Chapter IV

An Approach for Delivering Personalized Advertisements in Interactive TV Customized to Both Users and Advertisers

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Abstract

In this chapter, we present a model for delivering personalized ads to users while they are watching TV shows. Our approach is to model user preferences, based on characterizing not only the keywords of primary interest but also the relative weighting of those keywords. We combine the results of two separate agents: TV Monitoring Agent (TMA) tracks the kind of shows being watched by the user, for how long, and on what days; Internet Monitoring Agent (IMA) captures the keywords of interest to the user, based on browsing activity. The conclusions reached by these
two agents are merged into one representation, compared to a characterization of possible ads to be delivered, and adjusted to fit into required time slots. We consider as well the case of providing ads for an entire household of users, making use of the collection of individual profiles. We discuss how our approach results not only benefit users but also the benefit to advertisers.

**Introduction**

This chapter focuses on the problem of providing personalized advertisements to people who are watching interactive TV (iTV) shows. The aim is to decrease the cost of TV services by increasing the amount of advertisements the users watch during TV shows. The problem is that users may become annoyed by the ads that are provided. We develop an approach that allows a channel provider to select ads from a predetermined set in such a way that the profiles of potential users in the household are well matched to each ad. We, in fact, allow for these choices to be made dynamically as the show is being broadcast.

In particular, we propose acquiring information about each user both from a monitoring of their viewing habits (not only which shows but for how long and on what days) and an analysis of their Internet browsing habits (initial Web pages and others linked to them). We use a keyword-based approach to represent these user models, incorporating methods for weighting the various keywords that indicate the user’s interests. An especially important aspect of our model is representing a user’s interest in the keywords of a show more heavily when a user actually watches a significant percentage of that show and discounting possible conclusions about the user’s interests in a show, when only a small percentage of that show has been watched. The current show and all its potential advertisements are also represented in terms of keywords, enabling an effective selection of ads that are personalized to the users.

We then move on to discuss the important case of multiple viewers in a single household. Whereas, most efforts to personalize TV assume there is a single user to address, we allow for more than one person to be viewing a show at the same time. We propose an algorithm for selecting ads that is open to potential differences among the possible viewers and also clarify how our model can begin to account for cases where the user is in the household but in fact is not watching the TV at the time of the modeling.

In all, with personalization we provide a method for delivering ads that should be agreeable to users, and with an effective procedure for selecting ads that should please a set of potential viewers, we allow not only satisfied advertisers but satisfied channel providers, who may then operate at a lower overall cost.
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