

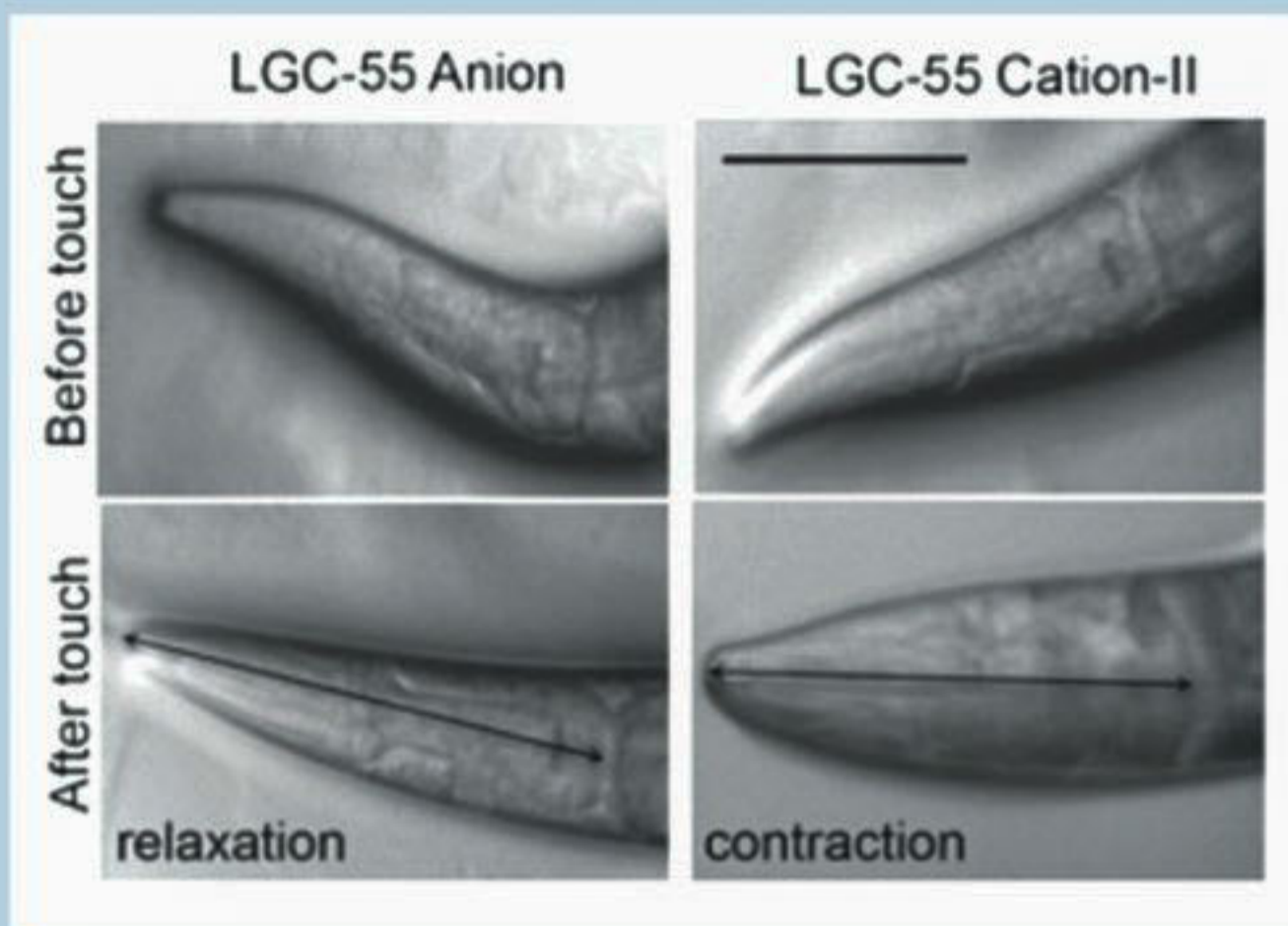
QUIRKY SCIENCE

SYNAPTIC ENGINEERING CHANGES BEHAVIOR

Researchers at the University of Massachusetts Medical School are the first to show that it's possible to reverse the behavior of an animal by flipping a switch in neuronal communication. The research, published in PLOS Biology, provides a new approach for studying the neural circuits that govern behavior and has important implications for how scientists think about neural connectomes.

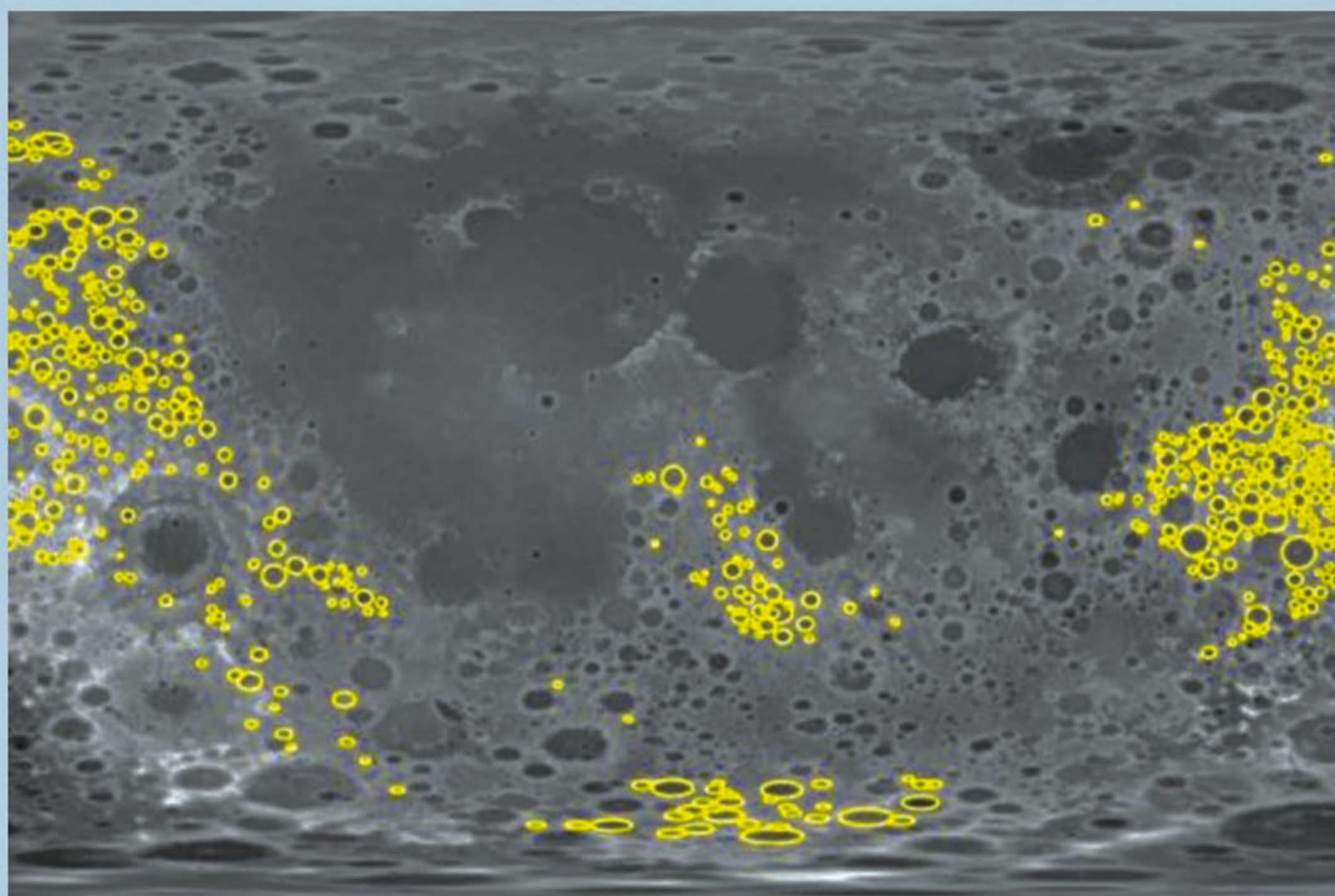
New technologies have fueled the quest to map all the neural connections in the brain to understand how these networks process information and control behavior. The human brain consists of 1011 neurons that make 1015 connections. The total length of neuronal processes in the human brain is approximately 4 million miles long, similar in length to the total number of roads in the U.S. Along these networks neurons communicate with each other through excitatory and inhibitory synapses that turn neurons on or off.

The neuronal roadmap, or connectome, however, doesn't include information about the activity of neurons or the signals they transmit. How stable are these neural circuits in



the brain? Does their wiring constrain the flow of information or the behaviors they control? The complexity of the human brain makes it almost impossible to address these questions.

Mark Alkema, PhD, associate professor of neurobiology at UMass Medical School turned to the nematode *C. elegans* to find answers. A tiny worm with only 302 neurons, it is the only animal for which its neural road map has been completely defined.



Scientists believe that about 4 billion years ago, during a period called the Late Heavy Bombardment, the moon took a severe beating, as an army of asteroids pelted its surface, carving out craters and opening deep fissures in its crust. Such sustained impacts increased the moon's porosity, opening up a network of large seams beneath the lunar surface.

Now scientists at MIT and elsewhere have identified regions on the far side of the moon, called the lunar highlands that may have been so heavily bombarded – particularly by small asteroids – that the impacts completely shattered the upper crust leaving these regions essentially as fractured and porous as they could be. The scientists found that further impacts to these

CRUST OF THE MOON

highly porous regions may have then had the opposite effect, sealing up cracks and decreasing porosity.

The researchers observed this effect in the upper layer of the crust – a layer that scientists refer to as the megaregolith. This layer is dominated by relatively small craters, measuring 30 kilometres or less in diameter. In contrast, it appears that deeper layers of crust, that are affected by larger craters, are not quite as battered, and are less fractured and porous.

Source: Sciencedaily.com

OPINION

PEACE 101

NAZIBA BASHER

PHOTO: KAZI TAHSIN AGAZ APURBO

The recent protest carried out by students of private universities was met with victory as the Finance Ministry issued a statement saying the VAT imposed on Private Education will be withdrawn. There were many ups and downs of this

the protest. The police themselves were not touched. And when they next showed up with guns and rubber bullets, the students were ready with flowers, to teach the force the power of peace. They learned, and withdrew.



protest, and while people were stuck in traffic for hours- there was more to learn for us from it, than not.

The first noticeable feature of this protest was that, shockingly, no people were injured! In Bangladesh, more often than not, during protests, other civilians choose to stay locked up in their houses because of the ruthlessness of said protests, or those rallying against it, and the chance of actually losing your life arises. This time there was no such fear, no such deaths, no ruthlessness. And also shockingly, no opposing force.

Another observation showed that there were no vandalised vehicles, while often we see during protests the violent breaking of cars (what fault vehicles have, I do not know) and burning buses. The students let ambulances pass by making way for them, and the biggest casualties of the protest were 2 cars with 'No Vat on Education' spray painted on them (can be washed off with acetone), some placards with the same slogan placed on car windows, and people facing traffic for 6-7 hours, instead of the usual 3-4— maybe not so terrible when compared to human beings and vehicles set ablaze.

While remaining peaceful was their ultimate goal, the police had already once attacked the students on the first day of

What was most evident in the students was valiance. Even after the first attack from the police, even after being attacked by Titumir College students, even after knowing that they were prone to any kind of attack from anyone, the students remained strong and courageous. They stuck to their word, as they promised a peaceful but determined protest. They weren't going to back down. Not for anything or anyone.

And lastly, the biggest lesson we learned from this protest was that peace always wins hearts. Many political parties and politically backed student bodies believe that the only way to win a protest or be heard is by killing, burning and putting fear into the hearts and minds of people, but the private university students have proved the contrary. While many have complained about the traffic, many have also accepted it because it was for a good cause.

Now, #NoVatOnEducation remains no more just a hashtag. It has become one the most popular and successful slogans in Bangladesh in recent times. It has become the victory of the people. The students have won our hearts and our support with peace, which, ultimately the Government had to accept and yield into. We spoke, they listened. History was made. ■