

Humanistic Intelligence: The Solution to the Approaching Singularity

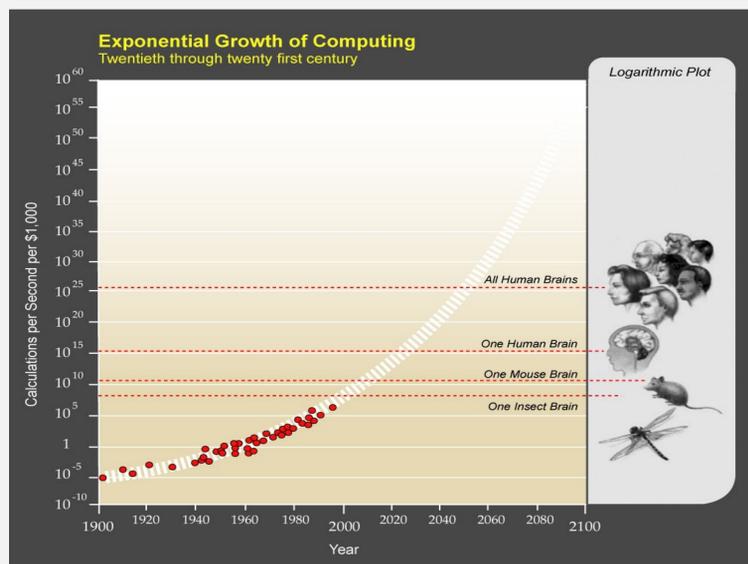
Cayden Pierce, April 9th, 2019, University of Western Ontario, Western Engineering

The Coming Singularity

For millions of years, human technology advanced at a snail's pace. With little to build upon, innovation was slow. However, in the last one-hundred years, we have seen more innovation in technology than in the last million. How is this?

Technology advances exponentially. At first, an exponential trend seems as if it isn't growing at all. But once a small amount of growth has occurred, the pace increases at a remarkable rate. We are now at an incredible point in time. As technology approaches the "knee of the curve" of its exponential trend, growth will begin to become so remarkable that normal humans will be simply unable to keep up with the rate of change or the sheer complexity of technology. This event is known as the technological Singularity.

The Problem



This image shows a plot of the last one-hundred years of computational growth, which follows an exponential trend. Mapping this into the future, it can be seen that human level intelligence will likely be achieved in our machines within 10 years, and human species equalling intelligence will be achieved within 25 years. A certain point will soon be reached when technology's growth rate becomes so great that humans are unable to keep up with the growth. This point is the Singularity.

Many ask, how will technology grow this fast? Surely, if humans are the ones building technology, it cannot progress faster than human thought. Many also question the conclusion that computational power will continue to follow its exponential curve. This is valid, as it is often pointed out in nature that a population will rise exponentially, but its growth will quickly taper as resources run out.

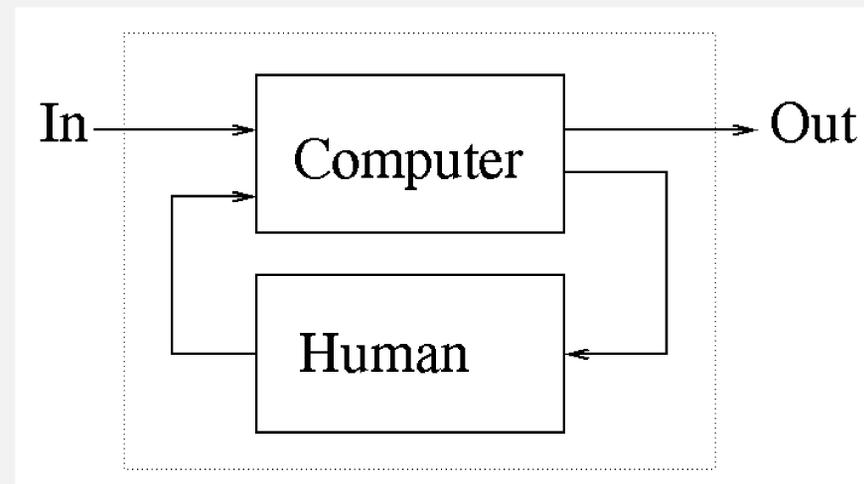
Technology will be able to continue its trend of growth because of a soon coming "intelligence explosion". As soon as a superhuman intelligence is created, this intelligence will be able to do the same as us, creating an intelligence greater than itself, and this will continue, ad infinitum. This type of intelligence will leave humanity behind. Unless a solution is found, we will be overcome by the intelligence or our machines.

Humanistic Intelligence

The Solution

It is extremely important that humans don't fall behind our machines (if you wish to know how that situation would end, ask the nearly-extinct chimpanzees). The only way to ensure humans don't fall behind our technology is through symbiosis with our technologies. This symbiosis is known as Humanistic Intelligence. Through a computational loop that contains a machine processor and a human processor, man and machine will combine their abilities to create a super-human intelligence that is a solution to the coming technological exponential growth explosion.[2]

As described by its creators, "Humanistic Intelligence [HI] is intelligence that arises because of a human being in the feedback loop of a computational process, where the human and computer are inextricably intertwined. When a wearable computer embodies HI and becomes so technologically advanced that its intelligence matches our own biological brain, something much more powerful emerges from this synergy that gives rise to superhuman intelligence..." [3]



The principle of humanistic intelligence - Steve Mann [3]

The Future

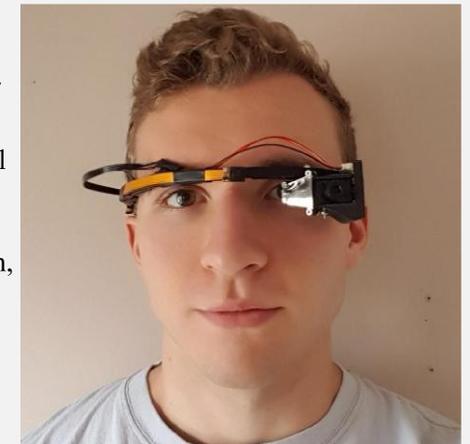
The adoption of Humanistic Intelligence has already begun. Humans have extended ourselves through social media, through the offloading of cognitive processing to online services, by our unbreakable connection to our phones, and through the increasing adoption of wearable technologies. All of these examples point to the rapid growth of Humanistic Intelligence. Soon, these advancements will progress to the point where all humans exist in Humanistic Intelligence loops. The future is coming quickly, and it is going to mean faster and greater change than anyone expects.

The overcoming of humankind by a super intelligent artificial intelligence is a real possibility. This could occur when humans are no longer able to keep with the rapid pace of technological growth. But, Humanistic Intelligence systems allow human beings to enter a state where we become a part of this superhuman intelligence. When humans become part of the loop, the greater intelligence that is created is what will allow us to always remain one step ahead of the growth of technology. This step ahead, provided by Humanistic Intelligence, will ultimately save us from the possibility of falling behind the technology we created.

Current Research

EyeTap

The EyeTap is one of the most well known Humanist Intelligence systems, and was invented by Dr. Steve Mann. The EyeTap operates on the principle of "tapping" the eye, in order to provide a computer processor with all of the visual information that the wearer normally takes into their eye. The computer processor then processes the information, augments it, and feeds it back to the wearer, in perfect sync with the other visual information the user is currently experiencing.



The author's version of the EyeTap

Brain Computer Interfaces



EEG based BCI [4]

Electroencephalography powered Brain Computer Interfaces (BCI) are helping us reimagine how humans and computers interact. By placing electrodes on the brain and measuring electrical signals in the brain. As time goes on, our abilities to detect complex though this technique continues to increase. Instead of requiring conscious effort to control and inform our machines, we are developing BCIs that create seamless communication between brain and computer. As this technology progresses, we approach the point where our computers are no longer tools, and truly become extensions of our minds.

Virtual Memory Prosthesis

The virtual memory prosthetic (VMP), when worn by the user, records video and audio input. These sources of information are processed and stored as a digital, virtual memories in a structure that resembles that of the human brain. Within this architecture, each new experience is added to the system and connected to other virtual memories.. These memories can then be accessed in real time through the wearable form factor. This is expansion of the human memory system through a HI loop, and has sparked much interest in using HI systems to cure Alzheimer's and dementia.



Prototype VMP, built and worn by the author