

Human / Evolution / Machine

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The prospect of Human Enhancement, where technology permanently forms and transforms aspects of human function beyond the normal capacity for our species, will inform a new kind of reality. New physical abilities, like an exoskeleton enabling a person to lift tons and run for 20 hours straight, without breaking a sweat, creating an altered human physiology, suddenly more mobile, suddenly more durable. New cognitive abilities, like an exocortex enabling the human mind to process thoughts and ideas outside of the brain, by hooking up to a system of circuits and processors, creating an altered human mentality, suddenly faster, suddenly with a different architecture of memory. Intertwined with machines, we enhance ourselves and our thinking.

In the past 40.000 years we have gone from ox-depicting cave paintings to security patterns laser-engraved in graphite. Our interests and capabilities have evolved, while our anatomy hasn't changed much. We're still the same bilaterally symmetric, bi-pedal frontal lobe-driven entities that we were back then. But our very evolution has evolved – from revolving around biology to revolving around knowledge.

Two centuries ago, the prevalent theory of biological evolution was reliant on the acquired traits of an organism getting handed down to the next generation. A giraffe stretching its neck to reach the juicy leaves in the top of the canopy would result in off-spring with a slightly longer neck. Nowadays we realize that natural evolution is much more haphazard – a trial and error system of genetic mutations and natural selection. But anthropologists in our time, have taken this idea of evolution from biology and used it to explain how we humans transfer knowledge – passed on from generation to generation, it resembles a neck stretch. Teach your children to make a ladder, so they can reach those leaves.

In just 70 years, the time it took to climb Swiss mountain *Eiger* went from three days to 2 hours, 47 minutes, and 33 seconds. Not because of our lungs expanding, our limbs morphing or our skin getting thicker by random mutations, but because of lightweight oxygen tanks, carbon fibre pickaxes, and woven polyamide fabrics. Technology has become our transmitter of acquired traits, externalized knowledge, that amplifies our evolution beyond our genetic dispositions. We don't mutate much these days, but our ideas do.

Today it seems that we are not just interacting with technology when we produce matter, but also when we produce thinking. Much like language made us able to react to other peoples ideas and expressions, we have attained a new way to think and gain perspective. When we are channeling information through software, materials through a robotic assembly line or light through a lens, the machines are helping us process and actualize our knowledge.

The output differs from the input, which propels us forward. Our externalized knowledge has become part of knowledge production itself.

The current evolutionary entanglement of human and machine also gives way to new means of expression. Previously paralyzed limbs awaken when the machine can compute what you want to accomplish. Images of, by, with, in and on machines by humans at this preliminary stage of co-evolution are a result of this expansion of our abilities, and the dialogue that we have begun. Certain utterances would be impossible without the entanglement.

We are already likening our brains to computers, and computers to our brains. Still just in allegory – but what happens when the differences get fewer? What happens when we keep enhancing humanity, amplifying what's already there? This is not a question of whether or not it's murder to shut off a computer – if technology is humanity – but a question of what happens when you can't turn the computer off without losing out on something that is part of you. Are we evolving to become completely reliant on our externalized knowledge? Some people wouldn't feel like themselves without their wheelchair. Or even just without their phone. You could imagine a future human feeling estranged from the world without its robotic retina, digital dexterity, amplified agility or bionic body. The machines we create, might soon create our own sense of self.

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