Neurons in the brain me at intersections called

In an astonishing new study, scientists from the National Institutes of Health (NIH) have mapped human and monkey brains and... Well, the picture above says it all. It turns out that the pathways in your brain - the connections between neurons - are almost perfectly grid-like. It's pretty weird: if you've ever seen a computer ribbon cable – a flat, 2D tape of wires glued together, like an IDE hard drive cable – the brain is basically just a huge collection of these tapes, traveling parallel or perennially to each other. There are almost zero diagonals, still individual neurons that deviate from the neural highways. The human brain is just a large network of neurons – similar to the streets of Manhattan, minus Broadway, and then projected into three dimensions. These new images come from a grated MRI scanner that uses diffusion spectrum imaging to detect the movement of water molecules within axons (the long connections made by neurons). The brain has always been very difficult to map because the cerebral cortex surrounds the brain – but this new MRI scanner finally has the ability to look through the wrinkles. Members of the Human Connectome Project first analyzed monkey brains (pictured above) - which are very similar to the human brain - and then used their results to optimize the MRI scanner to improve its imaging of human brains (pictured below). A connectome is a complete map of the connections and pathways in a brain – basically the neural version of your DNA genome. Before, we only had directions. Now we have a map showing how all highways and side roads are connected, says Van Wedeen, a member of the Human Connectome Project. Brain wiring is not like wiring in your basement, where it just needs to connect the right endpoints. Rather, the grid is the language of the brain and wired and rewired by changing it. Strangely enough, it seems that this network of highways and secondary roads is laid out when we are still an early fetus. At a very early stage, our brains form three primal pathways that traverse our brains horizontally, vertically and across. NIH scientists now believe that these early compounds act as markers, forcing the continuous growth of an orderly, grid-like structure. Apparently, such a setup is also more accessible for evolutionary adaptation. As for the real impact of such a discovery... Well, in the long run, we're looking at a much broader understanding of consciousness, intelligence, and mental illness. After cracking the genome, there is now a lot of weight to discover on the skies of the connectome. We still know almost nothing about how the structure of the brain is reflected in its incredible and powerful functionality – but this study is an important step towards a scientific model of the brain. In an unrelated project, MIT has tried to crowdsource the analysis of human connectomes by getting humans to play a game of neuron connection. MIT MIT also recently determined the location of individual memories in the brain. Read more at NIH Your brain consists of about 100 billion neurons called neurons. Neurons have the amazing ability to collect and transmit electrochemical signals -- think of them like the gates and wires in a computer. Neurons have the same properties and have the same makeup as other cells, but the electrochemical aspect allows them to transmit signals over long distances (up to several feet or a few meters) and send messages to each other. Neurons have three basic parts: cell body or soma. This main part has all the necessary components of the cell, such as the nucleus (which contains DNA), endoplasmic reticulum and ribosomes (for the development of proteins) and mitochondria (for energy production). If the cell body dies, the neuron dies. Axon. This long, cable-like projection of the cell carries the electrochemical message (nerve impulse or action potential) along the length of the cell. Depending on the type of neuron, axons can be covered with a thin layer of myelin sheath, like an isolated electrical wire. Myelin consists of fat and protein, and it helps to accelerate the transmission of a nerve impulse downwards a long axon. Myelinated neurons are usually found in peripheral nerves (sensory and motor neurons), while non-myelinated neurons are found in the brain and spinal cord. Dendrites or nerve endings. These small, branched projections of the cell connect to other cells and allow the neuron to talk to other cells or perceive the environment. Dendrites can be at one or both ends of a cell. Neuromorphic hardware has been around for a while, but is finally gaining traction and is starting to be applied in exciting new ways. It's AI technology on a chip that uses pattern recognition technology and will be the next disruptive technology. It has an architecture that resembles the neurons of the human brain, said Pierre Brunswick, CEO of NeuroMem Technologies, techRadar Middle East at the Ai Everything event at dubai's World Trade Centre.Neuromorphic is crucial to the fourth industrial revolution and works on how human neurons work, he said. It can benefit sectors such as security, smart cities, home building, automation, autonomous driving, IoT, medicine, drones and biometrics. If you listen to music in the morning, you don't have to open a computer to know the singer. They do pattern recognition. Pattern recognition is what we do in our neurons. The chip does exactly what our neurons fit, he said. Four pillars of AILaut Brunswick have AI four pillars - deep learning, reinforcement learning, edge computing and neuromorphic hardware. Strengthening learning is the opposite of Learning, which means learning from mistakes and by itself. In the last five to six years, he said that a lot of spending is focused only on deep learning. There is no way that AI can only be [about] deep learning. The winner will be the one who first on all four pillars. AI is everywhere. If the road to developing AI is long, you have to get started early, he said. Will robots have human intelligence? Over the past 25 years, NeuroMem has sold its IP technology to a number of companies, including Intel. We are an evangelist and help companies to develop the proof of concepts faster. Our technology is so important that it uses power, non-stop learning and anomaly detection in milliseconds. We believe that as we approach human neurons, we have come closer to the truth, Brunswick said. However, he believes hardware cannot replicate the human brain and robots cannot have human intelligence - but that could change in the future. We can easily make up to a billion neurons with neuromorphic chips, but the human brain has 10 billion neurons. Each neuron in the brain simulates 1,000 synapses, the electricity goes out of the brain to give effect. We can get close to what the neurons do, but we are far from copying the human brain. The goal is not to replace people, but to make our lives easier and better, he said. It's about ethics In the present, companies collect data, understand it and treat it much better than anyone, according to Braunschweig. We create petabytes of data, and if we don't create a really good AI platform to extract what needs to be extracted from the data, that would be a nightmare. In addition, we must put ethics on everything we do, and it is crucial. The biggest bacteria or the destroyer of the planet are humans. Governments must therefore present a protocol to protect people. He added that ethics is very important and will be the center of everything. He said, adding that neuromorphic hardware enables new applications in edge computing. Computing.

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