OPINION

from Prof. Stefka Fidanova – IIKT-BAS
to
PhD thesis
for obtaining an educational and scientific degree
"Doctor"
in professional field 4.6 "Informatics and Computer Science"
doctoral program "Informatics"
on the topic: " Models and software architectures of decision support systems"
by Zornitsa Dimitrova

By order No. 339/22.12.2025 of the Director of IICT-BAS, Corresponding Member S. Margenov, on the basis of Art. 4, para. 2 of the Act on the Development of the Academic Staff in the Republic of Bulgaria and by decision of the Scientific Council of IICT (protocol No. 10/19.12.2025) in connection with the procedure for acquiring the educational and scientific degree "doctor" in professional field 4.6 "Informatics and Computer Sciences" doctoral program "Informatics", by Zornitsa Agresimova Dimitrova with a dissertation on the topic: "Models and software architectures of decision-making support systems" I am appointed as a member of the Scientific Jury.

According to Law on the Development of Academic Staff in the Republic of Bulgaria, the rules for its implementation and the specific requirements introduced in the regulations of IICT-BAS, applicants must meet the following requirements:

1. The PhD thesis must contain scientific or scientific-applied results that represent an original contribution to science. The tesis must show that the candidate has in-depth theoretical knowledge in the relevant specialty and abilities for independent research.
2. The PhD thesis must be presented in a form and volume corresponding to the specific requirements of the primary unit. The thesis must contain: title page; content; introduction; exposition; conclusion - summary of the results obtained with a declaration of originality; bibliography.
3. According to Low and rules for its implementation and the specific requirements introduced in the regulations of IICT-BAS, applicants must meet the following requirements:

Group of indicators	Contents	Number of points
A	Indicator1	50
Г	Sum of indicators from 5 to 10	30

The PhD student is supervised by Prof. Daniela Borisova.

Actuality

The relevance of the topic of the dissertation is undeniable. The penetration of computer technology into all spheres of modern life provides an opportunity to solve computationally complex tasks. Among them are tasks for computer-aided decision-

making. The task becomes even more complicated when there are many criteria, some of which are contradictory.
The aim of the dissertation is to create models and software architectures for decision support systems. To achieve this aim, 8 tasks have been defined.

Thesis structures
The dissertation consists of an introduction, 4 chapters and a conclusion. It contains 143 pages, 24 tables, 54 figures. 143 literary sources are cited.
The introduction provides a brief description of the structure of the dissertation.
Chapter 1 is an overview. It describes the relevance of the problem and the existing methods for decision-making. At the end of the first chapter, the goal and objectives of the dissertation are given.
Chapter 2 describes proposed modifications to the weighted sum and weighted product methods.
Chapter 3 describes two different software architectures of the SPVR.
Chapter 4 is dedicated to experiments performed with the proposed modified algorithms.
The conclusion summarizes the results obtained and provides guidelines for future development of the topic.

Knowing the status of the problem
There is no doubt that the dissertation has entered the scientific issue very well. In Chapter 1, a detailed analysis of existing decision-making methods with their advantages and disadvantages is made.

Research methodology
The methodology for conducting the research, chosen by the doctoral candidate, stems from the set goal and corresponds to the tasks arising from this goal. Modifications of the decision-making algorithm are proposed in order to improve the obtained results.

Contributions
The dissertation author has listed 6 contributions in her dissertation. Although they are not divided into scientific and applied scientific contributions, in my opinion the first 4 can be attributed to scientific contributions, and 5 and 6 to applied scientific contributions.

Assessment of the dissertation candidate's publications
Zornitsa Dimitrova has published 5 publications that reflect the results and contributions of the dissertation. Three of the publications have an impact rank, and the other two are referenced in the global referencing and indexing system. In this way, she fulfills and even exceeds the requirements of the law and its regulations. She is the first co-author in 4 of the publications, which is proof of her significant contribution.

Abstract
In general, the abstract correctly reflects the content of the dissertation.

Critical Notes

My main critical note is to the introduction and chapter one. The goals and objectives of the dissertation should be in the introduction, before the description of the structure of the dissertation.

Significance of the work for science and practice

The work carried out by the doctoral candidate is sufficient in terms of volume and depth of the research. There is no doubt about the practical focus of the research and the results obtained, as well as the need for work in this direction. In this sense, I find the work significant both scientifically and practically.

Personal opinion

I do not know Zornitsa Dimitrova and therefore I have no direct observations of her scientific work. Overall, the dissertation is well written and structured. The goals and objectives for their achievement are clearly set. The contributions are given briefly and concisely and to the point. The dissertation author has a total of 5 publications on the dissertation and 14 citations. This is proof of the significance and quality of the work done.

Conclusion

As a consequence of the above, it can be stated that all the requirements of the Law on the Development of Academic Staff , the Regulations for its implementation and the Regulations on the terms and conditions for obtaining scientific degrees and occupying academic positions at IICT-BAS. I can say that the level of this dissertation and the publications related to it significantly exceeds the minimum requirements.

The critical remarks I have made are of a technical nature and do not diminish the significance of the results obtained and the scientific value of the work provided to me.

All this gives me grounds for a positive assessment and I propose to the esteemed Scientific Jury to award the educational and scientific degree "Doctor" in professional field 4.6 "Informatics and Computer Science" to Zornitsa Agresimova Dimitrova.

13.01.2025

София