# ABSTRACT

Master's dissertation consists of 90 pages., 32 images., 23 tables., 1 appendix, 30 referring.

**Topicality.** The most impressive feature of human intelligence is the ability to make the right decisions in the conditions of incomplete and fuzzy information. Designing models of human inference and using them in computer systems is one of the most important problems of science today.

In practice, there are many problems that cannot be solved by precise methods. Therefore, to solve such problems, scientists are developing methods that are based on different ways of presenting fuzzy information.

Automation the definition of a preliminary diagnosis of patients could significantly reduce the dependence of the correctness of the treatment chosen on the professional competence of the doctors. Moreover, the use of automated systems helps to remove the human error factor in diagnosis. Getting rid of the above disadvantages will increase the quality of care and reduce the time of pre-diagnosis.

**Relationship of work with scientific programs, plans, themes.** The work was carried out at the Department of Automated Systems for Information Processing and Management of the National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute» within the framework of the theme «Fuzzy Rule-Based Expert Diagnosis System».

**Aim of the research** – increase the efficiency of the process of diagnosing possible diseases of patients by designing a diagnostic system that would contain an up-to-date knowledge base of the relationship between symptoms and diseases.

**Tasks of the research:**

- an overview of the basics of fuzzy logic theory;
- review and analysis of existing expert diagnostic systems;
- implementation of the fuzzy logic inference algorithm;
- design of expert-diagnostic system.

**Object of the research** – automation of the diagnostic process.

**Subject of the research** – methods of diagnosing diseases via expert diagnostic systems.

**Scientific novelty of the obtained results.** Approaches and methods for solving declared problem using the rules of fuzzy inference have been developed. Using of the created approaches allows to increase substantially the correctness of the established diagnosis by the doctor.

**Publications.**

V.D. Savvakin O.I. Provotar / Fuzzy rule based expert-diagnosis system // Materials of the Third All-Ukrainian Scientific and Practical Conference of Young Scientists and Students "Information Systems and Technologies of Management" (ISTU-2019) - Kyiv: NTUU "Igor Sikorsky KPI", November 20-22, 2019. – P. 32-35.

V.D. Savvakin O.I. Provotar / Fuzzy knowledge based diagnostic system // Collection of scientific publications «Computer Math», №1, 2019. – P. 56-64.

EXPERT-DIAGNOSTIC SYSTEM, FUZZY INFORMATION, MODELS OF HUMAN INFERENCE, PRELIMINARY DIAGNOSIS, HUMAN ERROR FACTOR, PROCESS OF DIAGNOSING, RULES OF FUZZY INFERENCE