is used to evaluate "in vitro" the time that users will need with a given menu structure. This is used in turn to search for weaknesses of the current menu structure and for improvements. The results show that this simple approach gives useful results with a clear empirical and conceptual basis.