FUTURE TECHNOLOGIES FOR SUCCESSFUL SOCIETY DEVELOPMENT

Samoilenko A. Y., *altandarmy@gmail.com*
Dmytro Motornyi Tavria State Agrotechnological University

Neurocomputer interface - a system designed to exchange information between the brain and a computer or other electronic device.

The first success in the development and research of neurocomputer interfaces was achieved by American researchers from the University of California at Los Angeles. After nearly a quarter of a century of animal experiments, in the mid-nineties they implanted the first devices capable of establishing a connection between the brain and the computer. With the help of these devices it was possible to restore the damaged hearing, vision, and also lost motor skills. And at the beginning of this century, a silicon microchip was created in the USA, capable of taking electrical signals from 16 thousand brain neurons, analyzing them and sending response signals to several hundreds of cells at once.

The possibility of using neurocomputer interfaces for transferring experience was confirmed by Miguel Nikolelis and Mikhail Lebedev with colleagues from the Department of Neurobiologists at Duke University. They published a scientific paper describing the world's first interface for transmitting signals from brain to brain via the Internet [1].

Today, neurocomputer interfaces are developed and explore in the USA, Europe, Japan, Russia, Australia. Both implantable and non-invasive devices are being developed.

A nanoassembler is a nanoscale device under development that can assemble arbitrarily complex structures from individual atoms or molecules according to the plan introduced into them.

A nanoassembler is a special case of a nanofactory that has not been created at the moment - a device designed to assemble objects from individual atoms. According to Drexler, the nanoassembler can be programmed as a replicator: a device capable of creating its own copies [2, p. 23].

A nanofactory is a hypothetical system in which nanomachines (molecular assemblers or robotic manipulators) can combine molecules to create parts with atomic precision. A nanofactory can consist of parts of various sizes and create products of macroscopic sizes with atomic accuracy.

The nanofactory should fit in a small device located in the workplace - as Eric Drexler imagined it in his work “Nanosystems: Molecular Machinery, Manufacturing and Computation” [3, p. 306]. Over the past decade, many other authors have proposed their nanofactory concepts, they are listed in Chapter 4 of Robert Freitas and Ralph Merkle Kinematic Self-Replicating Machines (2004) [4, p. 36]. The collaboration on nanofactory development, founded by Freitas and Merkle in 2000, united the efforts of 23 researchers from 10 organizations and 4 countries who developed a plan focused mainly on the development of nanofactories from diamond-like structures.

In conclusion, we can say that the possibility of creating such technologies in the coming decades is rather uncertain. Today, primitive attempts are being made to invent something similar. And perhaps more than one century will pass before people see the finished product brought to mind, but as soon as it appears, there will be a global breakthrough in discoveries and inventions.

References

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Language adviser: Simkina M.A., Teacher of the Department of Foreign languages