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Do AI systems Allow Online Advertisers to Control Others?

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Many are concerned about the use of AI systems in search engines, social media, online advertising and recommendation systems. One worry is that these systems are contributing to bad outcomes, like low vaccination rates or the election of populist and divisive politicians. Another worry is about the relationship between the companies employing the systems and the individuals affected by them. Some are apprehensive, for instance, about companies deploying AI systems that manipulate, deceive, or control the users of their platforms. Here are some representative excerpts:

As long as [data scientists] have access to our data we will continue to be their puppets. The only way to take back control of our autonomy, our ability to self-govern, is to reclaim our privacy.¹

We’re being tracked and measured constantly, and receiving engineered feedback all the time. We’re being hypnotized little by little by technicians we can’t see, for purposes we don’t know. We’re all lab animals now.²

Now people have become targets for remote control, as surveillance capitalists discovered that the most predictive data come from intervening in behaviour to tune, herd and modify action in the direction of commercial objectives.³

In this chapter, we focus on the issue of control, specifically in relation to AI-based targeting of *advertisements*. We consider how AI-systems may affect the degree to which online advertisers have control over those who view the advertisements. Our ultimate interest is in interpersonal control – control of one person’s thought or behaviour by another person. However, since most existing work on control has examined instead the way in which one individual controls her own behaviour, we start with that.

On Control

¹ Carissa Veliz, *Privacy is Power*, (Penguin Random House, 2020), p.71.

² Jaron Lanier, *Ten arguments for Deleting Your Social Media Accounts Right Now*, (Penguin Random House, 2018), p.5

³ Shoshana Zuboff, *You are Now Remotely Controlled* (The New York Times, January 24, 2020)

Rory McIlroy, one of the world's greatest golfers, kneels down to touch the green. He passes his hand through the grass, feeling its length and thickness. He squints and carefully observes the slope of the green between his ball and the hole. He selects a putter and asks his caddy to bring it to him. Having grabbed the putter, he stands, sets his legs, checks his grip, pulls back slightly, and strikes the ball. The ball rolls along, curving with the slope, and just before it reaches a full stop, drops into the hole. Had the ball initially been a bit further from or closer to the hole, or the slope been slightly different, Rory would have adjusted accordingly; hitting the ball harder or softer, or at a different angle to account for the slope. Rory knows what he is doing, and he has great control over the ball, and over whether it goes into the hole.

What is involved in this control? One of the things we associate with control is success. A person who has great control over what they are doing has a higher likelihood of success than someone who has little control over it. Rory McIlroy has a higher likelihood of success over a given putt than either of us does. Further, this higher likelihood of success applies in a large variety of circumstances; regardless of where the ball is on the green, McIlroy would have a higher chance of sinking it than either of us.

Having a high degree of control in this example requires having a variety of abilities. Consider some of the most important.

First, McIlroy can recognize features of his circumstances that are relevant to achieving his goal: putting the ball into the hole. Not only is he a good judge of the distance between his ball and the hole, he is a good judge of the slope and what effect it will have on the ball as it moves along the green, and he knows how features of the grass will affect the ball as it travels, given its length, thickness, and the firmness of the ground.

Second, he has the ability to form a plan whose execution is likely to achieve this goal. He picks the putter that will be best in these circumstances, and determines how hard he has to hit the ball, and in which direction. Had some of these features been different – say, had the slope been steeper – his plan would have been different as well: he would have aimed in a different direction.

Third, he has the ability to implement various parts of this plan. For example, he can swing the putter in just the right way to transfer the right amount of force, in the right direction. This ability is critical for control. Someone who is very good at recognizing the relevant features of their circumstances and can plan accordingly, may not have much control if they are not good at implementing their plans.

Finally, as he is implementing his plan, McIlroy can monitor his performance and correct it if need be. When he sets his feet, he double-checks to make sure they are in the right position, and he can adjust his stance if they are not. If there is a gust of wind, he can pause and wait for it to pass.

Online Advertising

These abilities are a part of what it is to control something. In the example above, they were relevant to McIlroy's control over an object: the golf ball. But people can also have, and exert, control over each other. And one way they might do so is via the use of advertisements or other marketing techniques.

Consider, first, a basic form of online advertisement. Adidas offers a large variety of products designed for many different activities. Suppose, then, that Adidas offers different ads on different parts of the website of cable sports channel ESPN. It may, for instance, have an ad for basketball shoes featuring James Harden (shooting guard for the Philadelphia 76ers) and a snappy, inspirational quote on the ESPN basketball pages, while showing ads for football boots featuring Lionel Messi on the football pages.

In implementing this strategy, Adidas displays some of the abilities mentioned above, if only to a minor extent. In order to increase sales of Adidas products, they track features of ESPN readers – e.g., that they are likely to recognize Harden and Messi, and that they are interested in sport – which may be relevant to success in increasing sales. It forms a plan on the basis of this recognition; it includes the most popular basketball or football player, and the quote that people rated as best in focus groups. And it implemented that plan; it contacted ESPN and set the process in motion. Had things been somewhat different – had a different Adidas-sponsored athlete been more popular, or had a different quote been rated more highly – the ad may have featured that athlete, or that quote, instead.

This strategy also involves a bit of personalization, in that which ad a person sees depends on whether they visited a page for basketball or for football. In this respect, it is an improvement over the simpler strategy of just showing the Harden ad for basketball shoes on all ESPN pages, since it implements a different plan – i.e., shows a different ad – depending on the feature of the individual – i.e., which site they visited, and which sport they are interested in.

Presumably this personalization or targeting makes the advertising campaign more effective. Yet, the campaign is still fairly indiscriminate. There can be vast differences among those who visit the same page, and these differences can affect the likelihood of success with regards to any particular individual. Some may follow professional basketball but have no interest in playing it, some might be diehard Nike fans, some might not be in the market for new shoes, etc..

AI-assisted Advertising

Adidas' strategy, described in the previous section, is limited in two ways. First, the features that Adidas picks up on are only somewhat related to what Adidas really wants to achieve - selling more of its products; it misses certain features that are relevant to this, for example, whether the basketball fan actually plays basketball herself, and whether she needs a new pair of shoes.

Second, in our example, Adidas has only a limited range of ads that it can show to different people. AI systems might, to some extent, be able to overcome both of these limitations, and it is this that has caused some to worry that AI-targeted ads may amount to a form of control.

With respect to the first limitation, AI, and more generally, automated systems, could help in various ways. One reason that Adidas is limited in the features it can track concerns the number of data-points that can feasibly be gathered. When a campaign is intended for a vast number of individuals, humans cannot reasonably gather and analyze much data about the different individuals, or at least not in a cost-effective way. Automated systems can.

Take Facebook, for instance. Facebook tracks all of the data we explicitly give when creating a profile, as well as what we like (or react differently to), what we share, who our friends are, and what videos we watch while on the site. It has even tracked our mouse activity⁴, and things we write and decide to delete before posting.⁵ Or consider data brokers, which gather data about individuals across a variety of platforms or interactions. These brokers often synthesize data, matching data about individuals from different sets to create a more comprehensive profile of individuals; profiles which they can then sell.

AI systems can analyze all of this data to find correlations, and improve predictive power. Here is a simple example. Suppose we have some further information about two individuals who visited the ESPN basketball page. One of these individuals, call her Rachel, has recently been browsing women's basketball shoes on different sites. Another, call him Pedro, has recently purchased a pair of basketball shoes. If we had this information and, let us assume, we had different sorts of ads available, then we might present an ad for women's basketball shoes to Rachel, and an ad for some other related accessory (head-bands or sweat-shirts) to Pedro.

This example makes use of features that are intuitive to us. Yet there is a vast array of other features, some of which may not be as intuitive, which can affect the likelihood of a person's purchasing an Adidas product. An AI system can analyze data about individuals, including data about who purchases items after exposure to an ad, to find more of these features. The more of such features it can find, the more precise its profile for a particular individual, the better it can get at picking the right sort of ad to show the individual. In this way, AI could help improve the success rates of the ad campaign.

The second limitation mentioned above was that there is a limit in terms of "plans" available. In our example above, Adidas just had one ad per sport. Limited in this way, it cannot do much with its information regardless of how much it has. To return to the golfing case, Adidas would then be in the position of a physicist who can take accurate measurements of the ball's distance

⁴ See, for instance, Michael Grothaus, *Forget the New iPhones: Apple's Best Product is Now Privacy* (Fast Company September 19, 2018)

⁵ Casey Johnston, *Facebook is tracking your 'self-censorship,'* (WIRED, December 17, 2013)

from the hole, the angle of the slope, the firmness and length of the grass, etc., but who is a poor putter because she cannot adjust her movements precisely in response to these features.

The number of different plans– i.e., ads – available may differ with the resources the advertiser has available. A large company like Adidas can create a large number of ads, even though they are expensive to produce; a small business or local store might not be able to make as many. Can AI help with producing new plans, or ads, say, by creating content? Yes. Companies such as Jasper, Mentum and Rocket Content offer access to AI that will write content for ads, blog posts, or articles, or create images that can be used in messaging. Or consider a service offered by Meta, the owner of Facebook, Instagram, and WhatsApp, called Dynamic Creative Ads.⁶ This service allows you to provide them with multiple components of ads – text, images, videos, audio, etc. – and it will use them to create “variations for each person who views your ad.”⁷ A further feature allows the system to automatically modify some of the components you have provided, or even add new content, like songs. They do this in a way intended to maximize performance.

Control and Success

The use of artificial intelligence can help companies surmount the limitations of the more traditional strategies we mentioned above. And it is these features of AI-assisted advertising that are typically referred to when others raise the concern that advertisers are controlling people. However, although we agree that AI-assisted advertising can help to enhance some of the abilities relevant to control, here we offer a reason to hesitate before accepting that these improvements are enough for control.

Recall that control is associated with success. If someone has greater control over what they are doing than another person – e.g., McIlroy’s putting compared to ours – then they will tend to have a greater likelihood of success. If someone has a low likelihood of success, then they do not have control; or, at least, this would cast doubt on the claim that they do. The four abilities we mentioned at least partly explain why someone is likely to succeed. But one can have all of these abilities to some degree while still having a low likelihood of success and so, we think, while still lacking control.

Consider the first strategy we considered, where Adidas presents relatively indiscriminate ads – one for basketball shoes, one for football shoes, etc. – on the web pages for different sports. In neither of these cases does Adidas have control over the visitors to the website, or over what they do. This is partly because, although advertising might increase the likelihood of success, if viewers of the ad are still unlikely to buy Adidas products The ads either have a very small effect on viewers, or affect only a few of them.

⁶ For an overview of this offering, see <https://www.facebook.com/business/help/170372403538781?id=244556379685063>.

⁷ Ibid.

Artificial intelligence can help to enhance the relevant abilities and increase the likelihood of success. But if the increase is not great, and the likelihood of success remains relatively low, then again, we do not see how this increase in likelihood can grant advertisers control over individuals. One relevant question, then, is how successful such AI-assisted marketing is. There are varying estimates, but current research suggests that the answer is “not very”.

Consider, for example, one of the major studies done to test this.⁸ This study involved using personal data from Facebook to predict whether an individual is more introverted or extroverted, and then showed them an ad designed for introverts or extroverts, respectively. Though the targeted ads were somewhat more effective than non-targeted ads – subjects were 1.54 times as likely to make a purchase if they saw a targeted ad – the number of people who made a purchase after viewing the targeted ad was still miniscule – 390 out of over 3 million people exposed to it.⁹

So, although AI systems can increase the success rate of ads, and they do so via the improvement of some of the capacities relevant to control, there is still reason to think that such methods do not confer control. Ultimately, there may just be a fairly low limit on the likelihood of advertising success; it may be that, no matter how personalized the content of an ad, it will rarely succeed. If this is right, it is hard to see how such ads can grant advertisers control.

Conclusion

To conclude, while we agree that modern methods of data gathering and analysis raise serious issues unrelated to control, and we also think there is something problematic about *attempts* to control individuals by using these technologies to target ads, we doubt that these technologies currently enable advertisers to control ad-viewers. We should acknowledge, though, that we have focused on one type of advertising – commercial advertising – and on individual instances of it. Perhaps receiving a variety of more personalized ads for some products over a long enough period would have a higher success rate. And perhaps some other forms of advertising – e.g., political advertising – are more effective, for example, because of the way they interact with other influences, such as news stories. The effects of political advertising, however, are less clear than for commercial ads, partly because there are so many factors in play that it is more difficult to figure out what affects voting behaviour, and by how much.

There is also the question of whether AI systems allow online actors, such as social media platforms, to control users not via advertising, but via the techniques they employ to keep users engaging with the platform itself. They may do this, for example, by serving up targeted content that users are likely to find especially salient, controversial or interesting.

⁸ Matz, Kosinski, Nave, and Stilwell, *Psychological targeting as an effective approach to digital mass persuasion* (PNAS, vol. 114:48 (2017), pp. 12714-12719)

⁹ For a more in-depth discussion of this study, and micro-targeting in general, see Benkler, Faris, and Roberts, *Network Propaganda*, (Oxford University Press, 2018), pp. 275-9.

This question is not addressed by our arguments above and it is not clear whether concerns about control are more or less plausible in relation to these techniques than in relation to advertising. On the one hand, the goal of keeping a user engaged is much more open-ended, and can be achieved in many more ways – continued scrolling, reacting to content, logging in again – than the goal of a company like Adidas: selling more Adidas products. For such an open-ended goal, a platform like Facebook may have many more plans available, insofar as there is much more content, and many more features, at their disposal to help them achieve this goal. On the other hand, the efficacy may still be fairly low. Further, since this will very often involve finding content that the user is already interested in, this may be less of a case of Facebook imposing some specific goal on an individual. The individual's interests arguably play a larger role in determining what content they see.

Compare this to the Adidas strategy. Although that strategy can personalize to some extent, and which ad a person sees may be partly determined by their interests, it still requires content that is related to Adidas' very specific goal of selling more products. This difference may suggest either that Facebook's strategy does not involve more control over individuals, or if it does, such control may be less concerning.

In any case, we have raised doubts about the claim that AI-assisted advertising already gives companies like Adidas control over ad-viewers. Although AI-assistance can enhance the abilities that such companies have – for example, by gathering and analyzing massive amounts of data, by developing a wider range of potential ads, and by finding better matches between viewers and particular ads – such improvements cannot confer control if the ads themselves are largely ineffective.

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