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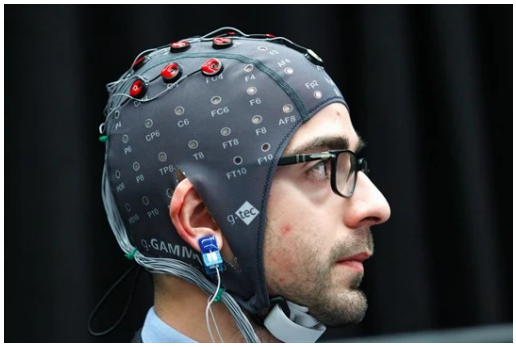
Protecting Our Mental Autonomy From New Technologies

Kate Jones | Tuesday, May 25, 2021



A man sends brain-computer interface commands to a robotic computer during Science Conference at the Convention Center in Washington, D.C., Feb. 17, 2011 (AP photo by Jose Luis Magan).

Technology has blurred all sorts of boundaries we used to take for granted—between work and leisure, between being alone and being with others, between private and public spaces. One boundary we still generally treat as sacrosanct, though, is the one around our own minds, which allows us to think for ourselves and to keep those thoughts private, whether they are rebellious, impolite or simply irrelevant. After all, the power to make up our own minds is an essential part of what makes us individuals.

Technology may now be challenging this mental independence, too, and some of its applications could threaten our autonomy if they were to fall into the wrong hands.

Take emotion recognition technology, for example, which you can try on the Emojify website (https://emojify.info/). It is now being deployed widely in China, including to measure pupils' attentiveness at school, as well as for uses in detention and social care settings. The software claims to be able to recognize different emotions, as well as personal characteristics such as age and gender. But there are serious concerns about this technology (https://www.article19.org/emotion-recognition-technology-report/). The science behind it, and therefore its accuracy, is problematic. It carries serious risks of perpetuating bias and discrimination, as its responses may vary with personal characteristics. And the raison d'être of emotion recognition technology is to deprive people of privacy in their thoughts and feelings. Chilling analogies with the telescreens of George Orwell's "1984" are difficult to avoid.

Brain-computer interfaces are another example of a technology that chips away at the boundary around our minds. Elon Musk's Neuralink Corporation (https://neuralink.com/) is designing neural implants to let users control computers or mobile devices with their thoughts. While currently designed to help people with paralysis regain their independence, the ultimate aim is for Neuralink to access more brain areas and neural information, with potential applications for everyone. Similarly, Facebook's Brain Computer Interface (https://tech.fb.com/imagining-a-new-interface-hands-free-communication-without-saying-a-word/) aims to decode speech from brain signals, initially for the benefit of individuals with speech loss. It is not at all clear how these mind-reading technologies would distinguish between brain activity that the user wishes them to access and activities that are private. Nor is it clear how misuse of the technology—for example, by making it compulsory—could be prevented if it winds up in the wrong hands.

Then there's neuromarketing. While the risks from surveillance capitalism (https://www.theguardian.com/books/2019/oct/04/shoshana-zuboff-surveillance-capitalism-assault-human-automomy-digital-privacy) have been well-documented, neuromarketing aims to go one step further: to study brain activity in response to products, packaging and advertising in order to predict, and even change, consumer behavior. While its most advanced applications involve the use of brain-scanning devices such as functional Magnetic Resonance Imaging (fMRI) and electroencephalogram (EEG), simpler versions use proxies for brain activity such as eye movement, facial expression recognition and heart or respiration rate. Arguably this is simply consumer research designed to improve marketing techniques, only with added precision. But related research lies at the fringes of autonomy. For example, the Harvard Business Review has reported on ongoing studies of how individuals may be influenced (https://hbr.org/2019/01/neuromarketing-what-you-need-to-know) while they're asleep or by altering their hormone levels.

Artificial intelligence also raises a range of concerns for mental autonomy. At the moment, AI suggests what words you may wish to type next in an email, recommends music based on what you've played before and even helps with matchmaking suggestions in dating apps (https://becominghuman.ai/ai-for-dating-apps-how-machines-help-people-find-love-526ee1088923). What if it were to become a reliable source of advice on important personal decisions, such as how to manage our finances, what career choices to make or with whom and how to spend our lives? Might we rely on it at the expense of our individuality? And if we did, would responsibility for our decisions lie with us or with the technology that makes them for us?

Targeted political messaging is yet another such technology blurring the line between mental autonomy and tech-influenced behavior. The Cambridge Analytica scandal (https://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html) exposed the potential power of micro-targeted political advertising in shaping voters' views. Since then, this power has become far better understood and widely deployed by political campaigners. In response, Facebook, Twitter and other tech platforms have developed strategies to combat coordinated inauthentic behavior (https://about.fb.com/news/tag/coordinated-inauthentic-behavior/) and manipulation (https://help.twitter.com/en/rules-and-policies/platform-manipulation). Aware of the challenges, the European Union is aiming to combat the use of manipulative techniques in online political discourse through its Digital Services Act (https://eur-lex.europa.eu/legal-content/en/TXT/?qid=1608117147218&uri=COM%3A2020%3A825%3AFIN) and European Democracy Action Plan (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A790%3AFIN&qid=1607079662423).

At the most ubiquitous level, as was explained in the Netflix documentary The Social Dilemma (https://www.netflix.com/gb/title/81254224), our phones and our social media harness the same mental processes as addictions to gaming, drugs or alcohol in order to maximize their uptake in the attention economy.

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Does all this matter?

Some of these technologies entail a loss of privacy of thought, while others would affect users' decision-making autonomy. But in assessing risks to mental autonomy, empirical evidence is hard to come by. While it is straightforward to find out from a set of individuals—by asking them—whether they were taken in by a particular fake news story, it is much more difficult to measure the impact of that story or other attempts at manipulation on the results of an election. Back in 2012, a secret Facebook experiment (https://www.pnas.org/content/111/24/8788.full) on 700,000 users of the platform found that those who were exposed to negative stories in their News Feed were more likely to write negative posts themselves. But the experiment was widely criticized for its unauthorized use of personal data, so similar ones have not been conducted on the same scale.

Leaving aside issues of evidence, there is no societal consensus as to where the boundaries should be set when it comes to permissible interference with mental autonomy. Nudge theory (https://www.behavioraleconomics.com/resources/mini-encyclopedia-of-be/nudge/), which is not new, is already widely used to influence choice, whether commercially, by supermarkets placing tempting treats at checkout, or by governments, in promoting handwashing hygiene during the coronavirus pandemic. Nudges may be problematic when they are not transparent to the individual, and when they seek to affect automatic rather than reflective thinking. Some examples (https://www.researchgate.net/publication/332745321_23_Ways_to_Nudge_A_Review_of_Technology-Mediated_Nudging_in_Human-Computer_Interaction) include deceptive visualizations, subliminal messaging and offering inferior alternatives to promote certain choices.

The biggest problem with these technologies may lie in how they could be abused—for example, if emotion recognition technology were to be used for mass surveillance; if brain-computer interfaces were to be used to alter thoughts; or if artificial intelligence were to be used for mass manipulation of opinion and decision-making. These and other potential abuses offer up the prospect of a tech-dystopian future.

One challenge for lawyers and policymakers, then, is how to regulate these technologies and others to come, so as to preserve mental autonomy in the face of both real and potential threats. The human rights of freedom of thought and freedom of opinion guarantee mental autonomy in all circumstances, and they prohibit any efforts to coerce opinions or impair reasoning. But until recently these rights had been very little explored, as any systemic threats they faced were from the outside in, as with suppression of speech or restriction of religious practice, rather than from the inside out, as with tech-enabled intrusion into thought.

The EU's draft Regulation on Artificial Intelligence (https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-laying-down-harmonised-rules-artificial-intelligence) prohibits AI that deploys subliminal techniques "to materially distort a person's behaviour" in a manner that may cause physical or psychological harm to themselves or someone else. The example used by European Commission Executive Vice-President Margrethe Vestager (https://ec.europa.eu/commission/presscorner/detail/e%20n/speech_21_1866) in introducing the draft regulation was a toy that uses voice assistance to manipulate a child into a dangerous act. The draft regulation also forbids AI that would exploit the vulnerabilities of a group, such as age or disability, to materially distort behavior. But establishing the dividing line between permissible activities and those that "distort" behavior is likely to be complex.

One dimension of future debate ought to concern algorithms and whether those that determine content promotion should, like subliminal techniques, be subject to parameters that prevent them from being used or abused to materially distort behavior in a manner that may cause harm. Clearly, much more transparency as to how social media and web service providers use algorithms would assist in assessing their potential to manipulate.

Overall, there is an urgent need for public policy debate about the risks to autonomy posed by new technologies and the guardrails that ought to be imposed to safeguard freedom of thought. Above all, three priorities stand out: We must not let technology reinforce systemic bias. We must defend privacy of thought. And we must preserve the rich diversity and independence that are hallmarks of human reasoning.

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