

Future of Life: The Role of AI and Nanotechnology

This 'machine taking over the world' argument, inquisitiveness among public, and as a part of formal research among researchers is nothing new, and dates back to the middle of the twentieth century. I.J. Good in 1965 wrote the thesis on the cognitive aspect of designing a smarter AI. Without any doubt, there has been amazing development in the world of hard science, information technology and artificial intelligence.

Keeping in mind the context of broad implications and the mechanics of science, in my opinion, there is no existential threat for humanity as a result of the science itself, in a manner that machines will be developed fully, to be able to have a full cognitive capability to take over the world. Ill will of humans leading to catastrophes is certainly another story. On the other hand, nanoscience, for an instance, could affect humanity in unimaginable ways. So, I would argue that it is not the science itself could lead to doomsday scenario, but instead how human ingenuity will lead us to a better place, when people will live longer, lead happy lives, contribute to the society; and, complex diseases will be cured with inexpensive medical solutions.

I like the broader questions based approach to push the limits of science and imagination - in hopes of finding cure and advancement of science, technology and artificial intelligence, for the betterment of humanity. If implemented in a proper context (with adequate training for users and using with the mission to compliment the human intelligence; and, aligning with the human lead) I see benefits of the advancement in artificial intelligence and nanotechnology in curing rare diseases, combating crime, tackling climate change, and developing smart cities with innovations such as autonomous vehicles.

Our organization, Explore Nano is exploring nanotechnology with leading researchers and various arms of the ecosystem from around the nation. I am fascinated by the types of research in nanotechnology that I get to be aware of every day. Not so much in terms of artificial intelligence, but nanotechnology enables computerization at the molecular level – and, thus in case of health sciences, offers hope to cure life-threatening diseases like cancer and advanced diabetes - by enabling the manipulation and the access at minute, molecular level - to eradicate pathogens at the core. I am aware that nanotechnology, being a new area of science, that the regulatory aspects of the technology still faces some challenges in terms of educating the law makers and the masses - to expedite commercialization.

Multiple federal agencies are working on nanotechnology research in concert along with the private sector. The upside is clearly huge in terms of the promises that the technology holds, but the risks are very much there, and must be a part of a broader set of research policies - to be able to understand and come up with responsible solutions.

We have long ways to go in terms of creating a machine or the artificial intelligence apparatus that is remotely capable of mimicking or exceeding the vast human neural networks. This is not to say that scientists are not trying. Google is working on a neural network to create an artificial brain. With human brains containing over 10 billion nerve cells, and as each nerve cell forms a massively parallel information processing system (unlike the conventional computers, in which a single processor executes only a single series of instructions), the scientists who are committed to developing robots with comparable human cognitive capabilities have their work cut out for them.

The following statement by Stephen Baker, author of the book Final Jeopardy is more along the lines of a realistic and pragmatic outlook, “Machines are going to become part of our lives. Each one of us will have to figure out how to leverage these smart systems for our own good -and not be replaced by them. Our brains are still the most intricate, complex and brilliant thinking machines on earth. But we have to figure out how to use them in concert with the machines we are building.”