Can Buzzwords About “Neural Networks” Save Materialist Neuroscience?

Michael Egnor

As I have pointed out repeatedly, and most recently in the short film series Science Uprising, materialist explanations fail to account for many of the most important results in modern neuroscience. Careful examination of a spectrum of the most important experiments in cognitive neuroscience over the past century strongly supports a dualist understanding of the relationship between the mind and the brain. Materialism is an impoverished framework that is antithetical to modern science and particularly to modern neuroscience.

People who are committed to materialist ideology fall back to predictable responses when their ideology is challenged. A common fallback is the one used by commenter Faizai Ali at the website *Peaceful Science* in response to a recent post on some of my comments in the Science Uprising series.

In reply to my observation that the results of many of the most important experiments in modern neuroscience are most consistent with the dualist, and not the materialist, understanding of the mind, commenter Ali, who describes himself as an “anti-creation psychiatrist”, sniffs:

> Rubbish.
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> Numbers 1 and 3 [phrenology and the experiments of Wilder Penfield on awake patients undergoing brain surgery] are addressed by neural network theory which, even though it’s been around since the 19th century, it appears Dr. Egnor has never heard of. It’s no accident that this is a fundamental aspect of AI research:
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> *Faizal_Ali, Anti-Creationist Psychiatrist*

Dr. Ali goes on to quote *Wikipedia*:

> A neural network is a network or circuit of neurons, or in a modern sense, an artificial neural network, composed of artificial neurons or nodes. Thus a neural network is either a biological neural network, made up of real biological neurons, or an artificial neural network, for solving artificial intelligence (AI) problems. The connections of the biological neuron are modeled as weights. A positive weight reflects an excitatory connection, while negative values mean inhibitory connections

To briefly recap, in the film, I explained a revealing fact about the brain: Sensory and motor functions in the brain are exquisitely localized (there is a “place” in the brain for the cells that control them). But the intellectual functions in the brain are completely unlocalized. That fact argues that the intellectual functions are not produced by the brain, at least not in the same way that motor and sensory functions are produced.

I pointed out that Wilder Penfield's experiments on patients who are awake while undergoing brain surgery revealed that Penfield could not simulate free will with stimulation of the brain. Furthermore, Penfield noted that seizure patients never have "intellectual" seizures, which is inconsistent with the view that the intellect arises strictly from brain activity.

I also cited the research of Roger Sperry, who studied patients who had surgery that split the brain in half. Yet the patients remained neurologically almost unchanged—they were single unified personalities despite the almost complete disconnection of the hemispheres of the brain. They experienced only subtle perceptual differences—differences that were so subtle that Sperry won the Nobel Prize (1981) for finding them.

Also the work of Benjamin Libet who, studying free will, found a veto power (that he called "free won't) in the brain that did not correspond to any electrical activity and appeared to represent an immaterial ability to resist unconscious temptation. I also cited the work of Adrian Owen who found surprisingly complex levels of mental function in patients diagnosed as being in a persistent vegetative state with severe brain damage.

All of these experiments are most reasonably interpreted as suggesting that there are immaterial aspects of the human mind, particularly the intellect and free will. That is straightforward science and these are straightforward conclusions from the science.

Materialists such as Dr. Ali commonly invoke *neural networks* to explain the results of neuroscience that contradict materialism. They argue that, while individual neurons or parts of the brain cannot necessarily account for the mind, the relationship between large numbers of neurons and different parts of the brain in a neural network can provide a complete accounting for the mind in a materialistic fashion.

That's nonsense. Neural networks cannot rescue materialism. Penfield and thousands of epilepsy neurosurgeons who have followed in his footsteps have stimulated every imaginable region of the brain yet they have never stimulated abstract thought nor have they observed an intellectual seizure. Abstract thought cannot be evoked from the material brain by stimulation.

If abstract thought were wholly the result of "neural networks," at least occasionally stimulation of brain tissue would activate one of these "abstract thought networks." It never does.

So let me reiterate my "take-home points":

Roger Sperry studied patients whose brains had literally been cut in half, which meant massive damage to their neural networks. The networks had been surgically disconnected in order to get seizures under control. Yet the disconnect did not affect the patient's personality or capacity for abstract thought.

Benjamin Libet found that "free won't"—the ability to veto temptations—had no material correlate in brain activity. That, obviously, cannot be explained with recourse to neural networks. These networks entail quite a bit of neural electrical activity but Libet found none. The simplest and most scientifically cogent interpretation is that free will isn't a material act of the brain.

Finally, Adrian Owen found that patients with massive brain damage in a persistent vegetative state surprisingly retained the ability to think abstractly. That hardly supports the materialist inference that neural networks can account for abstract thought.

Many of the cases studied involved massive stimulation or destruction of neural networks, and they never specifically evoke or ablate abstract thought.

In conclusion, abstract thought cannot be accounted for on a materialist basis. The attribution of abstract thought to the material brain is philosophical and logical nonsense and has been repeatedly discredited by the best neuroscience over the past century.

So, friends and colleagues who insist that neural networks can explain away the neuroscience experiments that clearly show the immaterial aspects of the mind, I suggest that you look elsewhere to salvage your ideology.

Neural networks cannot save materialism from the dustbin of science.

Also by Michael Egnor: Science Points To An Immaterial Mind If one did not start with a materialist bias, materialism would not be invoked as an explanation for a whole range of experiments in neuroscience

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Can physics prove there is no free will?