3. Дієта при цукровому діабеті: меню на тиждень з рецептами. Onclinic. URL: Харчування при цукровому діабеті: тижневе меню - блог медичного центру ОН Клінік (onclinic.ua) (дата звернення: 28.03.2023.)
4. Тихоненко Ю.А. Фізична терапія при цукровому діабеті: кваліф. робота. Херсон: Херсонський державний університет, 2020. URL: http://ekhsuir.kspu.edu/bitstream/handle/123456789/11273/Tykhonenko_mf_2020.pdf?sequence=1&isAllowed=y

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NEUROCOMPUTER INTERFACE,HISTORY OF EMERGENCE AND FUTURE PROSPECTS

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Neurocomputer interface (NCI) is a communication system between a person and a computer that allows the user to interact with the computer without using a keyboard and mouse, but with the help of electrical signals generated in the brain. The history of the emergence and development of NCI dates back decades, but the biggest breakthrough in this field became possible only in recent years thanks to the combination of achievements in neuroscience, computer technology and engineering. This paper will consider the history of the NKI and its future prospects.

The first attempts to create the NKI were made back in the 1970s. However, at that time it was very difficult and limited in terms of technical capabilities. The first attempts to create NCI consisted in measuring the electrical activity of the brain and reproducing it on a computer. For example, early studies on functional magnetic resonance imaging made it possible to study the brain's responses to certain stimuli, but it was very difficult and inefficient.

In the 1980s, a step forward was made when engineers were able to create implants to stimulate the brain. This made it possible to influence brain activity and reproduce signals on a computer. However, these implants were limited and very risky for the health of the patient.

In the 1990s, the first electroencephalographic (EEG) interfaces appeared, allowing the electrical activity of the brain to be read and used to control a computer. These interfaces were extremely unstable and limited in capabilities. However, these were the first steps on the way to creating more effective and reliable NCIs.

In the 2000s, the first functional NCI began to appear, allowing people to interact with a computer using electrical signals generated in the brain. NCIs have become more widely available and are being used in a variety of industries, including medicine, the gaming and entertainment industries, and science and research.

In the world, more and more companies and organizations actively use NCI in their activities, and research in the field of NCI continues. In particular, in 2020, more than 130,000 patents related to NCI were registered, which indicates a growing interest in this field. Innovative developments in the field of NCI can have an important impact on various areas of people's lives and activities, contributing to the growth of efficiency and quality of life.

NKI is a promising industry and has great potential for development and improvement. Today, NCIs are used mainly for research and in medicine, but in the future NCIs can be widely used in various fields of life. Scientific and technological achievements in the field of NCIs open up new opportunities for humanity, which allows improving the quality of life and ensuring sustainable growth in various spheres of activity. Taking into account the potential of NKI and research conducted in this field, the future of NKI can be extremely promising and dynamic for the further development of technologies and innovations in various fields. Research and development of new methods and technologies of NCI, based on the mental and cognitive functions of a person, can lead to a significant improvement in the quality of life and increase the efficiency of activities in many

areas.

One of the perspectives is the use of NKI to improve the operation of robots and automatic systems. NCIs can help improve the performance of various systems, for example in the automotive industry, where NCIs can help improve response to road conditions and improve road safety.

Another perspective is the use of NKI in virtual reality. With the help of NKI, you can create more intuitive and natural interfaces for interacting with a computer and virtual reality. This can be particularly useful for use in the gaming and entertainment industry.

Also, NCI can be used to solve problems related to motor and speech disorders. NCIs can help people with disabilities operate various devices and systems, which can help reduce their dependence on assistive devices and improve their lives.

In addition, NCI can have great potential in the military field. NCIs can help create more effective command and control systems that can be used for warfare and intelligence. Also, NKI can be used to train the military and improve their efficiency.

Therefore, NCI is a promising industry that has great potential for development and improvement. With the help of NCI, it is possible to create more effective and reliable interfaces that can help improve people's lives, increase productivity and efficiency in various fields of activity. However, unfortunately, there are certain challenges and problems associated with the development and application of NCI that require additional research and development.

One of the main problems is the instability and lack of accuracy of the data entering the NCI systems. NCIs are based on the processing of large volumes of data, so insufficient quality or excessive amount of data can lead to incorrect results and low efficiency of the system. It is also important to take into account the cultural and ethical aspects of the development and application of NCI, in particular, ensuring data confidentiality and protecting human rights to privacy.

However, despite these problems, NCIs have great potential for development and use in various fields of activity. The history of the development of NCI shows that this branch has become extremely important and promising for the future development of technology and humanity as a whole.

Another promising area of NKI development is the creation of interfaces that allow people to communicate with computers using language and speech. Such interfaces can be used in business to create virtual assistants and chatbots, in medicine to understand and interpret speech disorders and other neurological diseases, as well as in education and scientific research for automated analysis of large volumes of text and information.

In conclusion, NCI is a promising industry that has great potential for development and use in various spheres of activity. The history of the emergence and development of NCI shows the constant growth of interest in this field and the achievement of new achievements in the use of computers for understanding and modeling human mental processes. Prospects for the development of NCI include the use of neural networks and deep learning, the integration of brain-computer interfaces and the development of interfaces for communication with a computer using language and speech. However, the development of NCI also faces numerous challenges and difficulties, including ensuring data security and privacy, research and development costs, and implementation in various fields of activity.

Reference

1. Makeig, S., Gramann, K., Jung, T. P., Sejnowski, T. J., & Poizner, H. (2009). Linking brain, mind and behavior. International Journal of Psychophysiology, 73(2), 95-100. doi: 10.1016/j.ijpsycho.2009.01.005

2. Flesher, S. N., Collinger, J. L., Foldes, S. T., Weiss, J. M., Downey, J. E., Tyler-Kabara, E. C., ... & Boninger, M. L. (2016). Intracortical microstimulation of human somatosensory cortex. Science translational medicine, 8(361), 361ra141-361ra141. doi: 10.1126/scitranslmed.aaf8083

3. Wikipedia https://uk.wikipedia.org/wiki/Нейрокомп%27ютерний_інтерфейс