

The nondestructive path of privacy intrusion

Yet another article on privacy? You've already deleted your browser history, stopped using the internet entirely, threw your GPS tracked smartphone in the trash and don't go to banks anymore to avoid being caught on camera. So you're safe now, right? You've efficiently countered George Orwell and his crazy view of the "Big Brother" dystopia he professes, or so you hope. The only thing that's missing here is one of those tinfoil hats conspiracy theorists wear.

Privacy and the lack thereof is a big issue these days and it's mostly based on the idea that we are being tracked everywhere, all the time. The most common things that pop up inside everyone's head when thinking about privacy today is on the one hand 'mobile data' such as indeed your internet traffic and all forms of communication from your cellphone; the government or hacking groups intercepting your emails, your text messages, phone calls, what website's you've been visiting or basically stealing the data right off of your hard disc. On the other part you might be thinking on a visual level; CCTV cameras are everywhere, Leuven itself being a prime example. Smartphones on every individual inevitably result in your portrait being displayed on multiple Facebook and other web pages when going to any generic event. And as with the city of Tienen for example, you cannot enter or leave the city with your car without having your license plate registered.^[1]

Beyond mobile

Putting that aside we want to discuss some evolutions that are perhaps less incognito but even more intrusive than the ones that preoccupy our mind today, adding to the already present mass paranoia that is currently a hot topic. The (ab)use of non-destructive testing technologies within privacy intrusion.

Non-destructive testing is a category of science that has been around for quite some time now and can be of extreme benefit to all of mankind. The most common examples of non-destructive testing are the ones used in a medical environment: X-

rays, MRI's and ultrasonic scanning provide tools to safely see 'inside' one's body without having to destroy tissue, even though X-rays have an arguably undeserved bad reputation.

There are however also multiple lesser known applications for these techniques such as devices that allow you to check on steel foundations for dangerous wear, eliminating the need for 'preventive replacement' which is financially and ecologically disadvantageous, applications like these are omnipresent in today's industry.

With regards to secrecy and privacy it even sometimes leads to amazing new discoveries, like with ancient valuable paintings for example, revealing the underlying layers of sketches and paint, enabling scientist and historians to discover new elements or details, hidden messages or signatures to verify the authenticity, even if the original artist never wanted it to be discovered and especially if the original can't be modified. In extent the great Tutankhamun would probably not have appreciated for the 21st century world to discover that he was actually disfigured and physically impaired due to the incestuous relations of his elders^[2], but let's not get into a debate whether or not the deceased also still have a right to their secrecy and privacy. However, you might have some secrets yourself you might not want your next of kin to ever find out about even when you're long gone.

In short: non-destructive testing basically allows you to check things without making a single mark or leaving even the slightest trace of it ever happening. Interesting for those who don't want you to know they're looking into your business. Here's where it gets interesting for people with ethically ambiguous intentions and here's another thing for people to worry about. Although the concept of being spied on is not so unthinkable of since the cold war era.

Of course there's the moral gray zone, ambiguous uses for public safety such as airport body scanners for example. Some people argue that these are a

grotesque breach of privacy whilst others don't mind trading some of their privacy and discretion for a safer journey to their destination.

But at least with airport / metro scanners you get to choose whether or not you submit to a reduction in privacy, same ideology technically applies to your internet usage but we all know that's impossible to avoid in today's society.

Unknown uses

But what about the uses you don't know about and can't willingly opt out of? In the U.S. police officers have been equipped with 'wall scanners' for some time now^{[4],[5]} (and whatever the police can get its hands on, criminals and alike can get their hands on too, sooner or later). These devices allow them to see if someone is present in a house and get an approximation on their location within the structure. Currently the method is still rough and only allows them to see something that resembles a topographical chart of the room they're monitoring^[6]. But in our opinion the technology can and probably will be adapted for principles of time of flight to apply for example, a technique currently used with the Microsoft Kinect and other 3D cameras to produce virtual point cloud representations of rooms, like video games.^[3]

Other similar technology available to the police are X-ray vans that can scan through vehicles^[8], revealing whatever is hidden inside, simply by driving the van next to the object of interest.

Fairly few people know that the police have these tools and are allowed to use them unrestrictedly, no warrant required. In the cases where people do find out this has been used against them they are usually outraged and ultimately stand defenseless as the laws haven't been renewed to deal with these evolutions or are really vague and can be interpreted broadly. But yes, they're basically working on technologies that allow the user to see through walls as if there was a window. If that isn't breaking the last frontier of privacy then we don't know what is. Deleting your browser history is starting to seem futile now isn't it?

One of the authors of this paper himself has family within the Belgian 'secret service,' is true that they also just check Facebook accounts and use methods that aren't (weren't) yet regulated by the law. These methods cannot ever be used as proof during lawsuits but are usually enough reason for them to get warrants and permissions to start using other methods. In our opinion this is pretty vague but it does prove some of the paranoia is founded.

Into the brain

There's one step further we find that is a significant evolution, albeit that we don't know for sure if this will ever really achieve a breakthrough; looking into one's mind. MRI sensors have been used for quite some time now to study how the brain works, to identify certain regions within the brain and for other medical purposes^[7], but technology is once again making strides forward and in the further future it might be possible to look 'into' an individual's thoughts, far beyond from what any modern day lie detector can do, methods already exist to quite accurately guess what number a person is thinking of, but now they're also working on methods to visualize what another person is seeing (or visualizing himself by thought). So how about that tinfoil hat, interested now ?

Ok, let's not go too deep into this paranoid stuff now. This last method is hard to apply covertly anyway, for someone to pull an MRI mask over your head, you'd have to be pretty oblivious. However if you were being forced to undergo the process you'd probably have a hard time proving someone did this to you. By the way, the current status of this project is nothing more than identifying rough shapes and colors, no more than what a semi-blind person can see so nothing to really worry about yet, but now you know someone's at least working on this.

The internet

You might argue the methods we propose are different from what is passed around on the internet, it's easier to gather online data or control cameras to capture public footage than it is to

work with the physical gathering that goes with most of these non-destructive testing methods we've discussed, not to speak of how expensive this gear is. You could just as well look through the keyhole of a door or hold a glass against it to hear what's going on inside right?

However, the thing is that artificial intelligence programs are also evolving with such speed that even these new forms of data will be completely interpretable by computer systems which are capable of gathering and analyzing the data faster, more complete and with higher accuracy than humans are able to do.

In general, and also observed within the comments we received on the series of blogs we released about this topic, people are conflicted with themselves. On the one hand they see the advantage of these privacy breaking tools, law enforcers and other people that try to guarantee our safety can benefit enormously from these devices and methods. A better equipped safety force also provides us with a feeling of safety and should, at least in theory, lead to a safer world. On the other hand it's also recognized that these technologies will always fall in the wrong hands at some point, and people don't particularly appreciate it when they become aware of the fact that they're being put under the scope of one of these methods themselves. Everyone is for these privacy intrusions against terrorism and other crimes until they become a subject of their own.

On another level we, and others, find it weird that so much effort and money is invested in methods to prevent criminal abuse, while preventive X-ray and MRI scans take long waiting queues and require vast amounts of money, unaffordable to the common man. So maybe the government has its priorities wrong? Or perhaps we should blame ourselves as the outcry during a small criminal event is usually way fiercer than the silent acceptance of people discovering they suffer from an illness that would have been treatable if it had only been discovered earlier. But that's a debate for another time.

The debate

So what kind of point are we making here exactly? Should we just completely abandon the concept of privacy? We don't think so. Due to the recent outpourings of Edward Snowden and Wikileaks, the topic has gained a lot of media attention and has rekindled the debate which is a good thing. This has even resulted in some governments starting to take action to protect its people, such as the European Union, where citizens can issue a request to be forgotten by large internet companies such as Google.

These measurements and the debate however come way too late. Even with the new regulations, it's fighting a losing battle; because while laws are plugging holes to protect citizens on the internet, there are already a hundred other ways companies and intelligence agencies are tracking us without legal issues stopping them.

We should recognize that by now, privacy is no longer a guarantee. Everything we do is being tracked and might be used both for commercial purposes as well as by law enforcement and intelligence agencies. Privacy is no longer about having secrets or people finding out about those secrets, it's about control^[9], or as Edward Snowden puts it: The NSA (and other intelligence agencies) have the greatest surveillance capabilities in history. They will argue that they don't use this for nefarious purposes against us, but the real problem is that the NSA and other intelligence agencies are using their capabilities to make us vulnerable to them and then saying "while I have a gun pulled to your head, I'm not going to pull the trigger, trust me"^[10]

They have the resources to gather information, they gather the information, but they won't use it, unless of course we give them reason. Is that how it should work? We don't think so.

Conclusion

However we also think that the new generation already has way less taboos and care less and in other ways more of what others think of them, the only difference between the past is that a rumor is now easily confirmed rather than deniable. But our generation is one that already has their entire youth logged by multiple means of digital and analog capturing devices, and is also more aware of the fact that it's being watched all the time.

So at a certain moment it won't matter how many technologies are out there spying on you, we'll live with the knowledge that everything we do is inevitably logged to some extent and we'll probably adapt our behavior that way, maybe becoming a more tolerant society in general. Which doesn't mean the government and other humanitarian institutes should lower their efforts in regulating the matter.

Sources

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