Chapter 3

Using a Recommender System to Help the Technology Transfer Office Staff to Disseminate Selective Information

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Recommender systems evaluate and filter the great amount of information available on the Web, so they could be used to help users in their access processes to relevant information. In the literature we can find a lot of approaches for generating personalized recommendations. Hybrid recommender systems combine in different ways several approaches, so these recommendation strategies represent a promising solution for multiple applications. In this paper we propose a hybrid fuzzy linguistic recommender system to help the Technology Transfer Office staff in the dissemination of research resources interesting for the users. The system recommends users both specialized and complementary research resources and additionally, it discovers potential collaboration possibilities in order to form multidisciplinary working groups.

3.1 Introduction

Theoretical and empirical works in innovation economics suggest that the use of scientific knowledge by setting up and maintaining good industry/science relations positively affects innovation performance [43]. In terms of organizational structure, creating a specialized Technology Transfer Office Technology Transfer Office (TTO) within a university can be instrumental in developing relations with the industry [45]. The TTOs were established to facilitate commercial knowledge transfers from universities to practitioners or university/industry technology transfer [59]. They are responsible for managing and putting into action the activities which generate knowledge and technical and scientific
collaboration, thus enhancing the interrelation between researchers at the university and the entrepreneurial world and their participation in various support programmes designed to carry out research, development and innovation activities. A service that is particularly important to fulfill this objective is the selective dissemination of information about research resources. But the TTO staff finds difficulties in achieving an effective selective dissemination of information. To solve this problem, automatic techniques are needed in the TTO to facilitate users to selectively access to research resources. In this sense, we consider interesting two different tools to facilitate the access to the information: Information Retrieval Systems [33, 39, 42] and Recommender Systems [4, 17, 40, 54, 60]. The former are focused on information search in a known content repository while the later are focused on information discovery in partially known frameworks.

Recommend systems attempt to discover information items that are likely of interest to a user. They are especially useful when they identify information that a person was previously unaware of. They are becoming popular tools for reducing information overload and to improve the sales in e-commerce web sites [7, 36, 54]. The provision of personalized recommendations requires that the system knows something about every user, such as the ratings provided by the users about the explored items. This knowledge implies that the system must maintain users’ profile containing the users’ preferences or needs.

From a theoretical point of view, recommender systems have fallen into two main categories: [16, 17, 19, 47, 52, 54, 57, 60]. Content-based recommender systems and Collaborative recommender systems (see Section 3.2). If we analyze the TTO scope, we find that the collaborative filtering approach is very useful because it allows users to share their experiences, so that popular resources can be easily located or people can receive information items found useful by others with similar profiles. But the collaborative approaches tend to fail when little is known about items, i.e., the system has few ratings. For this reason, we propose to combine the content-based and collaborative approaches to obtain a hybrid recommendation scheme.

The aim of this paper is to present a hybrid fuzzy linguistic recommender system which is applied in the TTO in the University of Granada. In such a way, it allows to help the TTO staff to selectively disseminate research knowledge and the researchers to discover information. The most important novelties of this fuzzy linguistic recommender system are: