

## DIAGNOSTIC PARAMETERS ASSESSMENT SYSTEM

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**Project relevance.** Currently, there is an urgent need to identify timely and accurate assessment of the state of various objects. Examples include the need to determine the state of security of information systems resources, the technical condition of aircraft engines, the recognition of moving objects. Known solutions in this area are not suitable for operation in the common computer software, and therefore have a very limited scope of use. For example, the cyberattacks recognition system is not applicable for medical diagnosing heart problems. These systems differ only in the diagnostic parameter acquisition modules, but the parameter security assessment and heart state estimation may be based on well-tested theories of neural networks, wavelet transformations, Markov processes and expert evaluation.

**Project result.** Methodology for creating intellectual diagnostic parameter assessment system that can quickly adapt to different tasks.

**Implementation area.** Any branch, where the need to solve several diagnostic problems exists. Cybersecurity: malicious software recognition, network detection of cyber-attacks, biometric user authentication. Automotive industry: engine diagnosis, brake system diagnostics, hydraulic system diagnosis.

**Academic achievements of the author.** There is defended a doctoral thesis and published more than 40 articles on the application of artificial intelligence to diagnose different systems.

**Practical achievements of the author.** There are developed software systems for detecting different cyber-attacks and forecasting web servers load.

**Expected scientific value.** There will be developed a methodology for neural resources creation, which allows to effectively address a number of pressing theoretical problems: the definition of the diagnostic parameters list, operational formation of the training sample, determination of parameters of neural network models, parallelization of neural network operation tools.

**Expected practical efficiency.** The diagnostic systems should be not demanding to hardware and provide increased accuracy and adaptability.

**Development time.** The theme has a fundamental character, but the first practical results can be obtained throughout the year.

**Development cost.** Salaries for workers, engaged in the process, payment of patent search.