



# THE FUTURE OF AI

UNLIMITED THINKING . EXPONENTIAL POTENTIAL

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# AI: BECAUSE THE **FUTURE** MATTERS

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**F**ROM WHERE we stand today it seems odd to be talking about the future of Artificial Intelligence (AI). After all philosophically and spiritually the topic of intelligence is nuanced, with some experts believing we aren't currently living in the "Age of AI" anyway and that the machines and systems we call smart today are in fact nothing more than intriguing dumb automatons whose only claim to fame is that they're capable of running "If This Then That" queries to generate all manner of different outputs.

As for whether or not machines can ever be truly intelligent though depends whether you believe they can ever "break free of their programming" or whether you

solidly believe that they'll only ever be a Peppers Ghost to our own reality – just a clever facsimile. A programmed clone of ourselves, a ghost in the machine if you will, both literally and figuratively – albeit an increasingly complex and sophisticated one.

Ultimately your answer to this question of questions depends on how we define intelligence, and when we try to answer it are we biased anyway? After all, is intelligence just a biological construct or is it more ethereal – could a non-biological entity achieve intelligence? And if we were silicon lifeforms would we then naturally agree that our silicon chip cousins were intelligent?

Ironically answering these

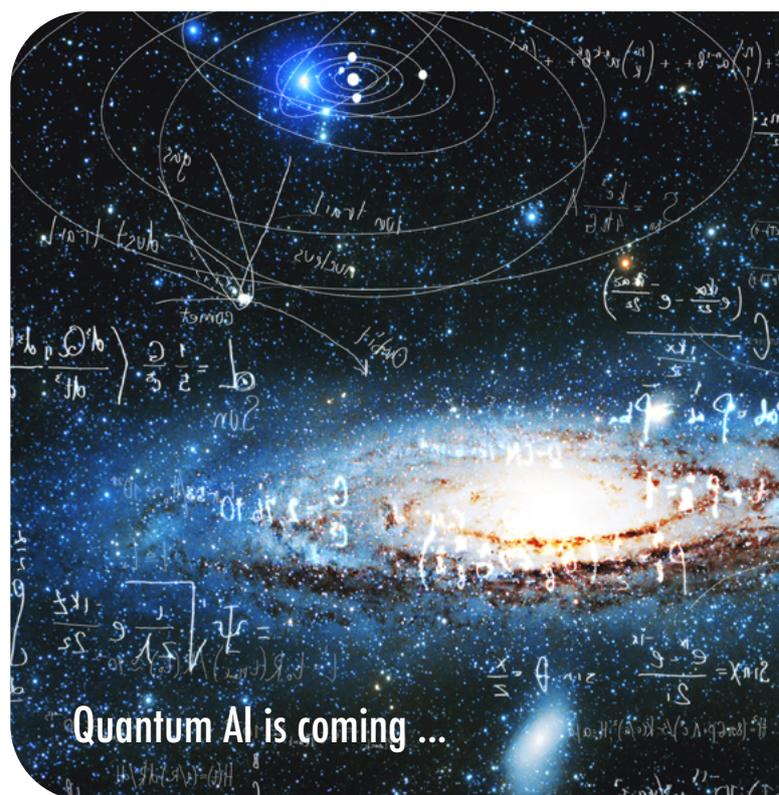
seemingly simple questions strikes at the heart of one of AI's biggest challenges today – bias. Ask these same questions without any pre-conceived conscious or subconscious biases and you may very well get a different answer ... and as for solving bias, I'll dive into that later. But first some clarification about what "AI" is today and what it will be tomorrow, next year, and next decade.

Today there are two common types of AI, three if you buy into marketing hype, and five if you look into the future with a futurist's lens. Then all those aside there are also three high level types of AI to look out for, so let's break down this increasingly confusing intelligence cocktail.

Today the two most common kinds of AI are Machine Learning (ML) and Deep Learning (DL), both of which are narrow AI, that is to say they're only good at doing one thing, like sorting your Facebook feed or designing cities.

***"Even though AI isn't conscious today we already have a pathway to create conscious and sentient AI's and beings."***

There's also an important distinction to make here: ML systems analyse data and make "decisions" based on "If This Then That" analyses, DL systems meanwhile work more like the human brain and are increasingly able to "think" strategically, imagine, and ask "What If." As a result it's these DL systems that could, will,



# QUANTUM



**As many struggle to grapple with Narrow AI others are already building Quantum AI systems.**

change the word in all manner of interesting ways.

The third type of AI is Cognitive AI – a mix of both of these – with organisations like IBM trying to literally recreate the Star Trek computer complete with its behavioural interface and silicon, soon to be quantum, brain.

As for the fourth and fifth kinds of AI well first we have Differential AI which is 3D printed, passive, and actually physical, then we have Wet AI which is a form of advanced neural network made not out of bits or bytes, or traditional neural networks, but synthetic DNA. And, on this, so far we've managed to create a 264 node DNA neural

network that's calculated all manner of odd things ... The future of AI is much odder than you ever imagined.

# 264



**The number of neural network nodes in the world's first DNA AI.**

But what about the remaining three you might ask? Well, we have Artificial Narrow Intelligence (ANI) which is good at one thing today, Artificial General Intelligence (AGI) which matches human cognitive capability due by 2035, and then Artificial Super Intelligence (ASI) arriving by 2047 at which point we are the mental equivalent of a bacteria ...

Throwing a spanner in all this though on top of all these current constructs we then have the emergence of Quantum AI (QAI) which, frankly, given the power of quantum computers which are



jumping into a completely different world – after all could you imagine a time when we have unlimited intelligence, or when DNA AI can replicate itself, as we already see with DNA based computing systems, perform the necessary calculations and then collapse itself down again? Let alone a million other visions.

Whichever way you look at all this though, whether you believe machines could or couldn't be intelligent, or buy into the experts' point of view, just look at what we, through AI, have already achieved.

***"Today we have already seen AI self-design, self-evolve, and self-replicate. Pandora's Box is well and truly opening."***

And we're only just getting started. Then, ultimately do we really care whether or not they're intelligent and if we do is it because we're afraid

hundreds of millions to billions of times more capable and powerful than even today's largest supercomputers, like Summit at the US Department of Energy, could throw us all onto an entirely new future trajectory. And then there are Neuromorphic computers – self-learning computers, another "next generation AI" that one day will pack all of Summit's power into a package the size of a thumbnail capable of running on nothing more than a AA battery.

Diving into any one of these wormholes is literally like

of what they could do with this intelligence or something more basal such as a fear of being usurped? Bias at it again?

# EXPLAIN IT

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**As AI plays a greater role, indeed drives, the Algorithmic Society Explainable AI will be key.**

One day though machines may be conscious and imbued with biological or DNA based intelligence, especially if the US military gets its way and manages to scale up its living robot programs where insect brains, both real and simulated, are merged with miniature machine systems and robots to create literally the first conscious and intelligent machines.

Did we just go full circle? Ha.

Intelligent or not, conscious or not, today's AI achievements are nothing

short of phenomenal. Take the development of the COVID-19 vaccine, without AI it could have taken up to ten years, with AI – and supercomputing - it took three months. But that's just the tip of our iceberg.

Today Creative Machines, AI's that can design, evolve, and innovate new products are accelerating the rate of human and technological progress by billions fold, designing everything from batteries, clothing, computer chips, drugs, and furniture to robots and vehicles at staggering exponential speed.

They're also being joined with digital twins of the Earth to help solve climate change, create new alloys and materials, and in healthcare AI is identifying the tell tale signs of disease faster than ever before, simulating every known protein on Earth in mere minutes, and unlocking the secrets of the human body to help us predict everything from disease to death and then solve them.

It's also running companies, been promoted to several boards, buying stocks, helping executives make strategic decisions, helping us talk to computers, unlocking the secrets of the universe, taking Nobel prize winners to town, optimising traffic, and so much more.

systems can learn for themselves without the need for any data. At which point will these machines create their own biases? It's silicon versus biology all over again, and round the wheel we go, over awed by what's coming and overwhelmed by the possibilities and potential.

Today, we literally live in an algorithmic society where it's directly influencing our personal and professional lives and shaping our opinions and view of the world. It's being used to hire, manage, and fire people, it's helping you find your life partner and a favourite new restaurant, surfacing news and content, and soon it's going to be driving you to work – that is if you don't work alongside an AI colleague in the Metaverse.

And as for solving bias, well that's where clean data sets and synthetic data can play a role to eliminate it, and jumping into the wormhole we're already at the point where Zero Day AI learning