

# ‘Free will cannot be found anywhere in the brain’

**Neuroethics is a discipline that could launch many a heated debate in the next century. Philosopher and physician Dr Gert-Jan Lokhorst of the faculty of Technology, Policy, and Management at Delft University of Technology (TU Delft) this year received a subsidy of 400,000 euros from the Dutch Scientific Research Council for research into the ethical and legal aspects of brain science and neurotechnology. “I notice that ethicists tend to over dramatise.”**

JOOST PANHUYSEN

*Using your own brain to consider how the brain works. Doesn't this mirror effect make you dizzy from time to time?*

“I'm not really afraid I'll get lost inside my own brain. After all, a scientist doing research on the effect of alcohol on the brain needn't worry about becoming an alcoholic, does he? Even so, I must confess I do have a recurrent nightmare, in which a famous brain scientist selects me as his guinea pig, pulls my brain out of my head to show it to his students, and then stuffs it all back in again. I tend to worry that the last bit might go wrong.”

*In your research proposal you state that philosophy, which for centuries has contemplated such*

As a six-year old boy at an uncle's birthday party Dr Gert-Jan Lokhorst became fascinated by a Time Life book about the working of the brain, and was immediately hooked. The fascination remained the linchpin of his career. In the late nineteen eighties he did research on artificial intelligence ('didn't turn out as we expected') and neural networks. Having studied medicine, in 1980 Lokhorst decided to study philosophy at the Erasmus University, where later he would obtain his doctorate and work as a lecturer until 2004. For the past three years he has worked for the philosophy section of the faculty of Technology, Policy, and Management at TU Delft. The research he will be supervising over the next years will be part of the 3TU Centre for Ethics and Technology. Lokhorst is married to philosopher Dr Marjolien Degenaar. They have two children.

*problems as the relationship between the mind and the body, could play an important role in the debate on neuroethics.*

“The way people look at dilemmas in neuroethics is always affected by their own philosophical outlook, even if they fail to recognise the fact. About ten years ago, the Dutch Public Health Council published a report about whether psychosurgery should be banned or not. The conclusion was that there was no reason to ban psychosurgery, since it only involved cutting into brain, and did not affect the soul. That is a conclusion you can only reach if you believe in a strict separation between mind and body, which is a view that in philosophy has been long regarded as out of date. It just goes to show that a discussion with philosophers can be helpful. By the way, ninety percent of philosophy is nonsense, but the remaining ten percent is very useful.

*Over the past few years, neuroethics has been on the increase, in particular in the United States. Can this breakthrough be explained from recent developments in brain research and neurotechnology? After all the possibilities of scanning brain activity using brain imaging have increased enormously.*

“Yes. Brain imaging offers great possibilities. Specialists can trace tumours more quickly. The big question is, can the technology also be used for other purposes? One spin-off is neuromarketing, which attempts to use results from brain research to find out how customers can be induced to keep buying certain products. Brain research is said to show that mentioning the Coca Cola brand

name produces a more powerful response than mentioning Pepsi Cola. At least that is what the scientists would have us believe, but I have my doubts. Inside the brain you'll find one giant cacophony, and to my mind it is wishful thinking to expect that something as trivial as a favourite brand of soft drink could be traced among all the chaos. But if one were to emphasise minute differences in the brain scans, for example by colouring the active areas in the brain bright red, you could easily create the suggestion. Pure manipulation.”

*If neuromarketing is just a hype, there is little for a neuroethicist to worry about.*

“But there is. In the United States, hospitals are doing brain research into purchasing behaviour on behalf of Coca Cola, with the Coca Cola company footing the bill for the expensive equipment they need. You might ask yourself whether researchers ought to be collaborating in such a venture. And suppose prospective employers were to insist on a legal basis for allowing brain scans as part of a job application procedure. That too would be questionable, since scanning images don't provide any clues whatsoever about a candidate's psychological make-up. If on the other hand an employer were honestly to believe that they do, a job applicant could be turned down on the wrong grounds. Anyway, I don't think the law will be quick to allow such tests.”

*You do not seem to be too pessimistic about the possible applications of brain research and neurotechnology.*

“Of course, it's easy to come up with



PHOTOS: NOUT STEENKAMP/FMAX

*'A community of saints  
doesn't sound like my  
idea of fun'*



pessimistic scenarios such as pilots being given brain implants to improve their communication with the technology of their aircraft, or a dictatorial regime that attempts to use electrodes in the brain to treat 'character disorders' in rebellious prisoners. But I hope we never reach that pass in our society.

What does strike me is that ethicists tend to over dramatise. 'The end is nigh unless we heed the signs.' They act as if our society is deeply troubled about the themes they bring up, but much of the unrest is brought about by their own actions."

*Wouldn't it be wise to consider the risks of a new technology in advance?*

"Certainly. On the other hand history teaches us that sooner or later we will start to use any technology we can lay our hands on. Ethicists can make a song and dance about it, but their role will remain marginal."

*So why did you opt for neuroethics?*

"Because the field is a fascinating one for a philosopher. Nanoethics is about what might conceivably happen in nanotechnology, but my field touches on issues that the ancient philosophers racked their brains over. Philosophy thus acquires a new measure of relevance. In some cases artists are better equipped than scientists to point out the dilemmas in neuroethics. Aldous Huxley's *Brave New World* remains frighteningly relevant, even after 65 years."

*Will we ever be able to read a person's mind using brain research?*

"No. Our being able to observe thoughts as activity in the brain does not mean that we can actually read them. We cannot dig as deep into the brain as privacy defenders may fear, or some anti-terrorism buffs might hope. Scientists saying otherwise are naive. Ever since Aristotle, philosophy has been concerned with the human conscience. For the past thirty years, externalism within

the philosophy of the mind has been the prevailing view, holding that the contents of our thoughts are mainly the result of external factors. The corollary is that we will never really be able to read a person's mind. Philosophy exists through discussion, so it goes without saying that externalism itself is not without controversy. However, discussions reveal that brain scientists and ethicists alike often know little about the latest developments in philosophy. Nonetheless, they are interested all the same.

The fact that we will never be able to read a person's mind does not mean that privacy is not an issue. Scientists have already demonstrated the ability to erase the memory of laboratory animals, even though accurately selecting the area you want to erase remains difficult. Such technology could someday be used on human subjects."

*Are there any circumstances in which one might be permitted to erase a person's memory?*

"We now have a new concept that may help to find an answer to such questions, the extended mind hypothesis. The theory is that one should treat whatever is inside the mind in the same way as whatever is outside the mind. As I am not permitted to tear up your notepad, neither may I erase your memory."

*Traumatized people might perhaps benefit from having part of their memory erased.*

"That would be a useful application. But again an issue that raises some awkward questions. Memories make up a great part of our identity as Paul Verhoeven demonstrated in Total Recall. Are you still a complete human being when important memories have been taken away from you? Just imagine being able to remove all the bad experiences from your past life – you'd never grow up."

*The most dangerous temptation is to tamper with the human brain in order to secure the happiness of mankind. Find a way to prevent people from*

*making decisions on impulse, to make their thoughts a little less egocentric and aggressive, and a brave new world will be lying just around the corner.*

"Tinkering with our brains is not so simple. But even so I can't reject the scenario out of hand either. Perhaps one day we'll have a drug that will turn ordinary people into better saints than Saint Francis. The question is, should you add the stuff to the public water supply, or ban it?"

*Is this where the interests of the individual clash with those of society as a whole?*

"A society can only function if a certain measure of variety prevails among the people and their ideas. A community of saints doesn't sound like my idea of fun. Everything would grind to a standstill. Just compare the notions with our concepts of heaven – mind-numbingly boring.

There lurks another danger in the ability to improve our brain, and that is that we would never again be satisfied with our mental capabilities. We'd keep tinkering with our brains like a kind of cosmetic surgery. Michael Jackson thought he would look better with a lighter skin and a smaller nose, but his action launched a long process of suffering."

*Is there such a thing as a free will, or is the concept being undermined by the results of recent brain research?*

"Concepts such as free will, morality, and responsibility are useful, and in fact we cannot live without them. But we can never pinpoint free will in our brain, nor love or hunger. That's not how the brain works. Scientifically speaking, a concept like free will is useless. In my research I would like to demonstrate that there is an unbridgeable gap between everyday and legal language on the one hand, and the language of brain scientists on the other. We must take care not to try to describe the world of our brain in a language unsuitable for the task."

*Couldn't both languages complement each other?*

"Sometimes. But you must take care not to mix the two without further thought. A judge trying to assess an accused person's guilt will be using age-old concepts like free will and responsibility. If a lawyer defending a client accused of murder were to suddenly come up with a theory that the real killer is in fact a tumour in the brain, we need to be careful. As far as I know, no judge or jury has ever acknowledged the validity of such a defence, and I think that is a good thing. When deciding whether someone is legally accountable, we should consider that person's behaviour rather than their brain. Perhaps results from brain research will some day be spectacular and relevant enough to let them carry weight in a judgment, but we haven't reached that point so far."

*Couldn't a person argue that the cause lies in faulty wiring in the brain? Are we always responsible for our actions?*

"That is a fundamental issue that is currently becoming highly relevant. Civil servants in high places at the Ministry of Justice and the Ministry of Home Affairs are currently considering the possible effects on legislation of new insights in brain research. These people also sit on the experts panel that was established to support our research."

*Should the government heed the results of brain research in legislation?*

"No. Science changes from week to week. You cannot keep up with it. Suppose governments in 1870 had decided to base legislation on the latest scientific views. Those laws would have been obsolete by 1930."

*Will we gain insight into ourselves as we come to understand more about how our brains work?*

"Insight in a medico-technical sense, yes, certainly. But psychological insight of the kind encountered in the works of Dostoevsky? No, I don't think so."

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