

REVIEW

by Acad. Ivan Petkov Popchev, BAS

of a doctoral thesis submitted for the award of 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 Programme “Informatics”

entitled “A Computational Framework for Cross-Modal Art Translation”

by Viktor Plamenov Matanski

By Order No. RD-22-1414, issued in Plovdiv on 17 July 2026 by the Rector, Professor Rumen Mladenov, PhD, pursuant to Article 4 of the Act on the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), Articles 2(2) and 30(3) of the Regulations for the Implementation of the Act (RIADSRB), and Article 37(1) of the Regulations on the Development of the Academic Staff of Plovdiv University (RDASPU), and in accordance with the decision of the Faculty Council of the Faculty of Mathematics and Informatics recorded in Minutes No. 34 of 15 July 2026, I was appointed an external member of the Scientific Jury for the defence of Viktor P. Matanski’s doctoral thesis, entitled “A Computational Framework for Cross-Modal Art Translation”, submitted for the award of 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 Programme “Informatics”.

The assessment of the doctoral thesis is governed by the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria, its Implementing Regulations, and the Regulations on the Development of the Academic Staff of Plovdiv University. In particular, due regard must be paid to the following provisions:

1. **Pursuant to Article 6(3) of the ADASRB**, a doctoral thesis must contain scientific or applied-scientific results that constitute an original contribution to the science. It must further demonstrate that the candidate possesses a thorough command of the relevant theoretical foundations and the ability to undertake independent research.
2. **Pursuant to Article 27(3) of the RIADSRB**, the doctoral thesis must be presented in a form and at a length consistent with the specific requirements of the primary academic unit. It must contain a title page, table of contents, introduction, main body, conclusion summarising the results and including a declaration of originality, and a bibliography.

The thesis was supervised by Professor Todorka Terzieva, PhD, and Professor Anton Iliev, PhD.

The aim of the doctoral thesis, as stated on page 21, is:

“To develop a computational framework for cross-modal art translation. The framework is intended to provide four mutually complementary capabilities: formalisation, knowledge representation, a configurable architecture, and reproducible evaluation.

”

To achieve this aim, the following objectives were formulated:

1. To provide a formal definition of artistic translation, comprising an input–output contract, a taxonomy of translation modes, an intermediate representation, and a hierarchy of constraints.
2. To establish an ontological knowledge base.
3. To design a multi-agent architecture incorporating an iterative mechanism for verification and correction.
4. To implement a prototype system for translation between painting, poetry, and music.
5. To develop a protocol for evaluating the results.

The doctoral thesis extends to 197 pages, cites 250 sources, and is structured as follows:

- Introduction (pp. 18–25);
- Literature Review (Chapter 1, pp. 26–57);
- Formalisation of Cross-Modal Art Translation (Chapter 2, pp. 58–75);
- Cross-Modal Art Ontology (Chapter 3, pp. 76–92);

- Architectural Specification of a Multi-Agent System for Artistic Translation (Chapter 4, pp. 93–112);
- Prototypes (Chapter 5, pp. 113–132);
- Evaluation (Chapter 6, pp. 133–157);
- Discussion, Limitations and Future Work (Chapter 7, pp. 158–168);
- Conclusion (pp. 169–182);
- Declaration (p. 183);
- Bibliography (pp. 184–197).

Page 179 lists three publications arising from the doctoral research. An examination of these publications shows that:

- one article was published in a Q2 journal with an impact factor (Publication No. 1);
- two papers were published in conference proceedings or edited volumes (Publications Nos. 2 and 3).

Page 178 records that the doctoral research was undertaken with the support of Contract No. BG16RFPR002-1.014-0018-C01, Project No. IT15-FMIIT-004, and Project No. FP25-FMI-010.

The candidate's scientometric indicators amount to **110 points, against the minimum requirement of 80 points** for the educational and scientific degree "Doctor". The requirements of the Implementing Regulations and the Regulations on the Development of the Academic Staff of Plovdiv University are therefore satisfied.

The requirements of RDASPU and RIADSRB have been complied with

Article 6(3) of the ADASRB requires a doctoral thesis to contain scientific or applied-scientific results that constitute an original contribution to the science. On page 173, the thesis identifies six contributions, framed in terms of tasks, chapters, and publications. It does not, however, state explicitly which of these are claimed to constitute **original contributions to the science**.

In summary, the principal results of the doctoral thesis may be systematised as follows:

1. A definition of cross-modal art translation as a computational task.
2. A formal apparatus for the specification and evaluation of cross-modal translation.
3. The "Cross-Domain Art Ontology".
4. A multi-agent architecture for artistic translation.
5. A prototype implementation of the proposed framework.
6. A five-layer evaluation protocol.

A programme of future work is set out on pages 164–176:

- 7.7.1. Extended evaluation and the construction of a gold-standard dataset.
- 7.7.2. Enrichment of the musical corpus and its associated mappings.
- 7.7.3. Improvement of style transfer.
- 7.7.4. Ontology learning from operational experience with the pipeline.
- 7.7.5. Development of a production-grade interface and deployment in real-world settings.
- 7.7.6. An automated cycle of self-improvement.

QUESTIONS CONCERNING THE DOCTORAL THESIS

1. What criteria should be applied in determining whether a contribution constitutes an original contribution to the science in Professional Field 4.6, Informatics and Computer Science?
2. Which specific contribution presented in the doctoral thesis can be substantiated as an original contribution to Informatics and Computer Science, and on what evidence?
3. On what basis were the time horizons for the future-work programme on page 164 determined—namely, 0–2 months for Task 7.7.2, 12–24 months for Task 7.7.3, and a medium-term horizon of 2–4 years for Tasks 7.7.4 and 7.7.5?

The abstracts are available in Bulgarian and English, comprise 32 pages in total, and provide an accurate account of the doctoral thesis.

CONCLUSION

The doctoral thesis satisfies the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria, its Implementing Regulations, and the Regulations on the Development of the Academic Staff of Plovdiv University “Paisii Hilendarski”.

I therefore give **a positive assessment** of the doctoral thesis and support the award of the educational and **scientific degree “Doctor” to Viktor Plamenov Matanski.**

I recommend that the Scientific Jury vote unanimously to award Viktor Plamenov Matanski the educational and scientific degree “Doctor” in Professional Field 4.6, Informatics and Computer Science, Doctoral Programme “Informatics”.

1st of August 2026
Sofia

Reviewer:
/Academician I. Popchev/