Mind-reading technology should not be used to solve crime

September 26 2017, by Paul Mcgorrery

Credit: Unsplash/CC0 Public Domain

There is growing interest in the potential for a technology known as brain fingerprinting to be used in the fight against crime and terrorism, but it's far from reliable.

Its use without consent violates human rights. And importantly, the technology (as it currently exists) can be tricked.

Brain fingerprinting seeks to detect deception by essentially reading thoughts. It works by using electroencephelography (EEG) to read the electrical activity of the brain, with the aim of trying to identify a phenomenon known as the P300 response.

The P300 response is a noticeable spike in the brain's electrical activity, which usually occurs within one-third of a second of being shown a familiar stimulus. The idea is that our subconscious brain has an uncontrollable and measurable response to familiar stimuli that the machine can register.

Imagine, for example, that a particular knife was used in a murder, and police show an image of it to their lead suspect who denies the crime. If the suspect registers a P300 response and thus a positive recognition of the knife, this would seem to suggest he's lying. Alternatively, if the suspect doesn't register a positive recognition, maybe police have the wrong guy.

It isn't hard to see why this procedure might be enticing for law enforcement, but, as I explored in a recent journal article, they should be wary.

Human rights concerns

Most Australians would agree that they have a right to privacy, a right not to incriminate themselves, and a right to freedom of thought. Brain fingerprinting threatens all three.

The right to privacy usually protects us from police intrusions without a warrant into our home, our car, our body, or (at least in the United

States) our mobile phone. It seems almost obvious that if we have privacy in these physical things, then surely we deserve privacy in our innermost thoughts.

As Tim Robbins said in *The Shawshawnk Redemption*:

"There are places in the world that aren't made out of stone … there's something inside that they can't get to and they can't touch. That's yours."

The right against self-incrimination, otherwise known as the right to silence, protects us from being compelled to bear witness against ourselves if doing so might implicate us in a crime. Surely it should also protect us from someone reaching in and taking our thoughts by force.

We also expect to have freedom of thought.

This right has not received much attention from courts, but until recently the idea that anyone could tamper with or steal our thoughts was more science fiction than fact. This is no longer the case.

In 2011, for example, researchers at the University of California were able to teach a computer to reconstruct a video someone was watching based only on their brain signals, and the results were remarkable.

But if brain fingerprinting were to become a part of the police's investigative toolkit, this could force suspects to take the extreme step of trying to erase or suppress their memories.

Which brings us to our next question: can we suppress or erase our memories?

Tricking the technology

Around Australia, most jurisdictions expressly prohibit the use of polygraph evidence in court proceedings, in large part because of how fallible the technology is. It can be tricked by anyone with a thumb tack.

Brain fingerprinting was supposed to fix this issue. If you read someone's subconscious brain responses before they have a chance to alter their physiology, theoretically they shouldn't be able to trick the machine.

But there are already two plausible ways to do so.

First, research now suggests that a person can intentionally suppress their memories and reduce the chances of the brain fingerprinting machine registering a positive response.

Second, researchers have discovered that beta-blockers such as propranolol (which was originally used to treat heart disease) can sometimes block memory formation. Theoretically, a wily offender could take the drug after committing a crime and effectively erase (or at least dull) their memory of the event.

For anyone interested in testing this theory, the technology's inventor Larry Farwell has apparently offered US$100,000 to anyone who can "beat" a brain fingerprinting test.

Courts should steer clear

Worryingly, it's possible that brain fingerprinting could be used in Australia to contribute to the "tough on crime" rhetoric. The headlines practically write themselves: "Got away with it? *Think* again!".

Indeed, researchers in New Zealand are currently hoping that their

research into brain fingerprinting might have the potential to help police solve crimes.

And there may very well be situations where this sort of technology can be useful – for example, as a means of narrowing down the likely location of an imminent terrorist attack.

But extreme caution is needed. This technology has the potential to violate fundamental human rights, and because it has not yet proved itself to be infallible, it is simply too soon to start making Orwellian thought crimes a reality.

Police should be wary of using brain fingerprinting to investigate crime. And, at least for now, courts should be opposed to admitting brain fingerprinting evidence in criminal proceedings.

This article was originally published on The Conversation. Read the original article.

Provided by The Conversation

Citation: Mind-reading technology should not be used to solve crime (2017, September 26) retrieved 3 May 2024 from https://phys.org/news/2017-09-mind-reading-technology-crime.html