

ABSTRACT

Explanatory note size – 90 pages, contains 26 illustrations, 26 tables, 1 application, 17 references.

Topicality. Today, there are no drugs in the world that can cure people suffering from neurological diseases, but there are ways to slow down the development of such diseases, which is why the possibility of diagnosing such diseases in the early stages of their manifestation is a very relevant topic today.

This paper considers one of the possible ways to diagnose chronic neurological diseases in the morning, to detect such diseases at the early stages of their manifestation, to prevent the rapid development of such diseases and to start timely treatment.

The paper reviews some existing solutions that are already commercially available, but have a number of drawbacks, such as the difficulty of access to diagnostic tools, or collect data without further analysis.

The aim of the study. The main goal is to develop software with the construction of a prediction grammar for the morning analysis of neurological diseases.

The object of research: software and language tools for the morning analysis of neurological diseases

The subject of research: hybrid models based on linguistic and hidden Markov models for early diagonalization of disjunction.

To achieve this goal, the **following tasks** were formulated:

- analysis of diagnostic methods and tools for analyzing abnormal deviations in movements;
- development of a step-by-step algorithm for analyzing user movements with the construction of prediction matrices;

- creation, debugging and testing of a prototype tool that implements the developed algorithm;
- studying the effectiveness of the developed method;

The scientific novelty The results of the master's thesis are that it is proposed to apply linguistic models using prediction matrices to analyze morning neurological diseases with the development of a prototype desktop application for background analysis of user movements, which will allow detecting possible neurological diseases at the early stages of their manifestation. The result was achieved by implementing a consistent algorithm for collecting, analyzing, and calculating data on the patterns of movements of a computer mouse.

The practical value of the obtained results is to implement a sequential algorithm for comparing user movement patterns based on prediction matrices using a desktop application.

Relationship with working with scientific programs, plans, topics. Work was performed at the Department of Informatics and Software Engineering of the National Technical University of Ukraine «Kyiv Polytechnic Institute. Igor Sikorsky».

Approbation. The scientific provisions of the dissertation were tested at the scientific and practical conference of young scientists and students ‘SoftTech-2024’ and were published in the proceedings of the VI International Scientific and Practical Conference of Young Scientists and Students ‘Software Engineering and Advanced Information Technologies SoftTech-2024.

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