

OPINION

Prof. Stanimir Nedyalkov Stoyanov,
Plovdiv University "Paisiy Hilendarski"

on the dissertation for the award of the educational and scientific degree 'doctor',

4. Natural Sciences, Mathematics and Informatics,
professional field 4.6. Informatics and Computer Science,
doctoral program Informatics

Author: Viktor Plamenov Matanski

Topic: "A COMPUTATIONAL FRAMEWORK FOR CROSS-MODAL TRANSLATION OF ART"

Scientific supervisors: Prof. Anton Iliev, Prof. Todorka Terzieva

General description of the submitted materials. By order No. RD-22-1414/17.07.2026 of the Rector of the Plovdiv University "Paisiy Hilendarski", I have been appointed as a member of the scientific jury for conducting the procedure for the defense of a dissertation on the topic "A Computational framework for cross-modal translation of art" for the acquisition of the educational and scientific degree of 'doctor' with author Viktor Plamenov Matanski.

Relevance of the topic, knowledge of the problem, appropriateness of the goals and objectives. The topic of the dissertation is relevant and original. In recent years, multimodal language models have been the subject of increased theoretical and practical interest. From the text of the dissertation, publications and my personal impressions, I can say that the doctoral student has a thorough knowledge of the essence of the researched problem. The referenced literature also confirms this statement of mine.

Research methodology. The methodology used to conduct the research is presented in the introduction to the dissertation. Six research questions are formulated. From the results and the achieved goal of the research, I assume that the doctoral student consistently followed the proposed methodology.

Characteristics and evaluation of the dissertation work. The dissertation work is 197 pages long, consists of an introduction, seven chapters, a conclusion and appendices. The literature used is up-to-date and appropriately selected in accordance with the nature of the

research. In my opinion, the dissertation is structured logically and correctly and consistently presents the evolution of the research.

The first chapter provides an extensive overview of existing solutions in the field, which contributes to the solid motivation for conducting such a study. The second chapter presents a formal system of cross-modal art translation, including also a normative apparatus of intermediate representation. I accept the results in this chapter as a theoretical contribution of the study. The third chapter is dedicated to an ontology called CDAO (Cross-Domain Art Ontology), which provides the framework with a shared semantic vocabulary. The fourth chapter presents the hierarchical multi-agent architecture, coordinated by the LLM, for ontology-based art translation. The fifth chapter presents a working prototype implementation, demonstrating the computability of the framework. The sixth chapter discusses a five-layer evaluation protocol. The seventh chapter interprets the results of the evaluation of the developed framework and clearly distinguishes between what is architecturally implemented, what is empirically established, and what remains for future verification. The conclusion briefly summarizes the results of the research presented in the dissertation.

I would characterize the contributions presented in the dissertation as mainly scientific-applied, applied and scientific. The contributions can be related to the solution of the six research questions formulated in the introductory part of the dissertation. At the same time, the proposed framework can be attributed to the neural-symbol (hybrid) artificial intelligence that is becoming very relevant for scientific research.

The abstract summarizes the content and results of the dissertation. Its length of 32 pages is generally accepted.

Three publications on the topic of the dissertation are presented. In my opinion, they summarize the results of the research presented in the dissertation. The dissertation, as well as the presented publications, impose the conviction that the achieved results are primarily the personal work of the doctoral student.

I know the doctoral student personally from our joint work on a research project.

Critical notes. Victor Matansky's dissertation presents the results of a large-scale study, exceeding the usual framework of conducting a doctoral program. In this sense, my main criticism is that the text contains details that are insignificant for the purpose of the study, which make it difficult to clearly and unambiguously understand and interpret the ideas of the

dissertation candidate. Perhaps it would be appropriate to provide some additional explanations as appendices.

I also do not fully agree with some of the statements in the dissertation. For example, the use of the term “translation” in the title is completely correct, suggesting the idea of preserving the input semantics as accurately as possible. At the same time, the criticisms that “Modern generative artificial intelligence has made significant progress in creating text, images and music according to freely given instructions. The case in which the system must work with a specific input artifact and preserve its relevant properties when switching to another artistic form remains significantly less studied” (p. 18) or that “Multimodal generative systems ... do not solve the problem of accurate, traceable and evaluable artistic translation” (p. 40) should be mitigated, because weak binding to the input semantics is a natural state of generative systems.

The statement “Unlike classical agents that communicate through structured messages and rules, LLM agents communicate in natural language...” (p. 41) is not entirely accurate, because AI agents also interact through structured messages (e.g. A2A or MCP using the JSON specification), and LLMs are commonly used as a type of inference machine.

With these critical remarks I only want to contribute to improving the correctness of the text of the dissertation. The theoretical preparation of the doctoral student and the excellent results of the research presented in the dissertation are indisputable.

CONCLUSION

The dissertation contains scientific-applied and applied results, representing an original contribution to science and meeting the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria (ADSRB), the Regulations for the Implementation of the ADSRB and the relevant Regulations of the Plovdiv University "Paisiy Hilendarski".

The dissertation shows that the doctoral student Viktor Plamenov Matanski possesses in-depth theoretical knowledge and professional skills in the professional field 4.6. Informatics and Computer Science, demonstrating qualities and skills for independent conduct of scientific research.

Due to the above, I give my positive assessment of the conducted research, presented by the above-reviewed dissertation, abstract, achieved results and contributions, and I

propose to the esteemed scientific jury to award the educational and scientific degree of 'doctor' to Viktor Plamenov Matanski in the field of higher education 4. "Natural Sciences, Mathematics and Informatics", professional direction 4.6. "Informatics and Computer Sciences".

31.08.2026

Reviewer:

(Prof. Stanimir Stoyanov)