

OPINION

by Prof. Dr. Todorka Atanasova Glushkova
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of a dissertation for awarding 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

Author: *Stanislav Minchev Dakov*

Title: *Tools for Enhanced User Interaction in Electronic Commerce*

Scientific Supervisor: Assoc. Prof. Veselin Kyurkchiev, PhD,
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1. General Presentation of the Procedure and the Doctoral Candidate

This opinion has been prepared in accordance with Order No. RD-22-1033 of 19.05.2026 issued by the Rector of Plovdiv University “Paisii Hilendarski”, by which I was appointed as a member of the scientific jury for the defense procedure of the dissertation entitled “Tools for Enhanced User Interaction in Electronic Commerce” for acquiring the educational and scientific degree “Doctor” in Professional Field 4.6. Informatics and Computer Science.

The author of the dissertation is Stanislav Minchev Dakov, a full-time doctoral student at the Department of Computer Technologies under the supervision of Assoc. Prof. Dr. Veselin Kyurkchiev.

The submitted materials comply with Article 36(1) of the Regulations for the Development of the Academic Staff of Plovdiv University “Paisii Hilendarski”.

Stanislav Minchev Dakov obtained a Master’s degree in Informatics from Plovdiv University “Paisii Hilendarski” in 2013. Since 2020, he has been a full-time doctoral student at the Department of Computer Technologies, Faculty of Mathematics and Informatics. Since 2011, he has been working in the software industry as a programmer, developer, and project and team manager. During the period 2011–2012, he taught PHP practical classes at the Faculty of Mathematics and Informatics, which is in line with his chosen professional path.

2. Relevance of the Research Topic

The topic is highly relevant because modern electronic commerce develops in conditions of enormous information flow, rapidly changing circumstances, and continuously increasing customer expectations for accurate, timely, and personalized information.

The dissertation examines approaches such as automated data extraction, browser extensions, AI and LLM solutions, which demonstrates a direct connection with current technological trends and the practical needs of online commerce.

The main goal of the dissertation is to explore the possibilities and develop prototypes of software tools for improving user interaction in electronic commerce.

3. Knowledge of the Research Problem

The clearly defined goals and tasks of the dissertation on page 8, together with the presented motivation, demonstrate the doctoral candidate's excellent understanding of the research field.

Based on the dissertation and the bibliography containing 206 literary and internet sources, it can be concluded that the doctoral candidate has thoroughly and carefully studied the current state of research in the field.

4. Research Methodology

I believe that the chosen research methodology follows the established practices in the field. The methodology combines automated extraction of data from web sources, processing of visual information using a modern recognition model, and subsequent integration through a browser extension and an AI module for structuring the results.

This approach enables higher accuracy, faster processing, and adaptation to dynamically changing web pages by combining the advantages of rule-based, deep learning, and language-model solutions.

5. Characteristics and evaluation of the dissertation work

The dissertation consists of 179 pages and includes an introduction, three chapters, a conclusion, a list of the doctoral candidate's publications, and referenced literature.

The research work is structured into several logical components discussed in separate chapters.

The introduction presents the main objective of the dissertation and the related tasks.

Chapter One, “Main Tools and Technologies for Interaction Between Business and Consumers in Electronic Commerce,” examines the main factors influencing interaction between consumers and businesses in electronic commerce. It reviews existing theories and research in the field and provides an analysis of widely used tools and platforms improving customer experience. Certain security and personal data protection issues are also discussed.

Chapter Two, “Innovative Approaches for Data Extraction in Electronic Commerce: A Hybrid Model,” presents the developed model for extracting data from the Internet to improve user interaction in electronic commerce. Based on the integration of three fundamentally different approaches for data processing (rule-based symbolic approach, deep learning, and large language models), a formal theoretical framework and conceptual architecture of the model are created.

Chapter Three, “Online Platform with Tools for Enhanced User Interaction,” presents the developed system integrating the hybrid model. The technologies used, the architecture of the solution, and the implementation sequence of the main modules are described in detail.

The conclusion presents the main results of the dissertation, the contributions of the doctoral candidate, and directions for future research.

6. Evaluation of the Publications and Personal Contribution

Stanislav Minchev Dakov has submitted a list of six publications related to the dissertation topic. All publications are co-authored. Three of them are indexed in SCOPUS with SJR and quartiles Q3 and Q4, while one is indexed in Web of Science.

The doctoral candidate has also presented his results at six international conferences. The presence of citations in prestigious publications makes a positive impression.

I have no doubts that the dissertation and the obtained results are the personal work of the doctoral candidate. I have not identified any plagiarism.

The minimum national requirements for obtaining the educational and scientific degree “Doctor” in Professional Field 4.6 Informatics and Computer Science have been fulfilled.

7. Abstract

The abstract meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations of Plovdiv University “Paisii Hilendarski”.

8. Critical Remarks and Recommendations

I recommend that the doctoral candidate continue the initiated scientific research, as the topic has a high degree of applicability and broad prospects for development.

I have several remarks and recommendations regarding the dissertation:

- Some typographical errors are present;
- The electronic sources in the bibliography should include access dates.

These recommendations do not diminish the significance of the achieved results.

CONCLUSION

The dissertation contains scientific-applied and applied results representing an original contribution to science and meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), the Regulations for its implementation, and the Regulations of Plovdiv University “Paisii Hilendarski”.

I believe that Stanislav Minchev Dakov possesses profound theoretical knowledge in Informatics and demonstrates the ability to conduct independent scientific research.

All this gives me grounds for a completely **positive evaluation** of the dissertation.

I propose that the honorable scientific jury award the educational and scientific degree “Doctor” to Stanislav Minchev Dakov in the field of higher education 4. Natural Sciences, Mathematics and Informatics, Professional Field 4.6 Informatics and Computer Science, Doctoral Program “Informatics”.

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Plovdiv

Prepared by:
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