Chapter 5.9
Audience Intelligence in Online Advertising

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ABSTRACT

This chapter introduces the fundamentals of audience intelligence's important aspects. The goal is to present what are related to audience intelligence, how online audience intelligence could be done, and some representative methods. In this chapter, the author will first address the fundamentals of the audience intelligence, including the brief introduction of the online ad eco-system, the relationship between audience intelligence and existing online ad types, performance measures and the challenges in this field. Next, some classical methods of audience intelligence on end-users will be introduces, namely, demographic, geographic, behavioral targeting and online commercial intent (OCI) detection. Then, audience intelligence on advertisers will be presented. Finally, related topics of online advertising, such as the privacy issue, will be addressed.

INTRODUCTION

Audience intelligence is to understand the audiences in the online advertising eco-system. There are three roles in this eco-system, and each one could be the study object of the audience intelligence. First of all are the end-users, who browse the web pages, enter search queries, and buy products online. They are the targets of the whole advertising system. Second are the web publishers (or media), who convey the ads/information to end-users through their online channels, such as portals, search engines, IM tools. The third are the advertisers, which are the origins of the eco-system. The study of audience intelligence is to obtain useful knowledge about the roles involved in the online advertising eco-system. With this knowledge, advertisement could be

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delivered "smarter", that is to say, more efficient and effective.

For end-users, audience intelligence helps them to be better understood. Then the information/ads of products which meet their interests and needs will be delivered to them, while those annoying irrelevant ads won't bother them. Thus the end-users will have a friendlier online environment.

For advertisers, their payments of advertisement will hit those who have interests in their products, who are likely to be affected by online ads and who have the desire to purchase. By providing ads to the targeted end-users, advertisers will have higher return of investment.

For publishers, audience intelligence could help them to improve the advertising revenue by delivering the ads in a smarter way. The application of audience intelligence technology, such as behavioral targeting, has demonstrated its power in boosting the ad performance in terms of click through rate (CTR) and other pricing measures. Adopting these kinds of value-adding techniques will increase publishers' profit.

In a word, audience intelligence is a win-win approach for all the participants in the online advertising eco-system.

These years, with the rapid growth of Internet-based e-commerce, audience intelligence has attracted more and more interest from both academic and industrial societies.

The research on audience intelligence combines the efforts on data mining, natural language processing, multimedia, and related fields. The related papers could be found in data mining conferences including SIGKDD (Knowledge Discovery and Data Mining), WWW(World Wide Web Conference) and ADKDD (Workshop on Data Mining and Audience Intelligence) (Belkin, Kelly, Kim, Kim, Lee, Muresan, Tang, Yuan, & Cool, 2003; Conversion rate, n.d.), etc.. Besides, people from traditional advertising and financial fields also send their papers to International Journal of Advertising. For example, Wharton business school from University of Pennsylvania publishes a lot of reports on their website http://knowledge.wharton.upenn.edu/. After tens of years' research in this field, fruitful results have been achieved. For example, a variety of methods have been proposed to understand the online users. The common approaches include demographic targeting, geographic targeting, behavior targeting and so on.

As for the industrial society, Google, Yahoo!, and Microsoft are major players in this field. comScore, TNS, Tacoda and many other companies also have their shares by devoting in analyzing web users' data. The market of audience intelligence is booming. For example, the market of behavior targeting is expected to explode from 350M in 2006 to 1.7B in 2010.

This chapter is to introduce the fundamentals of audience intelligence's important aspects. The goal is to present what are related to audience intelligence, how online audience intelligence could be done, and some representative methods. In this chapter, we will first address the fundamentals of the audience intelligence, including the brief introduction of the online ad eco-system, the relationship between audience intelligence and existing online ad types, performance measures and the challenges in this field. Next, some classical methods of audience intelligence on end-users will be introduces, namely, demographic, geographic, behavioral targeting and online commercial intent (OCI) detection. Then, audience intelligence on advertisers will be presented. Finally, related topics of online advertising, such as the privacy issue, will be addressed.

1. BACKGROUNDS

1.1 Eco-System

There are three key roles in the online advertising eco-system. They are the end-users, advertisers and (online) publishers. Figure 1 illustrates the relationship between them.