



What Fuels Rumours and How to Put Them Out

Unfounded rumours can be spread far and wide by anyone who knows their way around social media. We can't stamp it out but we can – and should – fight fire with fire.

As a spikey virus raced around the world this year, another insidious **contagion** of misinformation, conspiracy theories and rumours was never far behind. Soon after SARS-CoV-2 emerged from Wuhan, rumours flew that the virus had been let loose, accidentally or otherwise, by Chinese authorities. Cue racist abuse against Chinese and other East Asians. In recent weeks, even as the world cheered the emergence of multiple vaccines, **millions of anti-vaxxers have indicated they will refuse inoculation**, and their numbers are growing.

In between, Bill Gates, liberal “elites”, assorted governments, Big Pharma and even the 5G network led a colourful charge sheet of those thought to be responsible for the mayhem of 2020, accused of spreading the virus, using it to control entire nations and profiting from the pandemic. At the heart of these often damaging conspiracy theories, misinformation and rumours is the very human need to make sense of the world when a familiar schema breaks down. How they spread is another question, one that companies and governments alike would do well to tackle.

Chaitanya Kaligotla, Steve Chick and I delved into how competing rumours spread on social media through interactions among individuals. Our study was recently **published** in the *Journal of Simulation*. It shows that the initial proportion of people who

believe one rumour versus another would affect how polarised the population becomes, and that any person could become a “superspreader” of misinformation if they simply put their minds to it. And, worryingly, no matter how outlandish rumours are, they linger among a non-negligible proportion of exposed population even after the truth is revealed.

Social pumps

We constructed a model mimicking a **Reddit discussion** about the identity of the Boston Marathon bombing suspects soon after the 2013 terror attack, before the authorities had confirmed their names. We designated comments naming two men who turned out to have nothing to do with the attack as False Rumours. They competed with comments using generic words like “suspect” or those that use the true identity of the suspect following the release of information by the FBI. We called these latter comments True Rumours. At any point in time, each person in our model adopted only a False or True Rumour.

We ran simulations by adjusting individual characteristics including reputation, the energy with which they propagated rumours (by commenting on the discussion thread), how easily they could be persuaded to change their mind, and how strongly

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they believed a rumour. Basically, we analysed the effect of individual-level interactions on the population-level outcome of rumours.

Our results show that individuals, regardless of how well-known they are, are likely to be effective in transmitting rumours if they do so with energy. We call them “social pumps”. By repeating the same misinformation over and over, and on multiple social media platforms, you don’t need to have millions of followers to sow doubt and change minds. This is how state-sponsored misinformation campaigns are waged. In the worst scenario, a person with both fame and energy could potentially convince the majority of a given population of a rumour. But of course, social pumps could also work in the reverse direction and help dispel rumours.

Echo chamber

An unexpected finding in our study is how much the initial opinions of people in a social media discussion, which are unobservable in practice, weighs on the outcome of rumour propagation. When roughly equal numbers of people subscribe to two or more different opinions, and they are then exposed to competing rumours, the population is very likely to become polarised. After all, people lean towards new (mis)information that matches their worldview -- more so in the presence of a high-reputation, high-energy spreader of rumours in a chaotic and evolving situation. The most fervent supporters of US President Donald Trump, for example, are convinced that the recent election was stolen from their leader as he is alleging with scant evidence.

This observation implies that the spread of rumours – or unfavourable ideas – originating from a relatively small group could have a disproportionately large financial impact for companies. Pepsi, for example, **saw its stock price plunge in 2016** after Trump supporters called for a boycott of its products over fabricated anti-Trump comments attributed to then-Pepsi chief executive Indra Nooyi. Athletic shoemaker New Balance suffered from **reputational damage among Democrats** after a company executive’s comment about a free trade deal was misrepresented as pro-Trump.

Perhaps of most concern is the finding that false rumours live on for a long time, even after the truth is revealed. One plausible explanation is a minority’s high threshold for changing their minds. They may stay in echo chambers of like-minded social media groups. They are also likely to lose interest and move on without having been convinced that the rumour was just that – a rumour.

Fight fire with fire

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Much like spontaneous bush fires in a parched landscape, rumours cannot be prevented from ever forming in the first place. The best we can do is to nip them in the bud. This requires a coordinated effort by social media platform operators such as Facebook and Twitter, regulating bodies, companies and individuals.

Companies should know there is no better way to fighting back than by beating rumour-mongers at their own game. In other words, hire social media-savvy people (or bots) to keep an eye on online discussions, monitoring via keywords and flagging potential problems as soon as they appear. Then, in the same way that rumours are spread, go into discussion threads and post detailed responses complete with data and evidence. Deploy “influencers” perhaps. Repeat as widely and frequently as necessary.

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