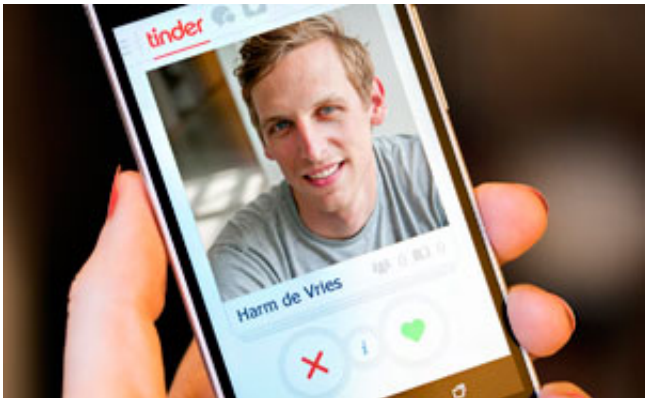


# Tinder-tinkering artificial intelligence could lessen left-swiping

September 2 2015, by Martin Lasalle And William Raillant-Clark

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An artificial intelligence programme to improve Tinder suggestions has been developed by Harm de Vries, a post-doctoral researcher at the University of Montreal who was sick of swiping left. Signing up for an account was one of the first things he did upon arriving in the city in August 2014, but he was disappointed with the results. "Tinder kept offering me photos of women with lots of tattoos and piercings, even though I'd never chosen a single one. I don't want to offend anyone, they're simply not my type," he explained. Noting that the app failed to take note of his user history in order to better target the women he might like, he developed new software, the details of which he published on *Arxiv*. His work is supervised by professors Aaron Courville and Roland Memisevic who are with Yoshua Bengio's lab in the Department of

## Computer Science and Operations Research.

For those of us who are unfamiliar with Tinder, it's a [mobile application](#) that works by looking at the user's location: it finds users close to where you are and displays their photos. You can then either swipe right with your finger to indicate that you are interested, or to the left if you aren't. If someone swipes right on your photo, you're a match and are able to communicate directly with each other.

Developing his programme depended on teaching it how to recognize the type of women that he likes. To do this, he extracted almost 10,000 images from the Tinder and app and processed them using algorithms.

"Ten thousand images might seem like a lot, but in reality, it was too few for the programme to be able to precisely predict which image might interest me, as [physical attraction](#) does not depend uniquely on objective characteristics such as hair colour," de Vries said.

In order to establish his programme's success rate, de Vries' first step was actually to figure out what his own preferences actually were. "I realized that I was interested in 53% of the women's portraits, which meant that my tastes are actually wider than I thought!" he said. The first version of his programme, which allowed the user to label images to train the machine, had a mixed result: 55%. "I labeled all 10,000 images from Tinder. 8000 were used to train the program, and the rest were used to evaluate the performance of the program. The results of the first version were hardly better than chance, because it seems that a sample of 10,000 photos was too little, and because predicting attraction is more complex than a computer determining whether or not there's a person in the image," he added.

Refining the analysis required applying "deep learning" – a type of computer learning that works in a similar way to the brain's neuron networks. It depends on successively filtering information. From the pictures and the labels, the successive filters enable the machine to learn

concepts such as hair colour and gender. This involved programming the computer so that it could distinguish men from women amongst 500,000 photos that he had retrieved from OkCupid, an American dating site. After a few weeks of learning, the computer managed this task with 93% accuracy. In comparison, de Vries himself only achieved 95% when he undertook the task personally.

Next, he built the data from this learning analysis into his original programme in order to test it once again on its ability to find Tinder photos he'd like. This led to a success rate of 68%. "A success rate 68% is a very good start, in one of my good friends who knows my tastes well looked a random sample and only achieved 76%!" de Vries said.

His result leads him to believe that artificial intelligence could improve computer analysis of Tinder users' preferences. As for de Vries, his next steps will be to further improve his computer's deep learning abilities, advancing [artificial intelligence](#) to help people to find their soulmate.

**More information:** "Can deep learning help you find the perfect match?" [arxiv.org/abs/1505.00359](https://arxiv.org/abs/1505.00359)

Provided by University of Montreal

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