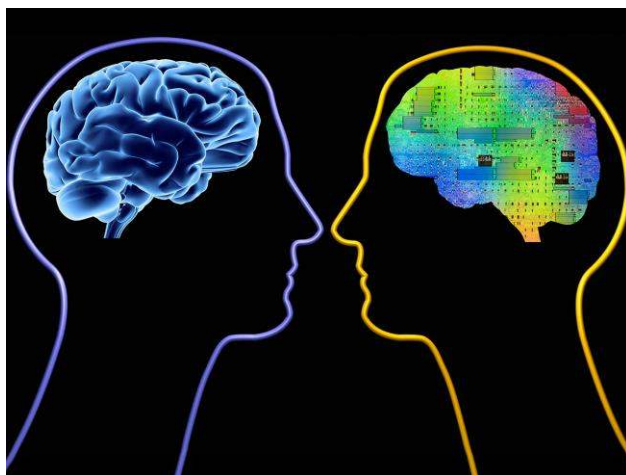DOWN THE RABBIT HOLE | BY NEVILLE CRAWLEY

Massively Fast Compute, AI Algorithms and Blockchain Development

I'm limiting this week's Rabbit Hole to three links which represent the rapid tick-tock of the trifecta of massively fast compute, AI algorithms and Blockchain development as I believe that these are the top three technology mega-trends of the 2015 - 2025 period (ex-Life Sciences innovation). Personally, I still believe that within these three mega-trends massively fast compute (Big Compute) will be the most world-changing, but clearly big compute hardware and algorithm development are deeply intertwined, and I believe we will start to see blockchain intertwine in a meaningful, although as-yet somewhat unclear, way with these other two technologies too.
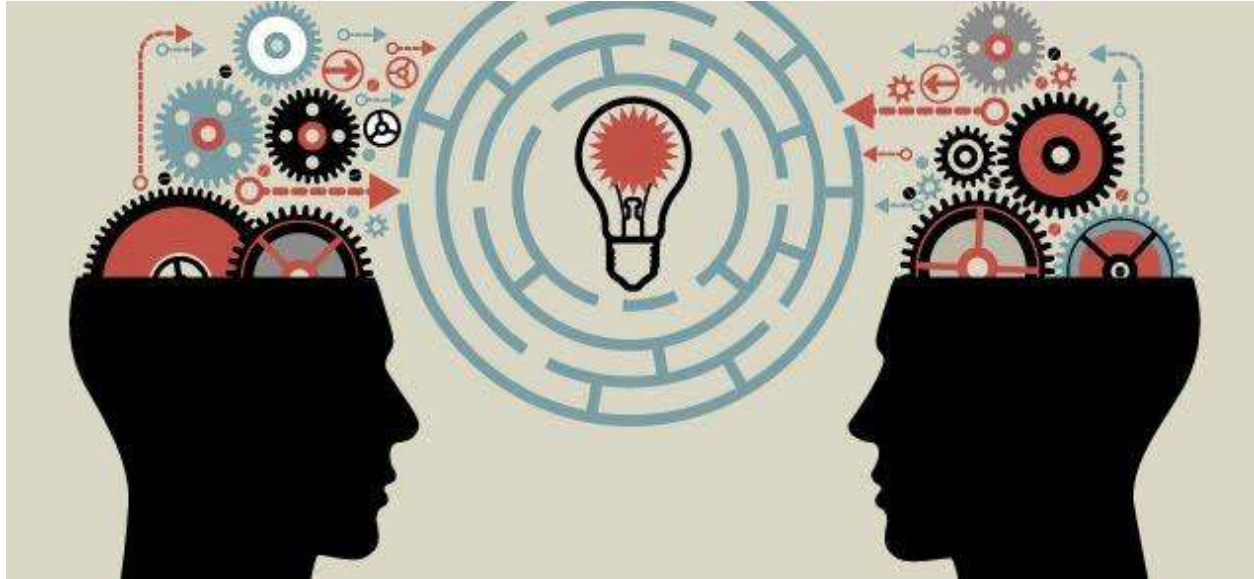
That's a fast chip you got there, bud

Very accessible CB Insights write up **here** and denser original paper **here** of a test of a Photonic computer chip which "mimics the way the human brain operates, but at 1000x faster speeds" with much lower energy requirements than today's chips. To state the obvious, the exciting/terrifying potential of chips like this becoming reality is that machines will be able to rapidly cumulatively learn while we humans are still limited by learning, passing on some fraction of that learning, and then dying, which is clearly a pretty inefficient process.

The future of AI learning: nature or nurture?

IEEE Spectrum provide an **overview** on a recent debate a between Yann LeCun and Gary Marcus at NYU's Center for Mind, Brain and Consciousness on whether or not AI needs more built-in cognitive machinery similar to that of humans and animals to achieve similar intelligence.

Blockchain for Wall Street

Bloomberg **reports** on a major breakthrough in cryptography which may have solved one of the biggest obstacles to using blockchain technology on Wall Street: keeping transaction data private. Known as a "**zero-knowledge proof**," the new code will be included in an Oct. 17 upgrade to the Ethereum blockchain, adding a level of encryption that lets trades remain private.

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