

IJCAI-18 Alimama International Advertising Algorithm

Competition

Motivation, impact, and expected outcomes

Sponsored search is one of the most popular marketing approaches in today's internet ecosystem. Merchants (advertisers) set several keywords for their products, and these products will be presented to the customers who search these keywords. By the end of 2017, the gross revenue from sponsored search has been more than 100 billion, which exceeds 50% of the overall incomes of internet advertising. Sponsored search contributes the majority of revenue for most Internet companies, such as Google and Facebook. Due to its technical challenges and commercial values, Sponsored search has been widely studied in the industrial and research areas all over the world.

The conversion rate (CVR) in sponsored search is defined as the probability of a user to purchase the displayed item after clicking this item. CVR indicates customers' satisfactory to the displayed items, shops and the advertising creative. For example, someone searches "sweater" in Taobao.com on PC or mobile client, dozens of sweaters with different brands and styles will be displayed. By clicking one of these items, detailed information about this item, including the product introduction, store reputation and user comments, will be loaded. Intuitively, if M customers click and browse a specific item, and N of them purchase this item, the CVR of this item is computed as the ratio between the transaction number and the click number, i.e. $CVR=N/M$. In sponsored search, if items with higher CVR are displayed, it is much easier for customers to find the satisfied product, which improves the user experience during online shopping. On the other hand, more purchasing behavior is preferable to the advertisers as the return from the marketing budget. In summary, estimating the CVR accurately facilitates the search engines to reach more potential customers, increases the return on investment (ROI) for advertisers, and improves the user experience during online shopping.

The Alibaba group will provide datasets containing users' e-commerce shopping history records to the machine learning community. We expect brilliant solutions for the competition will be developed, and hopefully the released datasets can inspire the research in related areas, such as sponsored search, recommender system, or social networks.

Problems Abstract

Alibaba (including Taobao, Tmall) is the largest e-commerce platform, which provides high-quality services to billions of customers and collects massive e-commerce transaction data. As the advertising department of Alibaba Group, Alimama makes use of artificial intelligence technologies, such as deep learning, online learning and reinforcement learning, to accurately predict purchase intention of customers, resulting in improvements of user online shopping and increases of ROI for advertisers. Since Alibaba manages a complex e-commerce ecosystem, the CVR prediction is still facing a multitude of challenges, such as long-tailed distributions of user behaviors and search queries. During the 11.11 Global Shopping Festival, promotions conducted by merchants and Taobao.com led to billions of page views, the CVR prediction models trained in the previous days are no longer suitable for the dramatically changed online traffic. How to improve the accuracy of CVR prediction using massive transaction data and advanced artificial intelligence technologies, is one of the most challenging topics in the e-commerce scenario.

Infrastructures

Tianchi platform (<http://tianchi.aliyun.com/>):

We plan to use the data competition platform Tianchi developed by aliCloud (part of the Group). Since 2014, 43 competitions have been successfully hosted on Tianchi, which gathered 128,480 players from 77 countries and regions. This platform is well developed, tested and can be tailored to this contest as needed.

Tentative Competition Schedule

February 1 - June 25, 2018

Website URL

The competition webpage has been released at

https://tianchi.aliyun.com/markets/tianchi/ijcai2018en?spm=a2c41.games_official.

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Organizers

Mr. Hengmin Zhou is a staff engineer in Alibaba and leads the user behavior prediction algorithm team in Alibaba's E-commerce sponsored search

department. He got his master degree from the Chinese Academy of Sciences majoring in machine learning technology. He has been working on the field of sponsored search for 7 years and is a senior expert in applying large scale artificial intelligent techniques in user behavior modeling.

Mrs. Yiting Wang is the leader of Tianchi platform. She specializes in organizing and promoting data mining contest.

Dr. Kaipeng Liu is a senior staff engineer (director) in Alibaba and leads the algorithm team in Alibaba's E-commerce sponsored search department. He got his bachelor, master and PhD degree from Harbin Institute of Technology in 2004, 2007 and 2011 respectively. He is active has rich experience in areas including machine learning, network architecture and auction mechanisms. Kaipeng has led the developing of alibaba's large scale CTR/CVR prediction engine for sponsored search platform. He has published more than 10 papers and patents.

Bibliographic references

Tianchi Competition Platform: <https://tianchi.aliyun.com/>

Alibaba group: <http://www.alibabagroup.com/>

Alimama (in Chinese): <https://www.alimama.com/index.htm/>