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Achieving Sustainability Via AI, IoT And Blockchain

The negative effects of the modern techno-industrial economy on Earth's various ecosystems are by now obvious. However, recognition of the problem is one thing, and action is another. It has been extremely hard to move the world's economic systems very far in the direction of promoting health for the natural environment.

The solutions proposed generally involve spreading awareness of the environmental threats posed by modern industrial practices and lifestyles, or encouraging governments to reward or punish behaviors based on their environmental impacts. This is all good, but probably not adequate.

An alternative approach is to use advanced technology to solve the environmental problems caused by slightly less advanced technologies. This sort of approach meets opposition from a certain percentage of environmental advocates who feel that the core issue is modern society's deviation from nature, and deviating from nature yet further by applying tech to fix the problems caused by tech is just going to cause more problems. Of course, there are never any guarantees in the development and rollout of new tech, nor in the prediction or modulation of natural systems, which have self-organizing minds of their own and a tendency to defy expectations in surprising ways.

Scaling back advanced technology is simply not going to happen. Individuals can learn to modulate their lifestyles in the direction of greater environment-friendliness, and companies can become eco-friendlier in response to customer demand or environmental regulation, but given the vast current economic benefit from pursuing environmentally-unsound practices, and the momentum behind these practices, this also may not be enough.

The Intergovernmental Panel on Climate Change has given its stamp of approval for the investigation of two geoengineering approaches to modulating climate change: carbon-dioxide removal and solar radiation management. These approaches appear highly promising, though there are many untested aspects. But it these and other advanced-tech approaches should be followed concurrently with efforts to minimizing greenhouse gas emissions and other sources of environmental damage.

There are numerous ways that today's AI technology—even without any amazing new AI, biology or chemistry breakthroughs—could be used to help create a healthier environment, decrease the extinction of animal and plant species, and combat climate change.

For example, it could help predict electricity usage (so as to enable more efficient use of electricity), discover new materials to enable greater energy efficiency, design more energy-efficient buildings, create more accurate tracking and prediction of deforestation, enable more rational land use management and water management, encourage precision agriculture and early identification of crop diseases, and optimize freight routing and

various supply chains.

Each of these AI applications on its own, pursued effectively and at scale, could yield dramatic benefits for humanity and the ecosystem. What is even more intriguing is the potential for networking all of these different applications of AI to sustainability and planetary health together to form one vast planetary AI network. This could be devoted to gathering data about the Earth and its various ecosystems, as well as about various human activities on the planet, and then guide the operation of various automated systems (in farms and greenhouses, on trucks and boats and in peoples' homes) for the total benefit of the overall system and all living and intelligent beings in it.

With the advent of IoT, AI and related technologies, there is the potential to create an AI mind network that is closely coupled with the natural biological intelligence of the global ecosystem. Sensing what happens throughout both natural ecosystems and human environments like cities and homes, and using its holistic intelligence to guide devices in these environments with global ecosystem health as a top-level goal.

For this to work, the governance and control of this global AI mind network would need to be relatively immune to wealthy and powerful interests. It would need to be a decentralized network, in which the sensors and actuators in each environment are owned and controlled by individuals or organizations relevant to that environment, and the overall coordination is bottom-up rather than centralized and top-down. This will require AI, IoT and blockchain technology working closely together. No one company, technology, or organization can do all this, but it is well within the reach of a collective of different groups cooperating together.

Ben Goertzel is the founder and CEO of SingularityNET.

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