

Quantum Take on Artificial Intuition

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The quantum turn potentially creates the unmeasurable boundaryless parameters of uncertainty and quantum phenomena latent in our everyday lives. I will argue the need for a counter intuitive approach in exploring a discourse between the potential for quantum computing in contrast to artificial Intelligence (AI). The eminent physicist Matthew Fisher posed a provocation in his 2017 paper *Are we quantum computers, or merely clever robots?* (Fisher 2017) The paper asks what needs to be done to create a common thread between the synthetic AI and the real in biomimetics.

Quantum Biology

Technology has enabled the utilisation of an electron superposition in a quantum computers qubit microprocessor. Initiated by Richard Feynman's in his 1982 paper *Simulating Physics with Computers* (Feynman 1982) where he stated, 'if you want to make a simulation of nature, you'd better make it quantum mechanical, and by golly it's a wonderful problem, because it doesn't look so easy.' If we were to view this state of controlling nature and ask the question whether the brain has quantum potential, then how could we reverse engineer AI? How could it be used to help comprehend and expand the brains potential. Quantum biology explores whether nature uses phenomena such as tunnelling, entanglement, and superposition of particles to enact the processing of energy and information with much greater efficiency. There is a direct relationship that can be made between the non-human atomic-quantum computer material processing capabilities and the materiality of the human brain. The human/non-human atomic connections need to be fleshed out by exploring relationships between quantum biological research and the mechanistic quantum computer research. The difference between the classical and quantum world is fundamental to the development of interest in the study of quantum biology. If we all come from a quantum past, then it would make sense that classical nature would use quantum phenomena to develop efficient ways of assisting in a biological evolutionary process. If quantum is an effect of the universe, then why would it not be used by nature as part of the evolutionary processes in world creation? Fisher's research explores new concepts that humans are all potentially quantum computers experimenting with what be needed to exist in the brain if his provocation could be possible. I ask the question whether intuition is linked to the phenomenon of quantum tunnelling. (Thomas 2018)

In quantum computing the qubit processor still needs to output its data for comprehending in a classical world. To accept a sentient relationship between intuition happening at potential of infinite speed and thought which happens at a much slower speed. We need to explore if the quantum computer can recognise an intuitive act from just a clever idea. At the heart of the qubit processor is an atom, Epicureans before us (around 300BC) believed that thought itself was atomic. Therefore the atoms in our brain that process thought are the same as those with in the quantum computers. In the quantum computer research undertaken at UNSW the specific atom is phosphorus in silicon (phosphorous has 5 electrons and silicon 4, when connected the leave a phosphorus electron free to be exploited).

Fisher experimenting with the possibility of recreating the process, 'if quantum processing is actually operational in the brain, it should be possible to co-opt the biological "machinery" to duplicate the processing in a test tube—by analogy with genetic engineering.' Fisher identified only one atom that would fit the bill for his experiments and that was phosphorus.

Quantum Intuition

Henri Bergson stated in *An Introduction to Metaphysics* that, 'by intuition is meant the kind of intellectual sympathy by which one places oneself within an object in order to coincide with what is

unique in it and consequently inexpressible.' The inexpressible relates to quantum phenomena in that its complexity can only be intuited. On the one hand we have machine learning and on the other we ask what we know about learning at a quantum level. Can we develop AI with a quantum computer? Do we need to comprehend the role of intuition in our brains that can enable AI. The act of seeing happens at the speed of light. A quantum event happens quicker than thought, happening at infinite speed. But it is slowed down as sensation to be interpreted icon and language by thought.

There is a need to take probability and actuality, to accept and embrace a potential of intuition. Intuition is the very moment, the actual perturbation before some cognitive register moves from a state of not being known to a state of known-ness. The speed of intuition happens where actions or judgements are made beyond thought that happen automatically, as though possessed. In photosynthesis the use of quantum tunnelling is utilized by nature to enable energy from the sun to be use efficiently. Quantum tunnelling is where particles move as waves—it leaks, passing through the material that is blocking its path, enabling the particles not to waste energy going over or around the blockage. Quantum tunnelling is always a faster movement of energy than the classical model of information hopping from one atom to another

There is a need for a new focus on the potential for quantum effects in the brain, juxtaposed to the future of AI. The creation of quantum computers or a recognition that human brains could be quantum. Then to explore the connections between the two with a creative road map. For instance, AI is used to predict the future evolution of chaotic systems. The quantum computer has a different interpretation of chaos, quantum chaos, which is incompatible with classical chaos. This zone between the chaos of chaoses leads to more question of the functions being played by the various stakeholders of outmoded methods outstripped by the shifting speed of network technologies, that become obsolete. Computer technologies embrace obsolescence and in so doing negate a history of knowledge for the present moment. Computer generated artwork created in this medium from the became, obsolete, lost, overwritten as their operating systems and applications folded to privilege the emergent technologies. With the evolution of quantum computing and AI there is the opportunity to enable a dialogue with uncertainty and intuition.

Feynman, R. (1982). "Simulating Physics with Computers." International Journal of Theoretical Physics 21(6-7): 467-488.

Fisher, M. P. A. (2017). "Are we quantum computers, or merely clever robots?" Int. J. Mod. Phys. B 31(7): 10.

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