

A hybrid recommender system to predict online job offer performance

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Abstract. With the expansion of internet to advertise, the number of potential channels is increasing every day. In the Human Resource domain, recruiters have to choose between hundreds of job search web sites when they post a job offer on the internet. In order to save costs, assessing job board expected performance has become necessary. In this paper, three recommender systems providing job board performance estimation for a given job posting are introduced. This work refers principally to the new item problem, which is still a challenging topic in the literature. The first system (PLS-R) is a content-based approach, while others are hybrid recommendation approaches. Estimation is made on item neighborhood according to a “naive” similarity or a supervised similarity measure. These predictive algorithms are compared through experiments on a real dataset. In this application, supervised similarity-based system overcomes the lacks of other approaches and outperforms them.

1 Introduction

Context and objectives. In domains such as Marketing, Advertising or even Human Resources (sourcing), decisionmakers have to choose the most suitable channels according to their objectives when starting a campaign. With the expansion of internet to advertise, the number of potential channels (and targets) is exponentially growing. Today, a great challenge common to several research domains is the development of intelligent tools to support users in their choices. In this work, we focus on an issue encountered in the Human resource area. The rapid increase in the number of job search web sites (job boards) has made crucial the assessing of job posting performance. A job posting is a job offer published on the web, possibly on several job boards simultaneously. Performance is assumed to be the number of applications received on a job board. Posting a job offer on a job board is very expensive, so choosing wisely the channels to use is a very relevant task.

In this context, we are introducing a predictive algorithm of job posting performance (or return) on job boards. We resort to an innovative application of recommender systems: the goal of such systems is to help *users* to find *items* that they should appreciate from huge catalogues on the basis of previously attributed *ratings*. In our application: