Medical Xpress

In new leap for AI: computer chips that can smell

August 28 2017, by Fran Blandy

A Nigerian neuroscientist has invented a neurotechnology device merging lab-grown neurons with electronic circuitry, one of whose potential uses is sniffing out explosives, which might just speed up those airport security checks

Nigerian neuroscientist Oshiorenoya Agabi may have found a way to solve one of life's puzzling dilemmas: how to make air travel pleasant again.

What if you could skip tedious airport security lines, while a special device able to sniff out explosives works silently in the background?

This is only one of the possible uses of what Agabi says is the world's first neurotechnology device developed by his Silicon Valley-based start-up Koniku and unveiled at the TEDGlobal conference in Tanzania Sunday.

While those in the field of Artificial Intelligence (AI) are working furiously to create machines that can mimic the brain, or—like tech entrepreneur Elon Musk—implant computers in our brains, Agabi has found a way to merge lab-grown neurons with electronic circuitry.

As many grapple with the finite processing power of silicon, the 38-year-old said he had looked to the brain which is "the most powerful processor the universe has ever seen."

To simulate the power of just 204 brain neurons would require a supercomputer, he said.

"Instead of copying a neuron, why not just take the biological cell itself and use it as it is? That thought is radical. The consequence of this is mind-boggling," he said.

So he and a team of geneticists, physicists, bio-engineers, molecular biologists and others set about doing just that, focusing on the problems that were particularly hard for silicon devices to solve.

This includes detecting volatile chemicals and explosives or even illnesses such as cancer.

'A world first'

Agabi said the Koniku Kore device is "a world first" and able to do just that, essentially through breathing in and smelling the air.

He said "major brands", including those in the travel industry, had signed up and the start-up's current revenues of $8 million (7 million euros) were expected to leap to $30 million by 2018.

One of the main challenges was finding a way to keep the neurons alive, a secret Agabi did not wish to expand on, saying only they could be kept alive for two years in a lab environment and two months in the device.

As AI improves in leaps and bounds, scientists are trying to make and succeeding in making machines more like our brains, able to learn and understand their surroundings: a prospect that is terrifying for many.

Musk, who has repeatedly warned about the perils of AI making humans obsolete, is working on a new project to implant "neural lace" brain-interface technology to prevent humans becoming like a "house cat" to potential machine masters.

However, Agabi, who grew up in Lagos where he helped his mother sell food on the streets, believes the future of AI lies in making machines more alive.

He believes his company could build a cognitive humanoid system based on synthetic living neurons in the next five to seven years.

"It's not science fiction," he told AFP.

"We want to build a brain of biological neurons—an autonomous system that has intelligence. We do not want to build a human brain."

Agabi did a bachelors degree in theoretical physics in Lagos before

taking an interest in neuroscience and bio-engineering for his PhD in London.

African innovation at TED

He spoke at the opening session of the four-day TEDGlobal conference, putting African ideas, innovation and creativity in the spotlight with a variety of speakers who each get an 18-minute window to get across their message of choice.

TED—originally known as Technology, Entertainment and Design—has built a global following for its online videos of inspiring talks devoted to "ideas worth spreading."

The annual international version is taking place in Africa for the first time in a decade with a new crop of "TED Fellows" from the continent to take to the stage.

"This gathering couldn't come a moment too soon," said TEDGlobal co-curator Emeka Okafor.

"Africa has experienced spectacular economic, demographic and creative growth, but both opportunity and danger are rising at an exponential rate. Our conference will gather the idea catalysts, problem-solvers and change-makers already hard at work here charting Africa's own path to modernity."

Citation: In new leap for AI: computer chips that can smell (2017, August 28) retrieved 23 April 2024 from https://medicalxpress.com/news/2017-08-ai-chips.html