



REVIEW REPORT

**for the dissertation thesis of Ekaterina Antonova Gospodinova
titled “Concepts for development of distributed
information systems with special purpose”
for acquisition of the educational and scientific degree “Doctor of Philosophy”
in Professional Area: 5.3. “Communication and Computer Technology”**

1. From the presented CV, it is seen that mag. eng. Ekaterina Gospodinova was born on 25 January 1971 in Sliven. In 1995 she completed her master studies in the Sliven Branch of the Technical University of Sofia, specialization in Electronics and Automation. In the next years, she has worked as a system administrator and programmer in various companies, and as of 2012, as lecturer and (as of 2018) assistant in the Sliven Branch of the Technical University of Sofia.

2. Ekaterina Gospodinova’s dissertation thesis is 158 pages long and comprises of an Introduction, four chapters, contributions of the dissertation thesis, a list of 9 publications on the thesis, a bibliography of 120 titles and an appendix.

The thesis is dedicated to research of distributed information systems developed according to the European communication standard IFSF, as well as to description of a particular distributed information system subject to this standard for a continuous monitoring of the level of fuel tanks, that has been developed by the author.

Without going into details of the content of the thesis, I will outline the most essential contributions and inaccuracies in it.

The first chapter is completely in the form of review. It is devoted to distributed information systems for control of technological processes. Some of the most important inaccuracies are the following. In Figure 1.2, stays the Russian word „алфавит“ instead of the Bulgarian word „азбука“, and at several places it is mentioned „topology“, instead of „topological structure“. The main mistake is related to the fact that nowhere in the text the figures have been referenced (and this is true for the figures in the rest chapters as well).

The second chapter is dedicated to analysis of the data transmission and research of the communication standard IFSF and the LONWORKS platform. The reader remains with the impression that this chapter, just like the first one, is essentially a review. It lacks any references to the dissertant’s publications whatsoever. For this reason, I took it upon myself to request from her a written explanation, which I attach at the end of my review. From the explanation it becomes clear that Chapter 2 is based on publications [3, 6, 7] from the List on page 129-130 of the thesis.

The third chapter contains the dissertant's original results, devoted to the software implementation of an automated level measurement system for fuel stations, which is based on the communication standard IFSF. Again, the reader must guess the authorship of the results, but at least in this case the List on page 129-130 makes it clear that these results are presented at least in publications [1, 4]. Nevertheless, from the content of this chapter, it is obvious that Gospodinova is a programmer with good professional experience, skills and style.

Chapter 4 is dedicated to the complex analysis of the obtained measurement errors. This chapter again rises questions in front of the reader: „Where were the underlying results published?“, „What are the criteria for performing the fuel tanks calibration?“, „Is it possible that the uncertainty can be measured in the terms of the fuzzy sets?“, and others. Receiving Gospodinova's written explanation, titled „*Justification*“, I got the answer to at least a part of these questions.

Besides the pointed inaccuracies, the text in the thesis is presented in a rather meticulous way. This however does not regard the reference section, which is very chaotic. I will only give several examples. From reference [1] it is not clear what is the author's family name, who is the publisher and in which town is the publishing house (mandatory details for every reference to a book); references [3] and [4] are even more obscure, and in reference [6] the author and the title are swapped and it is unclear what kind of source this is (paper, textbook, monograph), etc.

3. The thesis synopsis reflects the content of the dissertation thesis, but the critical remarks above hold true for it, as well.

4. From the included data in the dissertation thesis and the synopsis, it is seen that Ekaterina Gospodinova has authored 9 publications, and has participated in 7 conferences. It is seen that some of these publications are conference communications. On the other hand, for some of these conferences it remains unclear how relevant are they to the topic of the dissertation. The same refers for publication [8]. I used to have the similar concerns for publication [9], as well, which is a paper in a renowned impact factor journal, but from the „*Justification*“, I got the answer at least to this question. There, it has been stated also that „... *Due to the large volume of the dissertation, a part of the texts [related to publication [9]; my comment] were dropped out.*“ Six of the publications are conference reports in Bulgaria (5) and Macedonia (1). Three of the papers are in journals – one in the Annual of the Technical University of Sofia, and two in international publishing houses, one of which (*Mathematics*) has impact factor, and for the other one I could not find information about having IF as well.

It makes a good impression that four of the nine publications of the PhD candidate are written without coauthors.

Gospodinova has taken part in one research project that thematically bears relation to her PhD thesis.

From the provided CV, it is seen that in the Sliven Branch of the Technical University of Sofia she leads the exercises in a number of lecture courses: Mathematics and Statistics, Information Systems, several programming languages, Synthesis and Analysis of Algorithms, Databases, and others.

All of the above serves justifies giving a positive evaluation of the dissertation thesis and the materials provided, and to recommend the honourable members of the Scientific Jury to vote for awarding **Ekaterina Antonova Gospodinova** the educational and scientific degree “**Doctor of Philosophy**” in Professional Area 5.3. „**Communication and Computer Technology**“.

18 January 2020

Подпис заличен
Чл.2 от ЗЗЛД
Reviewer:
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