Exhibit 25

TOWARDS AN INTELLIGENT AND PERSONALIZED RETRIEVAL SYSTEM

Sung H. Myaeng and Robert R. Korfhage
Department of Computer Science and Engineering
Southern Methodist University

ABSTRACT. Development of an information retrieval system that can be personalized to each user requires maintaining and continually updating an interest profile for each individual user. Since people tend to be poor at self-description, it is suggested that profile development and maintenance is an area in which machine learning and knowledge base techniques can be profitably employed. This paper presents a model for such an application of AI techniques.

KEYWORDS: information retrieval, user profile, learning, personalized system

1. Introduction

In the context of conventional information retrieval systems (IRS), the search process is initiated and completed by a set of queries from a user. Each query, usually in the form of a vector or Boolean expression, consists of a set of key terms to be matched with the contents of relevant items. To improve the retrieval effectiveness, modification of the user query through the application of user feedback has been studied with some successful results [13].

There have also been systems, called selective dissemination of information systems (SDI), that selectively distribute incoming information to appropriate users based on user interest profile. However, only recently has a set of models been proposed that effectively combines the two different modes of the systems, thereby attempting to enhance the quality of retrieved items [3,8,9].

One of the major stumbling blocks in the conventional IRS is the problem of formulating a query which accurately matches the user's needs and the contents of potentially relevant items[1,12]. Unfortunately, different users expect different sets of items from the same query and make different relevance judgements on the same retrieved items, directly related to their individual needs. But the conventional retrieval system disregards the individual user's characteristics and the fact that diverse users have different perceptions of the underlying system. While it is natural that a user perceives the system in the light of his or her experience and needs, both the restricted structure of a query and the nature of the conventional system itself make this perception unavailable to the system. We believe that knowledge captured in a user profile embedded in the system will play an essential role in making a personalized system. One effect can be to retrieve a broader range of items, some of which would never be brought to the user's attention on the basis of the query alone. People prefer a librarian who can surprisingly provide information not explicitly requested but judged to be important to them. Profile information will also help the system tailor the retrieved items to a particular user's needs and rank them appropriately. Again, a friendly and intelligent librarian can eliminate some information which is not of the user's concern but would have been retrieved by a novice librarian who had to rely

121