

Meet your match: Using algorithms to spark collaboration between scientists

February 20 2014

Speed dating, in which potential lovers size each other up in brief 10 minute encounters before moving on to the next person, can be an awkward and time-wasting affair. Finding the perfect research partnership is often just as tough. Speed dating-style techniques are increasingly used at academics conferences, but can be equally frustrating - with busy academics being pushed into too many pointless encounters.

But now a group of scientists led by geneticist Rafael Carazo Salas have constructed a system that could revolutionise conference speed dating - by treating scientists like genes.

Using [mathematical algorithms](#), the team created a method of matching conference-goers according to pre-set criteria, bringing about unforeseen collaboration opportunities while also enabling "would-like-to-meet" match-ups across disciplines and knowledge areas. The results have been recently published in the open-access journal *eLife*.

Funded by the Royal Society to run a small-scale satellite conference on cell polarity, the researchers wanted to find a way to not only break the ice between scientists who did not know each other, but also to "break the heat" - to encourage big name scientists to step outside of their usual small circle, and mix with up-and-coming scientists.

"We wanted to avoid the usual pattern that happens at conferences, especially at interdisciplinary meetings, of like sticking with like. Then

we came up with an idea – what if we treated the delegates like we treat genes, and used mathematical algorithms to build a connectivity picture that could enable new links to be made?" said Carazo Salas, from the Gurdon Institute and Genetics Department of Cambridge University, who co-developed the technique with colleagues Federico Vaggi and Attila Csikasz-Nagy from Fondazione Edmund Mach, Italy.

In the lead-up to the conference, delegates were asked to submit information about their research areas and disciplines and also to come up with a 'wish list' of specialist areas that they would like to know more about.

"The [conference](#) started in a predictable way. After the first couple of talks, questions came entirely from people in the first few rows. We then did a brief presentation about the "speed dating" session that was about to happen. People's eyes lit up when they got the game – the notion of being treated like genes seemed to appeal."

In the first speed-dating round, the 40 delegates were each paired up with someone who was not known to them and who had a very different knowledge base – so someone specialising in X technique might be paired with a specialist in Y. Pairs were given around 10 minutes to talk and then moved on to new pairs, so that each person met a total of four other people they knew very little about.

"The atmosphere in the room after the first round of [speed dating](#) was entirely different. There was a buzz, and at the next set of talks questions came from all over the room, not just the usual couple of rows at the front".

In the second round, the pairings made use of the wish lists the delegates had created. The calculations, whilst making sure that the 'acquaintance distance' was still wide, this time worked on a would-like-to-meet basis:

matching people with highly developed skills in a particular research method - such as intravital imaging, microfluidics or phenotype ontology - with those who wanted to learn about that method. The weighting system used in the calculations meant that overall the pairings were optimised to ensure that each pair was as close a match as possible.

"We knew it was risky, but the results were very successful. The delegates had conversations that would never have happened normally, and many came away with new collaboration possibilities that will hopefully broaden out the field."

The team are now hoping to fine tune their approach by testing it out in other situations – at conferences of varying sizes, and in other disciplines. The computational algorithm could be adapted to handle larger scales (for example, a higher number of participants) or a higher number of requirements (for example, including the degree of seniority or geographical location).

More information: elifesciences.org/content/3/e02273

Provided by University of Cambridge

Citation: Meet your match: Using algorithms to spark collaboration between scientists (2014, February 20) retrieved 26 April 2024 from <https://phys.org/news/2014-02-algorithms-collaboration-scientists.html>

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