S T A T E M E N T

From member of the scientific jury: Prof. Dr. Eng. Grisha Spasov from TU-Sofia, Plovdiv Branch, e-mail: gvs@tu-plovdiv.bg

about the PhD thesis for acquisition of the scientific degree "doctor" in the professional field 4.6. "Informatics and Computer Science", doctoral program "Informatics"

Author of the PhD thesis: M.Sc. Rosen Petrov Hristev
Topic of the PhD thesis: "Restoring information arrays in a cloud environment"
Research supervisor: Prof. Dr. Angel Atanasov Golev - University of Plovdiv

By order No. RD-21-2230 dated 27.11.2023 of the Rector of the Plovdiv University "Paisiy Hilendarski" (PU), I have been appointed as a member of the scientific jury in connection with the procedure for the defense of the dissertation thesis on the topic "Restoring information arrays in a cloud environment" for obtaining the educational and scientific degree "doctor" in the field of higher education 4. Natural sciences, mathematics and informatics; professional field 4.6. Informatics and computer sciences; doctoral program Informatics by Rosen Petrov Hristev - full-time doctoral student at the department "Computer Technologies" of the Faculty of Mathematics and Informatics at Plovdiv University "Paisii Hilendarski", with scientific supervisor Prof. Dr. Angel Atanasov Golev.

As a member of the scientific jury, I have received from Rosen Petrov Hristev a set of materials on an electronic medium in accordance with Article 36 (1) of the Regulations for the Development of the Academic Staff of the PU.

1. Actuality of the problems in the PhD thesis

The proposed PhD thesis is on an undeniably up to date and important topic related to the study of methods for implementing cloud technologies in existing information infrastructure, as well as the development of methods and tools for the recovery of deleted information arrays and previous versions of files stored in a cloud infrastructure. The issue is particularly relevant for modern information systems when the amount of data and information stored in them progressively increases. In order to achieve solutions in the mentioned problems, the goal of the dissertation research and the tasks for its realization have been formulated.

2. Degree of knowledge of the state of the problem

In his research, Rosen Hristev has studied 72 reference sources, of which 3 in Cyrillic and 62 in English, some of which are direct URL references, and all of which are on the subject. The bibliographic reference gives reason to conclude that the doctoral student has thoroughly familiarized himself with the state of the arts on the problems considered in the dissertation thesis.

3. Correspondence of the chosen research methodology with the set goal and tasks of the PhD thesis.

The methodology chosen by the doctoral student for scientific research gives the opportunity to realize the main goal of the dissertation work and to solve the formulated tasks.

Methodologically, the dissertation follows the logical sequence:

- research and analysis of data storage methods in a modern IT infrastructure. Exploring the differences between public and private clouds. Analyzing the most common threats to information arrays that lead to data loss;

- study of the methods for accessing the information arrays circulating in the standard IT infrastructure. Analyzing the main differences when storing and accessing data stored in standard and cloud infrastructures;

– Development of a proprietary MICI method for implementing cloud infrastructure in already existing infrastructure and moving from standard infrastructure to cloud data storage;

– development of methods for data recovery circulating in a cloud environment;

I believe that the research methodology used is in accordance with the goal and objectives of the dissertation.

4. Contributions to the PhD thesis

In principle, I accept the contributions formulated by the doctoral student, which can be classified as scientific-applied and applied. They are presented after the conclusion of the dissertation work. I believe that the formulated contributions show that the set tasks have been fulfilled. This approach of presenting the contributions is appropriate because it connects the formulated goal and tasks of the dissertation work with the achieved results:

• An analysis of the main types of threats that lead to the loss of information arrays in modern IT infrastructures was carried out.

• A proprietary MICI method has been created for moving from standard infrastructure to cloud data storage.

• An author's RDSC method has been developed for the recovery of deleted and overwritten data stored in a cloud infrastructure. Scripts have been created to automate the proposed method.

• A proprietary RVSC method has been developed for restoring previous versions of files stored in cloud infrastructure. Scripts have been created to automate the method.

I think that the contributions are the personal work of the doctoral student. I have not detected any plagiarism in Rosen Hristev's dissertation.

5. Evaluation of the publications on the PhD thesis

The results of the dissertation work are presented in three publications. One of them [2] was published in the "International Journal of Differential Equations and Applications" Vol. 21, No. 2, 2022, pages: 19-29 of Academic Publications Ltd (indexed in SCOPUS with SJR 0.137 and Q3), with one found citation indexed in SCOPUS. Two [1, 3] have been published in international conferences, with publication [3] indexed in SCOPUS with Q4. All publications are co-authored, one of which is co-authored by the doctoral student's supervisor.

Upon familiarizing myself with the dissertation, I was convinced that the achieved results were the personal work of the doctoral student.

The publications reflect the main achievements in the dissertation work, and it is indicated how the publications reflect the research on the individual chapters.

6. Opinions, recommendations and notes.

The educational objectives of the dissertation have been fully met.

Regarding the content of the dissertation, I have the following remark:

- At the end of the overview (first chapter) there are no conclusions presented, based on which the goal of the dissertation work and the tasks for its realization were formulated. Instead, the goal and tasks are presented in the introduction, which I consider that is not correct from a methodological point of view. I recommend to be transferred to the end of the first chapter.

I have no objections regarding the quantity and quality of the work done in the dissertation.

10. Conclusion

My assessment of the dissertation thesis, the abstract and the publications reflecting the research in the dissertation is positive. The dissertation contains scientific-applied and applied contributions to a sufficient degree and meets the requirements of the Law for development of the academic staff in the Republic of Bulgaria and the Regulations for its implementation, as well as the Regulations for the development of the academic staff of the Plovdiv University "Paisii Hilendarski" and the additional requirements of the FMI at the PU "Paisii Hilendarski" for the acquisition of the "Doctor" degree.

As a result of the above mentioned achievements in the dissertation, I propose to the Scientific Jury to award to MSc Rosen Petrov Hristev educational and scientific degree "Doctor", in the field of higher education 4. Natural sciences, mathematics and informatics, professional field: 4.6 Informatics and computer sciences, doctoral program: Informatics.

Date: 27 December, 2023.   Signature:

(Prof. eng. Grisha Spasov, PhD)