

# New twists for love in age of big data

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Credit: BemDevassa/Wikipedia

It is the ultimate test for big data—finding the secret algorithm of love. Online dating companies say they have the know-how and scientists have been studying the question for years.

The answers, alas, are not clear-cut for the lovelorn who scour the Internet looking for the perfect mate.

A 2012 study by researchers led by Northwestern University psychologist Eli Finkel concluded there was no algorithm that could predict a successful match, notwithstanding the claims of online dating firms.

"No compelling evidence supports matching sites' claims that mathematical algorithms work," said the study published in the journal *Psychological Science in the Public Interest*.

The researchers wrote that dating sites "are in a poor position to know how the two partners will grow and mature over time... and how the dynamics of their interaction will ultimately promote or undermine romantic attraction and long-term relationship well-being."

But could it be that dating sites simply have not yet found the right mathematical formula?

## 'Netflix formula' for love?

A team of researchers led by Kang Zhao at the University of Iowa say in a 2014 study that they found a method that markedly improves chances for online matches.

The new formula, interestingly, is based on the techniques used by successful online companies like Amazon and Netflix, and are based on user recommendations, not merely profiles filled out by love seekers which may be incomplete or inaccurate.

"What we did in our study is to look at users' activity instead of their profiles," Zhao told AFP. "Your activity reflects your tastes and your attractiveness, or your unattractiveness. We extend what Amazon and Netflix have been using."

So if person A shares a lot of characteristics with person B who draws a lot of positive responses from the opposite sex, the reasoning is that person A will elicit a similar response.

This is known as "collaborative filtering" and is used by online commerce firms, according to Zhao, who has been in talks with dating companies on using his formula.

"The new model can better recommend partners that match a user's taste and attractiveness," said the study to appear later this year in the *IEEE Intelligent Systems Journal* with co-authors Xi Wang, Mo Yu, and Bo Gao.

He said that using this system, "the chances of getting a response increase 40 percent" compared to a baseline without collaborative filtering.

"Whether it's a perfect match, I don't know," he said. "But we can at least help people get a successful date."

## No more stigma

The new research comes amid growing interest in online dating.

A 2013 Pew Research Center survey found 11 percent of Internet users—or some nine percent of all American adults—said they have personally used an online [dating site](#). That is a sharp increase from 2008, when just three percent of American adults had used [online dating sites](#).

The survey found 66 percent of those who use online sites or apps have gone on a date with someone they met through one of these services. And 23 percent of online daters have married or begun a long-term relationship with someone they met through a dating site or app, Pew found.

A separate study last year by University of Chicago researchers found more than one-third of US marriages between 2005 and 2012 began with online dating, and those couples may be slightly happier than couples who meet through other means. However, some experts took issue with the findings because the survey was commissioned by eHarmony.com, one of the largest US dating sites.

## Hacking OKCupid

While the algorithmic method for love has come under fire, one case suggest it may be possible to tweak or hack those formulas to optimize results.

Christopher McKinlay, while studying for a Ph.D in mathematics, "scraped" data from the profiles of 20,000 women on the dating site OKCupid to find what would get them interested, and increased the "matches" and the number of responses he got from women on the site.

And in the end he found his match, who became his fiancée, according to the account in his just-published e-book, "Optimal Cupid: Mastering the Hidden Logic of OKCupid."

In their 2012 paper, Finkel and colleagues point out that there are benefits to [online dating](#), notably its "efficient" means of facilitating the meeting of potential partners.

But they caution that there is a downside to this approach—people can get overwhelmed by the large number of choices and can reduce people to "two-dimensional displays of information."

As the science of love is debated, more people are turning to mobile dating apps which help identify available partners nearby based on smartphone geolocation. Some apps allow people to make their own assessment of a dating prospect.

Hinge, a [dating](#) app launched in Washington last year, draws information from users' Facebook profiles to help match people.

Hinge data scientist John Kleint told AFP the app's use of Facebook likes and postings helps in setting connections, but he acknowledges the limitations of any formula.

"Trying to develop an algorithm for love is probably the most difficult thing you can do," Kleint said. "We try to get you a good first date and you can take it from there."

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