Why the Brain is Compared to a Computer or Hologram

Discover why the brain operates like a computer and a hologram and how that idea is changing to a quantum model.

In modern times, the language used to describe the brain has been based on the current structural or mechanical information processing paradigm of the era. Since the last half of the twentieth century, this dual paradigm has been the computer and the hologram. That way of thinking is quickly evolving to a quantum computer model because it can rapidly process multiple streams of data to be delivered in a parallel fashion. Although it is still a mechanical viewpoint, it is a significant shift in theory.

For the most part, Western science has investigated all phenomena as if it happens in a linear fashion ruled by cause and effect. This viewpoint showed itself in the initial design of how computers processed information. Older computers were built to deliver information in a serial fashion, meaning one bit after another. As the hardware processing time sped up, the information flow was upgraded to a parallel distribution, meaning multiple bits were delivered and processed simultaneously. The constant battle in the information processing world has been finding a way to speed up how fast bits can be turned on and off and how much information can be stored in memory and then retrieved quickly. The central processing unit (CPU) of a computer acts like the brain of the system. It knows about everything that's going on internally and it processes all of the incoming information, temporarily holds it in memory and then, upon request, redistributes the information where it needs to go. The hardware that the CPU is based upon is a silicon wafer that contains trillions of tiny transistors. Modern technology has pushed the speed of this material just about as far as it can go. The most promising alternative currently presenting itself is the quantum computer.

The distinctive quality of a quantum environment is that it exploits the conditions of superposition and entanglement, which are basically states of flux and coherence. Quantum systems can easily deal with mountains of simultaneously delivered bits of information in a flexible way. Current switching technology requires a limited number of bits to be either on or off. The entire paradigm is limited to a confined, dualistic state. With quantum technology, systems can gather enormous amounts of information and remain in a state of flux until one, and only one, option is decided upon. At that moment, the system enters into a coherent state and a single resulting action is taken. This is the new model for the brain and, philosophically speaking, has become the new paradigm for the mind and for consciousness in general. Current estimates suggest that while in a normal waking state, the brain is processing 400 billion bits of information all the time. This includes both internal and external stimuli. However, in our forward consciousness, we are only aware of about 2,000 bits of information at any one time.

The new quantum computer model for how the brain processes information is finally giving Western science a chance to physically study the philosophical model used by Eastern cultures for eons. The holistic Eastern approach has always understood that the universe happens simultaneously, not in a linear fashion and that we process information from multiple sources simultaneously as well. Western models are often hierarchical and, in this case, have given the brain a top-tier status in that design. Eastern models consider the brain important, but do not consider it any more important than all other processing centers in the body.

The holographic model of the brain refers mainly to the storage of information. Every part of a holographic recording includes the whole recording. If an image has been recorded onto a holographic plate and then that plate is broken into pieces, each piece contains enough information to display the entire recording, although it may be a bit fuzzier than the original image. For the last several decades, researchers have been investigating how the brain stores memories. It appears that the information is broken up into sections and each is stored in a different part of the brain. To recall the memory, the brain has to gather and reassemble all of the pieces into a coherent whole. The researchers know this by functional MRIs (fMRI) to document the parts of the brain that become active during memory recall. Using the hologram as an analogy of brain memory function, scientists now theorize that each stored memory segment actually contains the whole memory although it may not be as lucid as the whole memory. As more segments of the memory are gathered, the memory becomes clearer.

Of course, the current paradigm does not account for, or attempt to measure, the rest of the body as a memory storage device, but that may be changing. Ganglia are basically nerve bundles that have bunched together to form a plexus that provides a relay point between major neurological structures in the body including the automatic and central nervous systems. New evidence is showing that they act as a sub-processing station for information that is later sent to the brain. Recent studies are also pointing to the idea that we hold memory at a cellular level as well.