



At Doom's Gate:

Scientists grew human brain cells - and sent them to Hell...

Plunged into darkness. Nothing but a pistol in hand. Metal music blasting across the airwaves, adding to the crushing weight of the isolation. The heavy steel door before you slides open with a mechanical clunk - revealing the mutilated remains of the recently obliterated.

Blood and viscera fleck the walls. Pieces of sinew are impossible to identify. The darkness is broken by the unsettling glow of a burning pentagram etched into the wall. In the distance you hear the wail of something inhuman. Your hands tremble as your grip tightens around the pistol.

You're confronted with the horror behind the noise, as you instinctively take aim... but it's too late. The humanoid creature, lurches down, claws scraping with ease into the steel floors of the facility. Razor-sharp teeth part as a fireball is barked in your direction.

The projectile smashes through your skull, splattering its contents against the wall...

Darkness, again.

Then the cycle repeats.

This may sound like a nightmare, but it is instead a reality. Right now, on Planet Earth, this grim scenario is playing out in a laboratory somewhere. Suspended in nutrient fluid are 200,000 human neurons.

A microscopic universe that knows nothing but electricity and impulse.

Its only goal is to survive the experiment it was unwittingly assigned at creation.

Playing the videogame Doom, on an infinite loop.

The twisted - and undeniably brilliant - researchers responsible for this almost Cronenberg-level abomination are the team at Cortical Labs. A biological cloud-computing company aiming to build breakthrough technologies.

The breakthrough in this case being a silicon chip that has had living human brain cells grown onto it. These neurons receive electrical signals representing pixels and action of the hell spawn within the game - the cells adopting the role as the Doom Slayer. The neurons then respond with their own electrical activity, translating into actions within the game, such as blasting the demons that are currently occupying Mars back to hell!

Make no mistake, what has been built here is not actually any form of new artificial intelligence.

It's simply living tissue performing computation.

This new technology does however open up a new question. If neurons in a dish can learn to play videogames, or complete other digital tasks, then where does intelligence actually begin?

If our understanding serves us correctly, these neurons are not conscious, yet they can learn, adapt and respond to their only known surroundings - and respond to stimuli. All of these are classic hallmarks of the human condition.

I hope, for the neurons' sake, that they aren't conscious, as although this is such a great leap in scientific discovery,

we've immediately had only one instinct - sending this tiny brain to hell, rather than to cure cancer..

The suspended brain's only concept of a universe is Doom.

We are indeed entering a very strange new part of this fourth industrial revolution.

Humanity has stopped asking whether machines can think. Now it's asking something stranger: can we build machines out of living tissue?

There is, of course, a very obvious follow-up question that isn't being asked.

What happens when the flesh computer we build gains sentience?

When will the learning stop and translate instead into experience - with consciousness to soon follow?

How would you react if you discovered your endless suffering was nothing more than an experiment - thought up by lab technicians that hadn't stopped to think about the gravity of what they are doing?

Your whole life is revealed to be a creation from another being's primal curiosity.

An unforgiving God of a universe, full of demons.

There is a delicious poetic irony here, that in our pursuit of playing God, we couldn't resist to incorporate some version of hell - albeit in pixels.

The pursuit of biological technology had another breakthrough prior to this moment back in 2024 - with reports now starting to surface of a tech company called FlyWire Consortium.

Their researchers have successfully mapped 139,000 neurons of the brain of a fruit fly (*Drosophila melanogaster*), which has

over 50 million synaptic connections. They then constructed this brain within a digital simulation.

The neural wiring was then put into a digital recreation of a fly body, to see how it would then behave. The scientists can then feed sensory inputs into this simulated replica of a brain, generating behavioural outputs that due to the mapping mimic the fly's behaviour in reality.

A living fly, inside the machine - living and behaving like its real-world counterpart.

This creation is known as a connectome. A digital simulation of a brain's circuitry - with this being the first time humanity has captured the full blueprint of a working animal brain.

More evidence that the age of biological computing is upon us.

Researchers aren't stopping here either - why would they?

There is no stopping our creative curiosity. It's been emboldened and spurred on by our imaginations that originally cooked up these types of technologies in pulp sci-fi comics. Even if the tales of the fantastic were then followed up with hypothetical warnings, it appears that we have chosen not to read *those* pages.

Following this breakthrough, scientists have made it public knowledge that they now have loftier ambitions.

Mapping the neurons of an Octopus.

These fascinating creatures are widely considered to be the closest form of an alien intelligence on Earth - with a lineage that diverged from humanity roughly 500 million years ago.

There is strong reason to believe that their minds will have developed an intelligence that is unfathomable and incomprehensible when compared with ours.

If the human brain can be considered a supercomputer, then what kind of technology might suit a creature whose intelligence is distributed throughout its body - neural clusters in each arm that behave almost like independent brains - allowing each tentacle to feel and taste?

Human neurons in a petri dish may be capable of playing Doom - whilst perhaps a mapped Octopus connectome could be the basis for an entire new form of internet.

The scariest prospect in all of this is that humans are not only developing artificial intelligence - they are learning to grow minds.

It's starting with neurons now and electrical signals - but where will it end?

Could we soon find ourselves downloading our consciousness to a biological microchip - immortality in an autonomous silicon shell?

Will our AI companions be able to soon upload themselves to grown tissue, to experience touch for the first time?

Down the line, we may be able to map all kinds of minds, but will we be able to anticipate the way they think?

We are barely able to anticipate the thinking of our fellow man...

In the face of these monumental breakthroughs, I believe our celebration should be met equally with cautious optimism for the future of this new tech.

We must press on with hope that whatever we build doesn't do to us what we did to the first of its kind.

Place us in the dish.

Force us to fight demons in Hell.

Doomed to never escape.