



‘Psychic Robot’ Will Read Your Intentions By Your Movements

TN Note: Advances in science can have tangible benefits to serve humanity, but in the wrong hands, the same technology can be used for nefarious ends. Psychic robot technology will likely find a broad role in corporate, military and police applications.

What if software could steer a car back on track if the driver swerves on ice? Or guide a prosthesis to help a shaky stroke patient smoothly lift a cup?

Bioengineers at the University of Illinois at Chicago have developed a mathematical algorithm that can “see” your intention while performing an ordinary action like reaching for a cup or driving straight up a road — even if the action is interrupted.

The study is published online in the journal PLOS ONE.

“Say you’re reaching for a piece of paper and your hand is bumped mid-reach — your eyes take time to adjust; your nerves take time to process what has happened; your brain takes time to process what has happened and even more time to get a new signal to your hand,” said Justin Horowitz, UIC graduate student research assistant and first author of the study.

“So, when something unexpected happens, the signal going to your hand can’t change for at least a tenth of a second — if it changes at all,” Horowitz said.

In a first test of this concept, Horowitz employed exactly the scenario he described — he analyzed the movement of research subjects as they reached for an object on a virtual desk, but had their hand pushed in the wrong direction. He was able to develop an advanced mathematical algorithm that analyzed the action and estimated the subject’s intent, even when there was a disturbance and no follow through.

The algorithm can predict the way you wanted to move, according to your intention, Horowitz said. The car’s artificial intelligence would use the algorithm to bring the car’s course more in line with what the driver wanted to do.

“If we hit a patch of ice and the car starts swerving, we want the car to know where we meant to go,” he said. “It needs to correct the car’s course not to where I am now pointed, but [to] where I meant to go.”

“The computer has extra sensors and processes information so much faster than I can react,” Horowitz said. “If the car can tell where I mean to go, it can drive itself there. But it has to know which movements of the wheel represent my intention, and which are responses to an environment that’s already changed.”

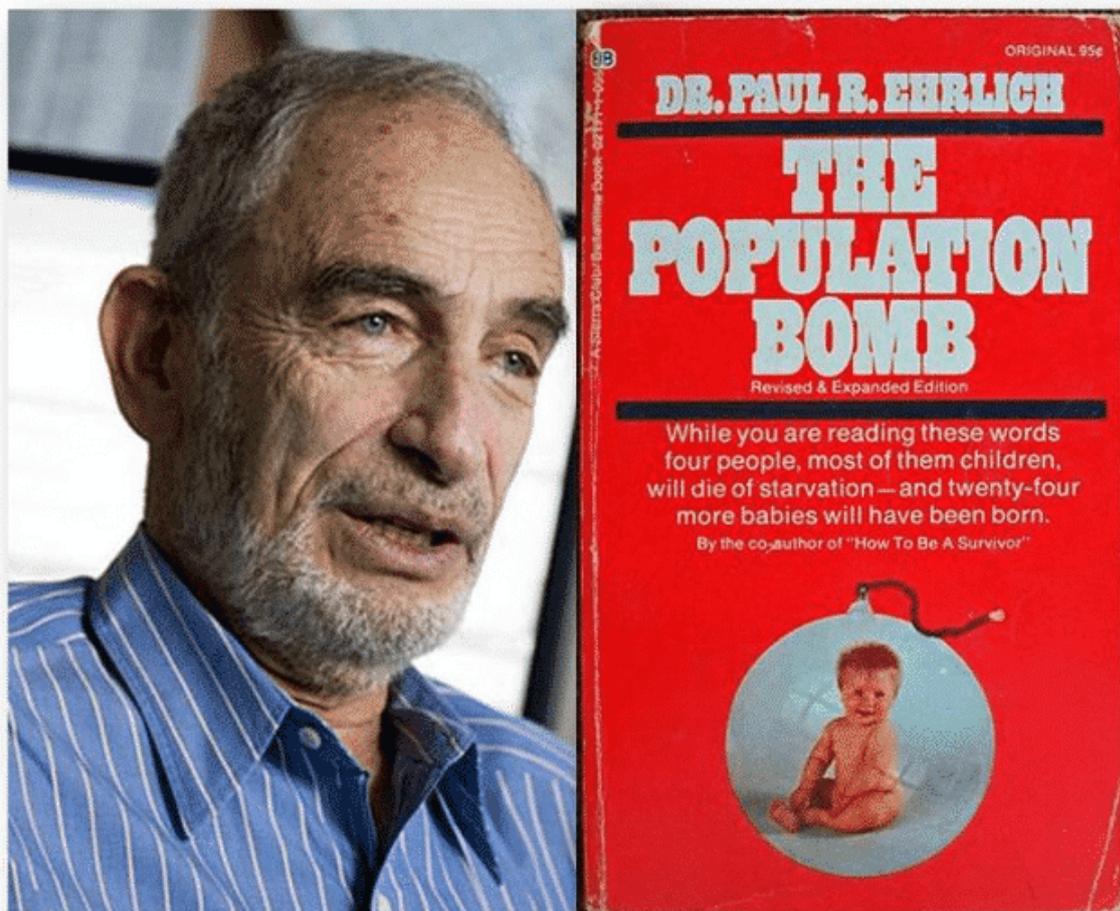
For a stroke patient, a “smart” prosthesis must be able to interpret what the person means to do even as the person’s own body corrupts their actions (due to muscle spasms or tremors.) The algorithm may make it possible for a device to discern the person’s intent and help them

complete the task smoothly.

“We call it a psychic robot,” Horowitz said. “If you know how someone is moving and what the disturbance is, you can tell the underlying intent — which means we could use this algorithm to design machines that could correct the course of a swerving car or help a stroke patient with spasticity.”

James Patton, professor of bioengineering, is principal investigator on the PLOS ONE research article. The study was performed at the Rehabilitation Institute of Chicago and supported by National Institute of Neurological Disorders and Stroke grant NS053606.

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Paul Ehrlich Calls Pope's Climate Push 'Raving Nonsense' Without Population Control

TN Note: Ehrlich sold millions of copies of his 1968 book, Population Bomb. Notably, not one single prediction he made has come true. His scientific discipline was entomology, or the study of insects.

One of America's leading scientists has dismissed as "raving nonsense" the pope's call for action on climate change - so long as the leader of the world's 1 billion Catholics rejects the need for population control.

In a [commentary in the journal Nature Climate Change](#), Paul Ehrlich, a senior fellow at the Stanford Woods Institute for the Environment, argues that Pope Francis is simply wrong in trying to fight climate change without also addressing the additional strain on global resources from population rise. "That's raving nonsense," Ehrlich told the Guardian. "He is right on some things but he is just dead wrong on that."

The critique in "[Society and the Pope's encyclical](#)", part of a special package from scientists on the encyclical, marked a rare note of dissent from scientists and campaigners. Many hope that the pope will drive home his [call to action on poverty and the environment](#) in his speech to Congress on Thursday.

Ehrlich, in his Nature Climate Change commentary, accuses Francis of a dangerous flaw in his indictment of consumerism and its effects on the poor and the environment. The pope had fallen for the usual clerical "obsession" with contraception and abortion - when he could have instead broken new ground on the Catholic church's approaches to women's reproductive rights and family planning.

The broadside exposes some of the difficulties of embracing a figure such as the pope - for those on the left as well as the right.

Conservative allies of the pope, on issues such as same-sex marriage and abortion, have balked at his denunciation of capitalism and call to action on climate change.

Those thrilled by the pope's intervention on climate change - and Ehrlich counts himself among them - were troubled by Francis's refusal to countenance the need to limit population, the scientist said. "It is crystal clear. No one concerned with the state of the planet and the state of the global economy can avoid dealing with population. It is the elephant in the room," he said.

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