

MindHolocaust.is presents:

History of Thought Identification

A dossier about "Mind Reading"

Part I (2006-2015) 2nd ed.

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Barcelona, September 2015

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Abstract

The modern neuroscience is able to read people's mind: the process is called "thought identification".

The process involves brain scanners and sophisticated computer algorithms.

The research takes place in advanced research facilities like Universities and corporation's labs, with the help of the

biggest IT corporations and is mainly financed by the government and the militaries (DARPA overall).

To fulfill the goal of having an accurate knowledge about the functioning of the mind, a huge initiative has been

launched by the Obama's administration.

The official reports about ethical issues that can be brought by this research are denying the existence of issues about

the "thought identification" process and the possibility of process itself.

1. Thoughts Identification

1.1. Since 2006, the contemporary neuroscience claims that it is possible to detect lies and covert attitudes using mind scanners, like fMRI. [1]

1.2. In February 2007 a team of scientist at the Max Planck Institute for Human Cognitive and Brain Sciences, in Germany, "read" participants' intentions out of their brain activity. This was made possible by a new combination of functional magnetic resonance imaging and sophisticated computer algorithms. [2]

1.3. There are proofs that the outcome of a decision is encoded (and so detected) in brain activity up to 10 seconds before it enters awareness. [3]

1.4. At the beginning of 2008, it was already possible to detect thoughts of familiar objects, by the use of mind scanners in conjunctions with a computer's algorithm. [4]

1.4.1. The thought of specific objects have been mapped to specific brain activation patterns by a group of researcher at the Carnegie Mellon University, Pittsburgh, Unites States. [4]

1.4.2. The same researchers claimed that there is a commonality in how different people's brains represent the same thought. [4]

1.5. Since 2009, neuroscientists in the United States are cataloguing brain patterns to match up with actual words, sentences and intentions. [5]

1.5.1. John-Dylan Haynes, of the Max Planck Institute, explains, "The new realization is that every thought is associated with a pattern of brain activity and you can train a computer to recognize the pattern associated with a particular thought." [6]

1.6. The Intel Lab at Pittsburg works in partnership with the Brain Image Analysis Research Group at Carnegie Mellon University to identify the brain's thought patterns through fMRI technology. [7]

1.6.1. The Intel Lab at Pittsburg is part of Intel Research division, that was created in 2000, under the leadership of David L. Tennenhouse. Tennenhouse aimed to model his new research organization based on DARPA, where he had previously been director of the Information Technology Office. [8]

1.7. In 2010 the DARPA's budget for the fiscal year included \$4 million to start up a program called Silent Talk. The goal was to "allow user-to-user communication on the battlefield without the use of vocalized speech through analysis of neural signals". [9]

1.7.1. Before being vocalized, speech exists as word-specific neural signals in the mind. [10]

1.7.2. Darpa wants to develop technology that would detect these signals of "pre-speech," analyze them, and then transmit the statement to an intended interlocutor. [9]

1.8 In 2011, due to the "zero-shot learning method", by utilizing semantic knowledge mined from large text corpora and crowd-sourced humans, it has been shown that training images of brain activity are not required for every word, in order to be recognized: it is possible to predict words (identify thoughts) that people are thinking about, from functional magnetic resonance images (fMRI) of their neural activity, even without training examples for those words. [11]

1.9. On September 2011, the 22nd a group of resercher of the Barklay University published an article about "Reconstructing visual experiences from brain activity evoked by natural movies". Using functional Magnetic Resonance Imaging (fMRI) and computational models, UC Berkeley researchers have succeeded in decoding and reconstructing people's dynamic visual experiences – in this case, watching Hollywood movie trailers. [12]

1.9.1. A student from the same group had the same succesfull results applying the same technique to the audio experience, on January 2012, the 31th. [13]

2. The Brain Atlas

2.1 In 2003 Paul G. Allen, co-founder of Microsoft in 1975, founded the Allen Institute for Brain Science (AIBS), supporting it with 41\$ million (to date: \$500 million). [14]

2.2 The inaugural project of the Allen Institute is the Allen Mouse Brain Atlas, compelted the 26th September 2006: [15]

2.2.1. The Allen Mouse Brain Atlas is a gene expression map for the mouse (and human brain, as people and mice share the 90% of brain genes) that, as well as functional imaging techniques, permits researchers to correlate between gene expression, cell types, and pathway function in relation to behaviors (or phenotypes).[16]

2.3. On May 24, 2010, the Allen Institute announced it was expanding its Atlas from the mouse into the human brain with the launch of the Allen Human Brain Atlas. [\[17\]](#)

3. The BRAIN initiative

3.1. On April 2, 2013, the US president Barack Obama unveiled the “BRAIN” Initiative (Brain Research through Advancing Innovative Neurotechnologies): a collaborative, public-private research, with the goal of supporting the development and application of innovative technologies that can create a dynamic understanding of brain function. [18]

3.1.1. In other words, the aim is to produce the first map of brain function to explore every signal sent by every cell and track how the resulting data flows through neural networks and is ultimately translated into thoughts, feelings and actions: to have a computational model of the human brain. [19]

3.1.2. The BRAIN Initiative has been developed by the White House Office of Science and Technology Policy (OSTP), with proposed initial expenditures for fiscal year 2014 of approximately \$100 million: \$50 million from the Defense Advanced Research Projects Agency (DARPA), \$40 million from the National Institutes of Health (NIH), and \$20 million from the National Science Foundation (NSF). [20]

3.1.3. Private sector partners also have made important commitments to support the BRAIN Initiative, including: \$60 millions from the Allen Institute for Brain Science and \$30 millions from the Howard Hughes Medical Institute. [19]

3.1.4. On September 30, 2014, the Obama administration announced two more federal agencies were participating the BRAIN Initiative: the Food and Drug Administration (FDA) and Intelligence Advanced Research Projects Activity (IARPA). The President’s FY15 Budget proposed to double the Federal investment in the BRAIN Initiative from \$100 millions to \$200 millions. [20]

3.2. In 2015, a number of companies, foundations, patient advocacy organizations, universities, and private research institutions are making investments and announced commitments to align more than \$270 million in research and development efforts with the goals of the BRAIN Initiative. [21]

3.3. On January, 17, 2013, a meeting was held at the California Institute of Technology was attended by the three government agencies DARPA, NIH and NSF, as well as neuroscientists, nanoscientists and representatives from Google, Microsoft and Qualcomm. According to a summary of the meeting, it was held to determine whether computing facilities existed to capture and analyze the vast amounts of data that would come from the project. The scientists and technologists concluded that they did. [22]

3.4. In April 4, 2013 Qualcomm Inc. announced to took part in the BRAIN Initiatives and unveiled it has been quietly working at the frontiers of neuroscience since 2009 at “ Brain Corp.” [23] an independent venture that Qualcomm has kept mostly under wraps. [24]

3.4.1. Founded in 2009, Brain Corp. set out to develop radically different computer systems and software, based on algorithms that emulate the “spiking neuron” processes of the human brain. [24]

3.4.2. In 2010, DARPA, provided an undisclosed amount of funding to Brain Corp. “to design an artificial nervous system for UAVs” (unmanned aerial vehicles). [25]

3.4.3. On Feb 13, 2012 Todd Hylton joined Brain Corp. as a top executive last year, after resigning from DARPA, where he spent nearly five years as a program manager. [26]

3.5. On September 30, 2014 it has been announced that Google engineers are building tools and developing infrastructure to analyze petabyte scale datasets generated by the BRAIN Initiative and the neuroscience community to better understand the brain’s computational circuitry and the neural basis for human cognition. Google is working closely with the Allen Institute for Brain Science to develop scalable computational solutions to advance scientific understanding of the brain. [21]

3.6. On June 21, 2012, on the #74 of Neuron, one of the most influential and relied upon journals in the field of neuroscience, some ethical considerations about the BRAIN initiative (former Brain Activity Map Project) are pointed out: amongst them, issues of "mind-control". [27]

3.6.1. On April 2, 2013, the Office of the Press Secretary informed that the DARPA will engage a broad range of experts to explore the ethical, legal, and societal issues raised by advances in neurotechnology. [18]

3.6.2. On March 2015, the US Presidential Commission for the study of Bioethical Issues published the second volume of the Bioethics Commission's two-part response to President Obama's request related BRAIN Initiative. [28]

3.6.2.1 In the commission's report, the "mind-control" issue and the concept itself, are re-shaped in the term of "neural modifiers", to refer to a wider array of mechanisms of brain and nervous system change, and ignored in its peculiarity. [28]

3.6.2.2 In the commission's report is stated that "protecting mental privacy is a forward-looking concern that neuroscientists and legal decision makers might need to evaluate as technology continues to advance." [28]

3.6.2.3 The commission's report denies that neuroscience's achievements could lead to "mind-reading". It is stated that "today, and in the foreseeable future, neuroscience does not enable us to read minds. Technology remains extremely limited and cannot reveal the true inner desires, psychological states, or motivations that are worthy of the term mind-reading." [28]

Conclusions

It is absurd to deny the problems of integrity of privacy caused by the achievements of computational neuroscience.

The fact that to deny this problem, it is precisely the Bio-Ethics Presidential Committee of the US largely financed and controlled by DARPA, it is dramatic.

The world's governments are deeply influenced by the military-industrial-scientific complex that is breaking the integrity of the privacy of mind.

Actually, this powerful political-financial complex conceives the internal affairs as a matter of military-strategic warfare.

This contemporary political framework is characterized by a "fourth generation warfare (4GW)" ? carried on the states's internal front, i.e. the citizens, in order to Win hearts and minds of its own population.

Throughout contemporary history the psychological warfare has become highly sophisticated, relying on the scientific research achievements, amongst them, the mind-reading technology.

This scenario highlights that civil rights and social justice supporters must defend the privacy of thought from being threatened by the abuse of the mind-reading technology.

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