

S T A T E M E N T

By Prof. Asen Kanchev Rahnev, PhD

Of a dissertation on the topic of

“Research on the Development of an Ambient-Oriented Route Generator”

Author of the dissertation: Georgi Kostadinov Kostadinov

for awarding the educational and scientific degree “Doctor”

Field of higher education: 4. Natural sciences, Mathematics, and Informatics;

Professional field: 4.6 Informatics and Computer Science

Doctoral program: Informatics

By order № RD-22-1309 of 29.06.2026 of the Rector of the University of Plovdiv “Paisii Hilendarski” (PU), I have been appointed a member of the Scientific Jury to participate in a procedure for the defense of a dissertation on the topic of “Research on the Development of an Ambient-Oriented Route Generator” for acquiring the educational and scientific degree “Doctor” in field of higher education 4. Natural sciences, Mathematics and Informatics; professional field 4.6 Informatics and Computer Science, doctoral program: Informatics. The author of the dissertation is Georgi Kostadinov Kostadinov – a full-time doctoral student at the Department of Computer Systems, released with the right of defense, with scientific supervisor Prof. Asya Georgieva Stoyanova-Doycheva, PhD, University of Plovdiv “Paisii Hilendarski”.

In my capacity as a member of the scientific jury, I have received from Georgi Kostadinov Kostadinov the full set of materials on electronic media in accordance with Art. 36 (1) of the Law on the Development of the Academic Staff of PU.

The dissertation “Research on the Development of an Ambient-Oriented Route Generator” developed by Georgi Kostadinov Kostadinov presents in a finished form the results of an in-depth study in a topical area. The dissertation has a volume of 157 pages. It consists of an introduction, four chapters, a conclusion, a bibliography (referred to as references) including 83 sources, and six appendices. Some of the appendices expand on topics addressed in the main text.

In the introduction, the relevance of the problem, the thesis of the dissertation, the main aim with 3 sub-aims, the tasks of the study, and the structure of the dissertation are well defined. The main aim of the dissertation is clearly, but also very lengthily, formulated.

The doctoral student has good theoretical training, practical skills, and experience with the technologies necessary to achieve the aim of the dissertation work.

The first chapter, “Current State of the Art in the Field,” analyzes classical and modern approaches in tourist recommender systems and the ways of enriching data through the use of artificial intelligence. A comparative analysis of seven types of existing solutions has been carried out. Particularly valuable are the analyses made and the conclusions drawn at the end of the chapter. They determine the model, the aims, and the tasks of the dissertation.

The main contributions of the dissertation are presented in the next two chapters. The second chapter, “Architecture of an Ambient-Oriented Intelligent Tourist Guide,” describes the proposed multi-layer architecture with a presentation layer, an application layer, an integration layer, and a knowledge base; the role of the virtual-physical space and the main functionalities of the ambient-oriented intelligent tourist guide. The third chapter “Implementation of a Prototype of an Ambient-Oriented Intelligent Tourist Guide” describes the selected technological development environment, the relational data model, the user profile, the four ambient characteristics, the integration with a meteorological service, the mechanism for controlled completion of missing data by means of a language model and the algorithm for ambient ranking, the handling of uncertainty, the interface layer with the contracts between the layers, the explainability of the recommendations, as well as the limitations and ethical aspects of the proposed solution. Again, particularly valuable are the analyses made and the conclusions drawn at the end of the chapters. This demonstrates the high theoretical and professional training of the doctoral student.

The fourth chapter, “Experimental Validation of the Proposed Model,” describes the experiments carried out to verify the advantages of the ambient-oriented model and of the developed prototype on two corpora of 100 tourist sites in the city of Plovdiv and 143 tourist sites in the region of the town of Gabrovo respectively.

The main results of the dissertation are summarized in the conclusion. Special attention is paid to the directions for future development as opportunities for continuing the research on the topic. It would be good if the relationships between the contributions, the aims, the tasks of the dissertation, and the publications made were clearly presented. I accept the scientific-applied and applied contributions formulated by the doctoral student.

The doctoral student has submitted a list of 4 publications on his dissertation, in which no plagiarism has been proven by a legally established procedure. The third publication, in the journal KIN, is in

Bulgarian, and the other three are in English. The first two publications are indexed in IEEE and SCOPUS, and the fourth is indexed in WoS and SCOPUS, which satisfies the minimum national requirements for the educational and scientific degree “Doctor” and significantly exceeds them.

Georgi Kostadinov has not presented information on the approbation of the results of the dissertation research.

The abstract is submitted in accordance with the requirements in Bulgarian and English, in the amount of 32 pages, and in terms of volume and content it meets the requirements for a complete and concise reflection of the dissertation thesis.

I have known Georgi Kostadinov for more than 35 years, since he was a child - we lived in the same apartment block and entrance. Later, as a student and a doctoral student, I have met him only a few times. Now I am very impressed by his professional and scientific growth.

I have no substantial remarks to the doctoral student. I would note only that two of his own publications are not present in the bibliography of the dissertation. I would also recommend citing the literature sources more precisely and completely.

Conclusion: My assessment of the dissertation, the abstract, the scientific publications, and the scientific contributions of Georgi Kostadinov Kostadinov is positive.

The presented dissertation fully complies with the requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria, the Rules for the Implementation of the Act for the Development of the Academic Staff in the Republic of Bulgaria, and the Law on the Development of the Academic Staff of the University of Plovdiv “Paisii Hilendarski” for the acquisition of the educational and scientific degree “Doctor”.

The achieved results give me a reason to confidently propose to award the educational and scientific degree “Doctor” to Georgi Kostadinov Kostadinov in field of higher education: 4. Natural sciences, Mathematics, and Informatics; professional field: 4.6 Informatics and Computer Science, doctoral program: Informatics.

09.09.2026

Plovdiv

Signature:

/Prof. Asen Rahnev, PhD/