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A research study analyzes the influence of algorithms on online publicity and advertising

When we look for information on the internet, buy online or use social networks we often see ads relating to our likes or profile. To what extent are these ads chosen by the web's algorithms? A group of researchers are trying to answer this question under the name of «[MyBubble](#)», a science project from the Massachusetts Institute of Technology ([MIT](#)), Universidad Carlos III de Madrid ([UC3M](#)) and [IMDEA Networks Institute](#).

We assume that the personalized content that we see is, mainly, a result of the preferences and interests that we express whilst searching or performing any other activity online. The truth is, however, that as well as the users' preferences the web site's algorithms also contribute to what is known as the "filter bubble" that provides personalized content to each user. "What we want to achieve in this study is to better understand how algorithms work and what types of bubbles they create. We will start working with online ads and explore other services in the future," explains one of the investigators, Antonio Fernández Anta, from the Global Computing Group at the Madrid institute IMDEA Networks.

Online advertising is a cornerstone of the Internet business model. It supports a vast range of highly used services such as search engines, social networks and maps. It is expected that this year, in the USA alone, online publicity will generate \$83 billion. "The MyBubble project aspires to provide greater insight into how online companies generate user profiles and then decide what the user should see," states another of the investigators, Rubén Cuevas, from the department of Telematics Engineering at UC3M. In general, he adds, the algorithms used today by online services are applied without any transparency and the industry lacks any clear motive to develop effective auditing solutions, making it necessary for other social agents to provide these solutions."

"We want to see if these so called publicity algorithms create certain filters that foster or include biases (age, income, sex, health) that may be creating bubbles that encourage inequality," says another of the project's researchers, Esteban Moro, professor at the UC3M Mathematics department and visiting professor at MIT Media Lab of Cambridge (USA). This question is particularly important as on the 25th of May, 2018, the General Data Protection Regulation (GDPR) adopted by the European Union will come into force, principal objectives of which are to return control of personal data to the individual and to unify the regulatory framework for multinationals. "We are creating a social experimentation laboratory not to understand individuals but to understand algorithms," remarks Esteban Moro.

To achieve this, one of the experiments planned in MyBubble is to create a large number of fictitious profiles or "personas" with specific interests and preferences. These programmed bots or "personas" will emulate human users, visiting very carefully chosen websites. These sites will identify the bots as having specific, recognizable behavioral traits. The publicity shown will then be analyzed to create a model of the algorithmic responses of the site. It's hoped that this will reveal traits within the algorithm, the level of personalization of each user and if the algorithm has the

capacity to respond to a user who changes his behavior,” says Manuel Cebrián, from the Scalable Cooperation Group at MIT Media lab.

The “filter bubble” effect is a particularly interesting phenomenon for researchers, as can be seen in the name given to the project. According to Manuel Cebrián, the process appears to work in the following way: “A new website is launched promising its visitors a view into the real world. It shows you the world, but only through the way you and your friends see it. It then becomes even narrower over time and ends up only helping you to see your friends. Finally the website helps you to see how your friends see you... filter bubbles create an impenetrable mystery: the technology that managed to connect humanity has ended up making reality completely irrelevant.”

Like any other forum for human activity or exchange, Internet should provide a relevant, transparent and secure venue for individuals and companies to interact. The long-term continued viability of the Internet depends on our confidence in it, and this confidence is based on a deep understanding of how it works. Through analyzing and modelling the effect of algorithms on our interactions in the web, participants in the MyBubble project hope to shed light on the influence of a little-known but important factor in deciding what we see and how we spend our money online.

MyBubble is one of the projects selected from the latest call of the [MIT-SPAIN “la Caixa” Foundation SEED FUND](#), which provides support for research projects bringing together universities, research centers and research groups from MIT.

Source(s): IMDEA Networks Institute; Universidad Carlos III of Madrid
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