

STATEMENT REPORT

under the procedure for acquisition of the educational and scientific degree “Doctor”

by candidate Dafinka Savova Miteva,

of the PhD Thesis entitled: “Big Data Visualization”,

In the Scientific field: **4. Natural Sciences, Mathematics and**

Professional field: **4.6. Informatics and Computer Sciences /**

Doctoral program “Information Technologies (Information and Communication

Technologies)”, Department „Information Technologies”,

Faculty of Mathematics and Informatics (FMI), Sofia University “St. Kl. Ohridski” (SU),

The statement report has been prepared by: Prof. Evdokia Nikolaeva Sotirova, PhD,
as a member of the scientific jury for the defense of this PhD thesis according to Order № RD
38-153/03.04.2023 of the Rector of the Sofia University.

1. General characteristics of the dissertation thesis and the presented materials

Dafinka Savova Miteva's PhD thesis is an original scientific study focused on learning analytics used in learning management systems and their visualization. It is structured on 157 pages and contains an introduction, 7 chapters, conclusion, author reference, publications, scientific projects related to the dissertation work, declaration of originality, bibliography of 105 literary sources, 6 appendices, lists of figures, tables and terms and abbreviations.

All the required materials have been submitted according to the requirements of the Regulations for the conditions and procedures for acquiring scientific degrees and for holding scientific positions at Sofia University “St. Kliment Ohridski”.

2. Short CV and personal impressions of the candidate

I do not know the candidate personally. According to the submitted documents, Dafinka Savova Miteva was born on 01.09.1970. In 2003, she graduated as a “Master of Informatics”, specialization: Automated Management Systems and teacher of informatics and second specialty: teacher of mathematics. Her work experience began in 1994 as a programmer. From 1997 to 2003, he was a part-time teacher at New Bulgarian University, and then at SU “St. Kliment Ohridski”. From 2007 to the present, he has been a part-time assistant at FMI at SU in “Computer Networks” and “Fundamentals of Computer Networks”. In 2014, she was enrolled as a doctorate at the Department of Information Technologies, FMI at SU. In 2019, she was dismissed with the right of defense.

3. Content analysis of the scientific and applied achievements of the candidate, contained in the presented PhD thesis and the publications to it, included in the procedure

Special attention nowadays is paid to increasing the effectiveness of learning and teaching by integrating innovative methods and technologies of learning. In this sense, the design of a system for visualizing learning analytics has a high degree of usefulness - on the one hand, to increase the effectiveness of training, and on the other hand, to facilitate data analysis and support the decision-making process.

I believe that the methodology used by Dafinka Savova Miteva is appropriate and convincingly motivated, which is evident from the original results obtained and the achieved scientific and applied scientific contributions. Presented studies of the use of learning analytics and data visualization, modern static, interactive, and big data visualization methods, and virtual whiteboarding platforms are competently and insightfully presented. Experiments conducted to apply learning analytics to optimize the learning process have a well-founded benefit of their introduction. The derived basic requirements for an integrated learning analytics system are complete and well systematized. The architectural model of the educational analytics visualization system eAnalytics created on their basis fully meets the requirements of users using learning management systems in the three main roles: student, teacher or manager of an educational institution. A prototype of a learning analytics visualization system was created and successful tests of the template and the online application were performed.

I believe that the dissertation work has been successfully implemented, the goal has been achieved and significant results have been obtained.

4. Approbation of the results

Dafinka Savova Miteva has published the results of her research in 6 scientific publications, 5 in English, 1 in Bulgarian. They are co-authored, and declarations of equal participation of the authors have been submitted. The PhD student is first author on all publications. Three of the publications are indexed and referenced in Scopus, one has an SJR index. The minimum national requirements and the requirements of SU "St. Kliment Ohridski" for the acquisition of the educational and scientific degree "doctor" - with the required 30 points under *Group of indicators G* Dafinka Savova Miteva reports 66 points. The doctoral student's research has been reflected in 8 research projects - 4 under the Scientific Research Fund of SU "St. Kliment Ohridski", 1 under the national scientific program, 1 under the Scientific Research Fund, 1 international, 1 under the Erasmus+ program, which is a certificate for the significance of Dafinka Savova Miteva's work.

The results presented by Dafinka Miteva in the PhD thesis and related scientific works do not repeat those from previous procedures for an academic position. There is no proven plagiarism in the submitted dissertation and scientific works.

My search in Scopus showed that the doctoral student has 8 publications and an h-index 2 excluding self-citations, which proves Dafinka Miteva's ability to conduct serious scientific research, reflected in the works of other authors.

5. Qualities of the abstract

The abstract has a length of 40 pages. I believe that it correctly reflects the content of the PhD thesis, the main moments in the research, the results obtained and the conclusions drawn. It is structured correctly, it is well illustrated, and it is in accordance with the requirements of the Regulations for the terms and conditions for acquiring scientific degrees and for occupying scientific positions at SU "St. Kliment Ohridski".

6. Critical notes and recommendations

I have no critical notes.

7. Conclusion

Having become acquainted with the PhD thesis presented in the procedure and the accompanying scientific papers and on the basis of the analysis of their importance and the scientific and applied contributions contained therein, **I confirm** that the presented PhD thesis and the scientific publications to it, as well as the quality and originality of the results and achievements presented in them, meet the requirements of the Act on Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Implementation and the corresponding Rules at the Sofia University "St. Kliment Ohridski" for acquisition by the candidate of educational and scientific degree "Doctor" in the Scientific field 4. Natural Sciences, Mathematics and Informatics, Professional field 4.6. Informatics and Computer Science. In particular, the candidate meets the minimal national requirements in the professional field and no plagiarism has been detected in the scientific papers submitted for the competition.

Based on the above, **I strongly recommend** the scientific jury to award Dafinka Savova Miteva, the educational and scientific degree "Doctor" in the Scientific field 4. Natural Sciences, Mathematics and Professional field: 4.6. Informatics and Computer Sciences, Doctoral program "Information Technologies (Information and Communication Technologies)".

Date: 31.05.2023

Signature:

/Prof. Evdokia Sofirova, PhD/