

Watch what you think

By Michael Johnson

Published: March 3, 2009

BORDEAUX: When the police stopped me for running a red light recently, I was thinking "Don't you cops have anything better to do?" But the words that came out of my mouth were a lot more guarded, something like, "Sorry, I thought it was green." Sometimes it's good to play the dumb foreigner.

The policewoman, a tough lady smoking a cigarette, glared at me. Was she reading my mind? No, I guess not, because she only gave me a warning. But beware, in a few years she might actually carry a device that can do that.

Research is rapidly advancing to allow thought-decoding through brain-scan technology, and it scares me to death. I don't want anyone else in my head, and certainly not the police.

How often are your thoughts and deeds truly in sync? Unless you are a sociopath, probably not very often. Cultural conventions, your upbringing, good manners and plain animal caution prevent you from blurting out what's really on your mind.

But now neuroscientists in the United States are cataloguing brain patterns to match up with actual words, sentences and intentions. One researcher explains, "The new realization is that every thought is associated with a pattern of brain activity."

Dozens of volunteers, including a few journalists, have been invited by Carnegie Mellon University in Pittsburgh, Pennsylvania, to test the technology being developed there. Mark Roth, a writer for the Pittsburgh Post-Gazette, underwent a scan and wrote that the computer performed "nimbly." He said he was impressed. So am I.

Admittedly these early results only begin to show the way. The computer recognized that Roth was thinking of "corn" and not "chimney," "hammer" and not "house." But it's a start. Every thought that runs through our minds produces a pattern that can be viewed through the magic of fMRI (functional magnetic resonance imaging).

Now the brain team is building up a database of brain patterns that we all share. The basic model matches a dictionary of nouns with verbs associated with sensory or motor functions, such as see, listen or taste. Texts totaling about one trillion words were analyzed to establish common relationships and enable predictability of thought.

At this stage, scanning requires the subject to lie motionless inside a neuro-imaging device and answer questions while the images of the brain are dissected into slices. Brain specialists have identified areas in the brain where certain concepts are stored.

The applications are as broad as they are ethically worrisome. What can this do to human rights and especially the right to privacy, a cornerstone of civil liberties?

Specifically, would suspects in a crime be forced to submit? Probably. That would be a small step from obligatory DNA sampling in force in some American states. Would U.S. airports add these units to the array of fingerprint and photo gadgetry already pointed at foreign visitors? Probably. Will police throw out their old lie detectors and go straight into the brain? Certainly.

Ultimately, scientists are working on remote monitoring of brain patterns using mobile infrared detectors connected to a headband to make easy use possible.

The software has been developed at Carnegie Mellon in a joint project between the psychology and computer science departments.

Dr. Marcel Just, head of the program, says it may take some time to get there. Estimates range from five to 50 years, but the objective is clear: Identify thoughts with the same precision that speech patterns can be interpreted today. A scientific paper on his team's findings was published last month in the journal PLoS One, claiming 78 percent accuracy in the basic experiments thus far conducted.

The psychological novel has been playing around inside characters' heads since Stendhal and Dostoevsky. Consider this description of the thought vs. action in an old Somerset Maugham novel. The hero, a medical student, is upset over his unrequited love for a waitress. Sitting near her, he imagines stabbing her in the throat with a butter knife, confident that he could find the carotid artery. What comes out of his mouth is more guarded: "I love you."

Maugham would have to rethink his scene if the waitress got suspicious and strapped a headband on her admirer.

Michael Johnson is a freelance journalist based in Bordeaux.