AI in Web advertising: picking the right ad ten thousand times a second

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Abstract

Online advertising is the primary economic force behind many Internet services ranging from major Web search engines to obscure blogs. A successful advertising campaign should be integral to the user experience and relevant to their information needs as well as economically worthwhile to the advertiser and the publisher. This talk will cover some of the methods and challenges of computational advertising, a new scientific discipline that studies advertising on the Internet. At first approximation, and ignoring the economic factors above, finding user-relevant ads can be reduced to conventional information retrieval. However, since both queries and ads are quite short, it is essential to augment the matching process with external knowledge. We demonstrate how to enrich query representation using Web search results, and thus use the Web as a repository of relevant query-specific knowledge. We will discuss how computational advertising benefits from research in many AI areas such as machine learning, machine translation, and text summarization, and also survey some of the new problems it poses in natural language generation, named entity recognition, and user modeling.