New study reveals why Facebook ads can miss target

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New research from North Carolina State University offers insight into why Facebook's targeted advertising can sometimes be more like a wild pitch. Researchers already knew Facebook creates interest profiles for

users based on each user's activities, but the new study finds this process doesn't seem to account for the context of these activities.

"For example, if you posted something about how much you dislike green cheese, the algorithm Facebook uses to infer your interests would likely notice that you shared something about green cheese," says Aafaq Sabir, lead author of a paper on the work and a Ph.D. student at NC State. "But Facebook's algorithm wouldn't register the context of your post: that you do not like green cheese. As a result, you may start getting targeted ads for green cheese."

Facebook has been open about targeting advertising to individual users based on each user's interests. It has also made clear that it infers a user's interests based on that person's activities. However, it hasn't been clear exactly how that process works.

"It's well established that Facebook's targeting algorithm often sends people ads for things they have no interest in," Sabir says. "But it wasn't clear why people were getting the wrong ads."

"The implications of inferring inaccurate interests on one of the largest social media platforms in the world are significant in two ways," says Anupam Das, co-author of the paper and an assistant professor of computer science at NC State. "This inaccuracy has both economic ramifications—since it is relevant to the effectiveness of paid ads—and privacy ramifications, since it raises the possibility of inaccurate data being shared about individuals across multiple platforms."

To learn more about how Facebook generates its interest profiles for users, the researchers performed two studies.

In the first experiment, researchers created 14 new user accounts on Facebook. Researchers controlled the demographic data and behavior of

each account, and tracked the list of interests that Facebook generated for each account. (Every user can see the list of interests Facebook has compiled for them by clicking on their ad preferences, then "Categories used to reach you," and then "Interest Categories.")

"This first experiment allowed us to see which activities were associated with Facebook inferring an interest," Sabir says. "And the key finding here is that Facebook takes an aggressive approach to interest inference.

"Even something as simple as scrolling through a page led to Facebook determining that a user has an interest in that subject. For the 14 accounts we created for this study, we found 33.22% of the inferred interests were inaccurate or irrelevant."

"We then wanted to see if these findings would hold true for a larger, more diverse group of users, which was the impetus for the second experiment," Das says.

In the second experiment, the researchers recruited 146 study participants from different parts of the world. Study participants downloaded a browser extension that allowed researchers to collect data from each participant's Facebook account about their interests. Researchers then asked participants questions about the accuracy of the interests Facebook had inferred.

"We found that 29.3% of the interests Facebook had listed for the study participants were actually not of interest," says Das. "That's comparable to what we saw in our controlled experiments.

"We also found that most study participants didn't even know Facebook's ad preference manager exists. They didn't know there was a list of interests they could look at, or that Facebook provides at least a basic explanation of why it has assigned a given interest to a user.

"This is an interesting finding in itself," Das says. "Because the goal of providing all of this information regarding interests is ostensibly to be transparent with users. But given that many users don't even know this information is available, Facebook is not achieving that goal."

More information: Analyzing the Impact and Accuracy of Facebook Activity on Facebook's Ad-Interest Inference Process. *Proc. ACM Hum.-Comput. Interact.* [doi.org/10.1145/3512923](doi.org/10.1145/3512923)

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