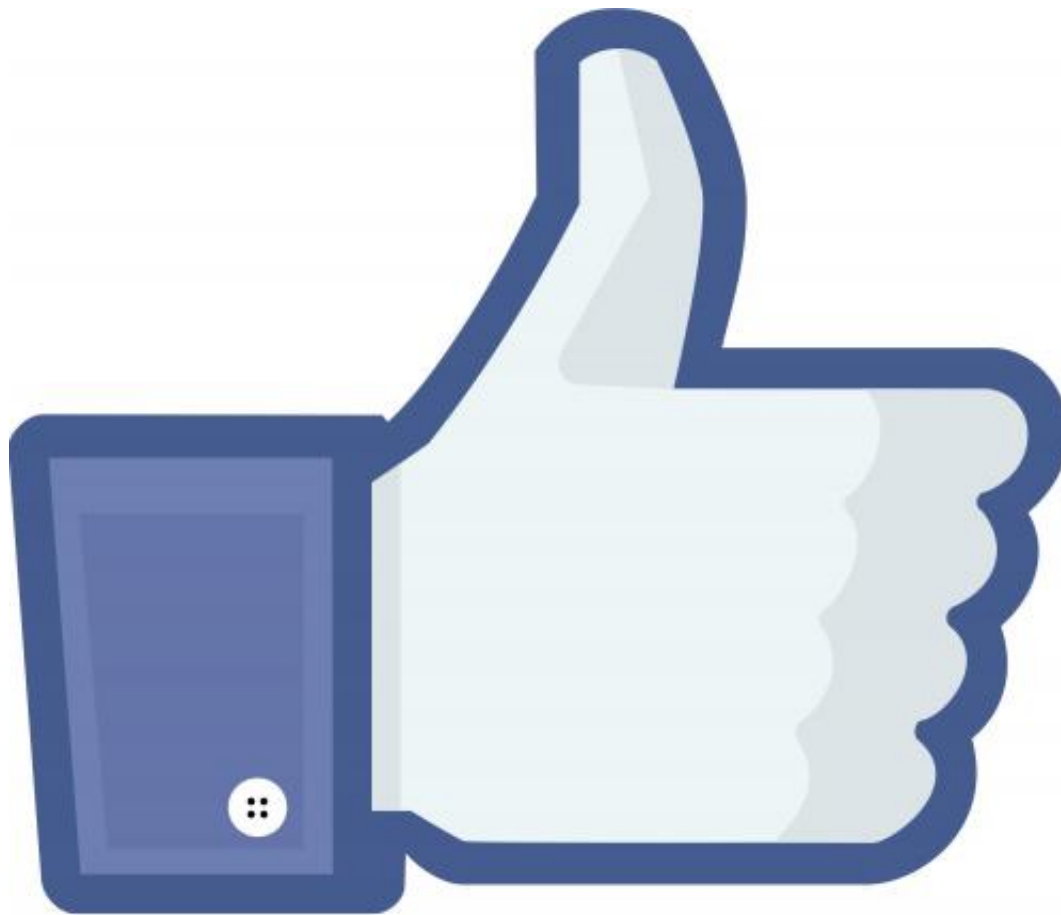


Love actually: Computer model may decode Facebook emoticons

February 6 2018, by Matt Swayne



While the trusty "like" button is still the most popular way to signal approval for Facebook posts, a computer model may help users and

businesses navigate the increasingly complicated way people are expressing how they feel on social media, according to Penn State researchers.

In a study, researchers developed a social emotion mining computer model that one day could be used to better predict people's emotional reactions to Facebook posts, said Jason Zhang, a research assistant in Penn State's College of Information Sciences and Technology. While Facebook once featured only one official emoticon reaction—the like button—the [social media](#) site added five more buttons—love, haha, wow, sad and angry—in early 2016.

"We want to understand the user's reactions behind these clicks on the emoticons by modeling the problem as the ranking problem—given a Facebook post, can an algorithm predict the right ordering among six emoticons in terms of votes?" said Zhang. "But, what we found out was that existing solutions predict the user's emotions and their rankings poorly in some times."

Zhang added that merely counting clicks fails to acknowledge that some emoticons are less likely to be clicked than others, which is called the imbalance issue. For example, users tend to click the like button the most because it signals a positive interaction and it is also the default emoticon on Facebook.

"When we post something on Facebook, our friends tend to click the positive reactions, usually love, haha, or, simply, like, but they'll seldom click angry," said Zhang. "And this causes the severe imbalance issue."

For social media managers and advertisers, who spend billions buying Facebook advertisements each year, this imbalance may skew their analysis on how their content is actually performing on Facebook, said Dongwon Lee, associate professor of [information sciences](#) and

technology. The new model—which they call robust label ranking, or ROAR—could lead to better analytic packages for social media analysts and researchers.

"A lot of the commercial advertisements on Facebook are driven by likes," said Lee. "Eventually, if we can predict these emoticons more accurately using six emoticons, we can build a better model that can discern more precise distribution of emotions in the social platforms with only one emoticon—like—such as on Facebook before 2016. This is a step in the direction of creating a model that could tell, for instance, that a Facebook posting made in 2015 with a million likes in fact consists only 80 percent likes and 20 percent angry. If such a precise understanding on social emotions is possible, that may impact how you advertise."

The researchers, who will present their findings at the Thirty-Second AAAI Conference on Artificial Intelligence today (Feb. 6) in New Orleans, used an AI technique called "supervised machine learning" to evaluate their newly-developed solution, Lee added. In this study, the researchers trained the [model](#) using four Facebook post data sets including public posts from ordinary users, the New York Times, the Wall Street Journal and the Washington Post, and showed that their solution significantly outperformed existing solutions. All four sets of data were analyzed after Facebook introduced the six emoticons in 2016.

The researchers suggest future research may explore the multiple meanings for liking a post.

"Coming up with right taxonomy for the meanings of like is another step in the research," said Lee. "When you click on the like button, you could really be signaling several emotions—maybe you agree with it, or you're adding your support, or you just like it."

Provided by Pennsylvania State University

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