Commentary

Discussion of "Website Morphing"

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Website morphing seems to be a useful technique, with applications beyond matching cognitive style.

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I think that the concept of website morphing might be a bit broader than that presented by Hauser et al. (2009). Their definition says that morphing matches the look and feel of a website to cognitive styles, but the way they learn about the cognitive style is by observing the click stream, so a more general definition would be that morphing matches the look and feel of a website to the clickstream.

Cognitive style could be one *interpretation* of what is driving click behavior, although it is not the only interpretation. Suppose, for example, that gender is an important characteristic to an advertiser, and that men click on different things than women. After a few clicks, one might be able to predict the gender of the visitor with reasonable accuracy and morph the website to appeal to the appropriate gender.

Experimentation is, of course, widely used by websites to compare different user interface designs. Google Analytics, for example, offers a "website optimizer," which allows for sophisticated experimentation. What is novel about the approach of Hauser et al. (2009) is that it explicitly recognizes that one size does not necessarily fit all, so the interface optimization should be conditioned on other aspects of observed behavior, such as the prior clickstream.

Their paper is primarily concerned with the case of a single session. However, in practice, state can be stored in cookies and preserved across sessions, meaning that each visitor can have a personalized website. Cookies managed by an ad network also persist across URLs, so that the set of ads that one sees when viewing a major website will generally be different than the set of ads someone else sees, simply because each has a different click and impression history.

Of course, one runs the risk of misclassification, so it is a good idea to allow the user to reset his or her history to a blank slate. Otherwise, viewers might well be frustrated if the classification is wrong. According to a *Wall Street Journal* story (Zaslow 2002):

Mr. Iwanyk, 32 years old, first suspected that his TiVo thought he was gay, since it inexplicably kept recording programs with gay themes. A film studio executive in Los Angeles and the self-described "straightest guy on earth," he tried to tame TiVo's gay fixation by recording war movies and other "guy stuff."

"The problem was, I overcompensated," he says. "It started giving me documentaries on Joseph Goebbels and Adolf Eichmann. It stopped thinking I was gay and decided I was a crazy guy reminiscing about the Third Reich."

Morphing a user interface based on personalized interaction history is not uncommon. In fact, Microsoft Office reorders menu options depending on how frequently a particular operation is performed. This is, admittedly, a trivial example compared to changing the entire the look and feel of a website.

What is attractive about the model presented in the paper of Hauser et al. (2009) is that it delivers a rigorous, well-thought-out strategy that encompasses experimentation, optimization, and personalization. I suspect that there will be other exciting applications of these techniques.

References

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