## Gilder, George – Gaming AI

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The author and technology deep-thinker George Gilder has packed a huge topic into a small book. *Gaming AI* is a refutation of the idea that the artificial intelligence technology in the end will create a mind in a human sense, never alone an all-powerful transcendental mind. AI is one useful tool in a long line of such instruments, but not more than that. The topics covered are not easy to grasp for a layman but I sure hope Gilder is right.

According to the author AI is the defining technological, philosophical and even religious issue of our time. The Silicon Valley in-crowd with high priests like Ray Kurzweil view humans as a second rate data processor with poor physical durability. With big data, deep learning and with the huge parallel processing capabilities of quantum computers we are rapidly approaching the singularity where the machine mind will surpass the human mind in all aspects. This so-called Turning-machine will be the all-purpose problem solver, the general-purpose machine to end all issues, the transcendental intelligence.

We will then face the question if this superior mind is kindly disposed to his creators? If it is, creating the mind will be the last mankind will have to accomplish as we will be supported by our guardian and can spend our days in pleasant but inconsequential contentedness. If not, it will be the last mankind does – period. Whatever the outcome turns out to be, the deterministic road to this crossroad for the fate of man is set in stone - we cannot not develop AI. We live in the last of times.

Gilder sees the above as quasi-religious nonsense. The vision is technically not feasible and he lines up a number separate of reasons coming from different sources. One key reason builds on Kurt Gödel's incompleteness theorem that shows that full knowledge is impossible and building on this Alan Turing showed that the axioms of a system couldn't be provided within that same system. All systems need an external programmer that Turing called an oracle. Computer logic cannot escape the self-referring loops in its own code. Claude Shannon further showed that information comes from unexpected data bits - it consists of surprises. A deterministic machine lacks surprises. The only theoretical way to escape this would require infinite space-time, memory and processing power. In reality digital computing is instead hugely sub-standard to the human mind in terms of operations per watt.

The philosopher Charles Sanders has shown that mental activity consists of three factors where objects are connected to symbols through an interpreter. The symbols cannot by themselves form a reliable representation of their objects. The digital map is not the territory. Hence, AI cannot form a reliable representation of the mind. The AI priesthood equals the map with the territory. While man is also fallible we live in this knowledge and in the managing of an incomplete map. Our mind is the source to our creativity and free will. The deterministic copycat has a hard time handling a world where the same inputs often give different outputs, where people act irrationally and where reflexivity is a key feature of the complex adaptive system that is our society.

In order to further develop a technology a creative outside force will have to transcend the logic that sustains the existing technology. Creativity cannot be deterministic in itself as it then lacks the surprises that constitute new data. Silicon Valley will have to alter its prevailing theory of philosophy of mind and instead engage with the task of putting AI to its many worthwhile uses.

This less than 50 pages short book that builds on Gilders previous *Live After Google* is an important contribution to the debate on our future on this planet. Some will see the rejection of the creative machine mind as backward looking while others will let out a sigh of relief. The main question is rather whether the author is right or not.

Mats Larsson, 13 July, 2021