

Predicting Purchase Intent of Online Audiences

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Ad targeting is the serving of advertisements to website audiences according to different criteria in attempt to increase ad relevance. Among these criteria is purchase intent. If the purchase intent of audiences who visit particular websites is known then ad targeting can be made to be more efficient by increasing click-through rates, thereby increasing revenues of both publisher and ad network. Advertisers also gain by having ads targeted more precisely and thereby reducing unnecessary ad spend.

This research proposes a methodology to predict the purchase intent of audiences based on a large user panel. The panel's data consists of a collection of clickstream URLs (plus associated metadata) from online analytics firm SimilarWeb. The approach for this research consists of two integral steps: 1. Predict purchase intent of each user in SimilarWeb panel; 2. For each website in SimilarWeb dataset, aggregate purchase intents of all its users. Prediction is performed by training a predictive model on data of users with known purchase history. The model is then applied to users whose purchase history is unknown (or insufficient). Known purchases are determined by analyzing a subset of users whose clickstream data indicates purchases made on the general merchandise website Amazon.com. Product category of each item purchased was determined by looking up values via the Amazon Reseller API.

Preliminary results indicate that the distribution of purchases made on Amazon.com follow a power-law distribution and "Books" is the category representing the largest amount of items sold in the selected date range.