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The Department of Knowledge and Information Management
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Are We There Yet? Predicting Time-to-Conversion Using Search-Diversity

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**Monday, May 7th at 12:00 pm
Jacobs Building, room no. 506**

Abstract

The conversion funnel is a model describing the stages consumers go through in their journey towards a purchase. A large body of literature has focused on using observable search patterns to identify consumers' hidden purchasing stages and to estimate their likelihood of conversion. We focus on the diversity of the searches that a customer engages in while browsing an e-commerce website as a means of estimating the consumer's progress in the conversion funnel, and predicting the time to conversion.

We use a large-scale data set from a medium-sized tourism website used for comparing and booking flights. We develop novel measures of search-diversity, including measures that rely on unobserved similarities among products, captured in a product network (in which products are assumed to be "similar" if they are frequently co-searched). After verifying that these measures are associated with progress in the funnel and conversion likelihood, we show that they hold substantial potential for predicting time-to-conversion (a measure that is indicative of current position in the funnel). In particular, we show that incorporating search-diversity measures into a baseline model for predicting time-to-conversion vastly improves the model's performance. For example, the model's recall is improved by a factor of 14.8, the F1-score improves by a factor of 13.3, and the precision increases by a factor of 3 (from 19.9% to 60.8%).

These results bear managerial implications and offer theoretical contributions. Specifically, our novel search-diversity measures extract the latent convergence process of consumers' choice along the purchase lifecycle, and they leverage the consumer's unobserved consideration dimensions, embodied in the product network.

All Are Welcome

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