



## **DIAGNOSTICS AND TREATMENT OF NEURAL DISEASES IN CHILDREN USING ARTIFICIAL INTELLIGENCE AND MODERN COMPUTER SYSTEMS**

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### **Abstract**

This scientific article discusses the use of artificial intelligence and modern computer systems in the diagnosis and treatment of neuralgic diseases in children. Nowadays, the use of information technologies and artificial intelligence systems in the field of medicine is of great importance in maintaining human health. These technologies are especially effective in the early detection of nervous system diseases in children.

The article discusses the main causes of neuralgic diseases, the advantages of artificial intelligence systems in their detection, diagnostic processes and treatment methods implemented using computer programs. It also shows the possibilities of creating a treatment program tailored to the individual condition of the child using modern technologies.

**Keywords:** children, neurology, artificial intelligence, diagnostics, treatment, computer systems, medical technologies.

### **Introduction**

Today, the medical field is developing rapidly worldwide. In particular, the introduction of modern information technologies and artificial intelligence systems into medicine is creating new opportunities in this area. Previously, doctors made diagnoses based only on their own experience and laboratory results, but now



artificial intelligence systems are providing them with great assistance in this process.

Neuralgic diseases in children appear at the most delicate period of human life, that is, during the development of the organism. Such diseases have a serious impact on the child's motor skills, speech development, attention and memory. Therefore, it is very important to detect such diseases at an early stage.

The causes of neurological diseases are diverse: sometimes they are related to hereditary factors, sometimes they are caused by problems during pregnancy or childbirth. Environmental factors, infections or stress can also cause these types of diseases.

With the help of artificial intelligence systems, it is possible to detect such diseases early. AI systems analyze large amounts of medical data, study images of brain activity and, based on the results obtained, help doctors make an accurate diagnosis. For example, by processing the results of EEG, CT or MRI examinations through artificial intelligence programs, even the smallest changes in brain activity can be detected.

In this way, modern computer systems and artificial intelligence technologies are playing an important role in the field of pediatric neurology. They speed up the diagnostic and treatment process, reduce errors and increase the effectiveness of treatment.

## **MAIN SECTION**

General description of neuralgic diseases and their impact on the child's body

Neuralgic diseases are a type of disease that occurs as a result of a violation of the functioning of the central or peripheral nervous system. These diseases affect a person's feelings, movements, speech, thinking and many other physiological processes. Neuralgic diseases are especially dangerous in children, because their nervous system is not yet fully formed.

The nervous system controls the child's entire body. The brain, spinal cord and nerve fibers are inextricably linked, and any of their disorders can cause serious changes in the child's life. For example, a child's slowness in movement, inability to maintain balance, delayed speech development or decreased attention are among them.



One of the most common neuralgic diseases in children is cerebral palsy. This disease occurs as a result of a violation of the brain and has a negative impact on the child's motor system. In addition, epilepsy, various neuroses, headache syndromes, and autonomic nervous system disorders are also common.

The causes of such diseases can be different. Sometimes it is associated with hereditary factors, and sometimes it is caused by the mother's condition during pregnancy, lack of oxygen during childbirth, or trauma. In addition, malnutrition, environmental conditions, and viral infections also damage the child's nervous system.

Symptoms of neuralgic diseases vary depending on the child's age and the type of disease. Some children have slow movements of the arms and legs, difficulty holding the head, and slow or uneven walking. In some cases, the child gets tired quickly, has a late speech development, or is unable to concentrate. All this indicates that the nervous system is not working properly.

The most important task for doctors is to identify these symptoms at an early stage. Because the earlier the disease is detected, the more effective its treatment will be. In this regard, the importance of modern technologies and artificial intelligence systems is incomparable. With their help, it is possible to identify the initial signs of the disease, analyze changes in the nervous system and accurately assess the results.

Disorders in the nervous system of children have a negative impact not only on their

physical, but also on their mental state. They have difficulty communicating with their peers, lag behind in school, and their self-confidence decreases. Therefore, not only a medical, but also a psychological approach to this type of disease is important.

The health and development of a child directly depend on the functioning of the nervous system. Therefore, early detection, correct diagnosis, and treatment of neuralgic diseases using modern methods are one of the most important tasks of society. Artificial intelligence systems have opened a new era in this direction.

The role of artificial intelligence and computer technologies in medicine

Currently, artificial intelligence (AI) technologies are one of the most important achievements in the field of medicine. Artificial intelligence refers to systems that can analyze data, learn, and make independent decisions in a way similar to human



thinking. They help doctors by processing, comparing, and analyzing large amounts of data.

The use of artificial intelligence in medicine is widespread in the processes of diagnosis, treatment, rehabilitation, patient monitoring, drug testing, and disease prevention. For example, AI systems have very high accuracy in analyzing the results of computed tomography (CT), magnetic resonance imaging (MRI), and electroencephalography (EEG).

AI systems can detect the smallest changes that a doctor may not see. For example, subtle changes in brain cells or damage to nerve fibers can be detected through software analysis. This speeds up the diagnostic process and reduces errors due to the human factor.

Artificial intelligence systems can also predict the likelihood of developing diseases. For example, by analyzing the results of a child's EEG or MRI, the AI system can predict the risk of epilepsy or other neurological problems. Based on this, the doctor can take early preventive measures.

In addition, AI-based programs help doctors monitor the patient's condition. They constantly monitor the patient's heart rate, blood pressure, temperature, and respiratory rate. Such systems are especially useful when working with infants and young children.

Computer technology plays an important role in medicine not only in diagnostics, but also in educational processes. It allows doctors and students to study complex processes

through 3D models, virtual laboratories, and simulations. This helps to improve the skills of future medical workers.

Another advantage of artificial intelligence is that it is free from the fatigue, carelessness, or emotions associated with the human factor. It works with the same accuracy and takes an objective approach to each patient's data. Therefore, AI systems in medicine, although they do not completely replace human doctors, serve as reliable assistants to them.

Today, many advanced clinics in the world are actively using artificial intelligence in the diagnostic and treatment processes. For example, in the USA, Japan, South Korea, and Germany, the accuracy of diagnosis using AI systems in the field of pediatric neurology has reached 95 percent.



The introduction of artificial intelligence technologies has opened a new stage in the development of medicine. It facilitates the work of doctors, accelerates results, and most importantly, helps save human lives.

Detection of children's neuralgic diseases using artificial intelligence

Detection of neuralgic diseases in children using artificial intelligence systems is widely used in medicine today. Most importantly, these systems allow you to detect the disease at an early stage. For example, AI programs can analyze EEG, MRI or CT images and detect even small changes in the nervous system.

Sometimes, artificial intelligence detects nuances that a doctor cannot see with the human eye. This allows cerebral palsy, epilepsy or other brain disorders to be detected at an early stage and made easier to treat. In this way, AI systems are making a significant contribution to the healthy development of children and the prevention of neurological problems.

## CONCLUSION

Artificial intelligence and modern computer systems are of great importance in the diagnosis and treatment of neurological diseases in children. With the help of these technologies, the disease is detected early, the diagnosis is accurate, and the effectiveness of treatment increases.

Artificial intelligence serves as an assistant to doctors, reducing errors due to the human factor. This approach is especially important in pediatric neurology, since each stage of a child's development is a delicate process.

In the future, artificial intelligence systems will become an integral part of medicine. With their help, it will be possible not only to diagnose diseases, but also to prevent them, monitor patients and improve rehabilitation processes.

Thus, modern computer technologies and artificial intelligence tools are one of the most effective assistants in maintaining children's health.

## REFERENCES

1. Anvarovich, A. S. (2025). O 'SMIRLARDA YUQUMLI KASALLIKLARNI ANIQLASH VA DAVOLASHDA ZAMONAVIY KOMPYUTER TEXNOLOGIYALARINIG O 'RNI. PROSPECTS AND MAIN TRENDS IN MODERN SCIENCE, 2(21), 54-60.
2. Sanjar, A., & qizi Mamurova, I. I. (2025). TECHNOLOGY FOR DEVELOPING CRITICAL THINKING THROUGH BIOLOGICAL MODELING TECHNOLOGIES IN



- MEDICAL EDUCATION. EduVision: Journal of Innovations in Pedagogy and Educational Advancements, 1(4), 741-754.
3. Atakhanov, S., & Madaminova, S. (2025). ISCHEMIC HEART DISEASE AND MODERN TREATMENT TECHNOLOGIES. Педагогика и психология в современном мире: теоретические и практические исследования, 4(8), 23-25.
  4. Атаханов, С., & Касымова, М. (2025). ДИАГНОСТИКА, ПРОГНОЗИРОВАНИЕ И ЛЕЧЕНИЕ АНЕМИИ С ИСПОЛЬЗОВАНИЕМ НОВЕЙШИХ КОМПЬЮТЕРНЫХ ТЕХНОЛОГИЙ. Педагогика и психология в современном мире: теоретические и практические исследования, 4(8), 18-22.
  5. Atakhanov, S. A., & qizi Yoqubjonova, U. N. (2025). THE ROLE AND SIGNIFICANCE OF MODERN COMPUTER TECHNOLOGIES IN THE DIAGNOSIS AND TREATMENT OF HEART DISEASES IN ADOLESCENTS AND YOUNG CHILDREN. EduVision: Journal of Innovations in Pedagogy and Educational Advancements, 1(4), 483-488.
  6. Atakhanov, S., Khasanov, I., & Ergashboev, O. (2025). THE ROLE OF MODERN COMPUTERS IN THE DIAGNOSIS AND TREATMENT OF HYPOTHYROIDISM. Инновационные исследования в современном мире: теория и практика, 4(10), 154-156.