

OPINION

**by Dr. Stanka Ivanova Hadzhikoleva,
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regarding the materials submitted for participation in a competition for the academic position of **Professor at the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences** in Higher Education Area 4. Natural Sciences, Mathematics and Informatics, Professional Field 4.6. Informatics and Computer Science, Scientific Specialty “Informatics” (Cognitive Models and Artificial Intelligence for Multimodal Data)

The competition for the academic position of Professor in the Mathematical Linguistics Department of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences (IMI-BAS) was announced in the State Gazette, Issue No. 54 of 12 June 2026, as well as on the Institute's official website.

1. General Overview of the Submitted Materials

Pursuant to Order № 78 of 10 August 2026, issued by the Director of the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences (IMI-BAS), I have been appointed as a member of the Scientific Jury for the competition for the academic position of **Professor at IMI-BAS**, in Higher Education Area 4. Natural Sciences, Mathematics and Informatics, Professional Field 4.6. Informatics and Computer Science, Scientific Specialty: “Informatics” (Cognitive Models and Artificial Intelligence for Multimodal Data).

This statement has been prepared in accordance with the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), the Regulations for the Implementation of the ADASRB, and the Regulations on the Terms and Procedures for Acquiring Scientific Degrees and Holding Academic Positions at the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences (IMI-BAS Regulations).

Only one candidate has submitted an application for the announced competition – Associate Professor Aleksandar Iliev Iliev, PhD, from IMI-BAS. The submitted set of application materials complies with the IMI-BAS Regulations (Appendix 1.1) and includes the following documents:

1. Application addressed to the Director of IMI-BAS for admission to the competition.
2. Curriculum vitae in the European format.
3. Diplomas certifying completed higher education and an additional qualification:
 - Master's degree diploma from the University of Mining and Geology “St. Ivan Rilski”, Sofia, dated 29 July 1996, Series MGU-96, No. 010186, Registration No. 645;
 - Diploma in a second field of study from the Technical University of Sofia, dated 21 June 1996, No. 001590;
 - Master's degree diploma from the University of Miami, USA, dated 15 December 1999.
4. Diplomas certifying the acquisition of the educational and scientific degree of Doctor (PhD):
 - Doctoral degree diploma from the University of Miami, USA, dated 17 December 2009;
 - Doctoral degree diploma from IMI-BAS, dated 22 June 2015, No. 000037.
5. Complete list of scientific publications.
6. List of publications submitted for consideration in the competition.
7. Statement of the original scientific contributions presented in the publications submitted for consideration in the competition.
8. Abstracts of the publications submitted for consideration in the competition, in Bulgarian and English.
9. Copies of the publications listed under Item 6.
10. Complete list of citations.

11. List of citations submitted for consideration in the competition.
12. Copy of the State Gazette containing the announcement of the competition.
13. Certificate of professional experience in the relevant field, issued by IMI-BAS.
14. Certificate confirming the academic position of Associate Professor.
15. Documents and supporting evidence of other academic and professional activities, including:
 - Utility Model Registration Certificate No. 5104 U1, dated 29 August 2025, for “Computer-Implemented System for Big Data Processing”, issued by the Patent Office of the Republic of Bulgaria.
 - Certificates issued by the Dean and Academic Director of the School of Technology and Architecture at SRH University of Applied Sciences, confirming the use of four textbooks authored by Professor Aleksandar Iliev, PhD, in the Master's degree programme “Big Data and Artificial Intelligence”.
 - Letter of reference from Professor Rumen Nikolov, PhD, concerning the participation of Associate Professor Aleksandar Iliev, PhD, in international research projects.
 - Letter from the Rector of SRH University of Applied Sciences, Germany, dated 6 January 2026, certifying that Aleksandar I. Iliev has held the academic position of Professor since 1 November 2019.
 - Statement of teaching activities.
 - List of published textbooks.
 - Statement of other academic and professional activities.
16. Statement in the prescribed format demonstrating compliance with the minimum national requirements under Article 2b, paragraphs 2 and 3, and the requirements under Article 2b, paragraph 5, of the ADASRB, as well as with the minimum requirements of IMI-BAS (Appendix 2.1).
17. Declaration in the prescribed format (Appendix 3.1).
18. Declaration of consent to the storage and processing of personal data (Appendix 4.2).
19. Certificate of appointment of Aleksandar Iliev as Professor of Informatics, specializing in Big Data, issued by SRH University of Applied Sciences, Berlin, Germany, on 1.11. 2019.

For participation in the competition, Assoc. Prof. Iliev has submitted 26 scientific works (including 23 research publications, 1 book chapter, and 2 monographs), 4 textbooks, and 1 registered utility model. All submitted works fall within the thematic scope of Professional Field 4.6. Informatics and Computer Science, in which the competition has been announced.

A review of the submitted documentation reveals a discrepancy between the publication date of two of the textbooks (21 July 2026) and the date of the certificate issued by the Dean confirming their use in the teaching process (14 July 2026). This circumstance does not preclude the possibility that the educational content had been used prior to its official publication. Given the existence of a certificate issued by a competent university authority, I consider that the identified discrepancy does not constitute sufficient grounds for excluding the two textbooks from consideration in the competition.

All publications submitted by the candidate were published during the period 2017–2026 and have not been used in previous procedures for obtaining the educational and scientific degree of Doctor (PhD) or for appointment to the academic positions of Assistant Professor and Associate Professor. In view of the above, I accept all the submitted scientific and educational-methodological works for substantive evaluation.

2. Candidate's Profile and Compliance with the Requirements

The candidate has over 25 years of international academic, research, and professional experience in the fields of informatics, artificial intelligence, machine learning, big data, intelligent systems, and digital signal processing. His professional career combines scientific research, university teaching, the development of innovative software solutions, and the management of technological products and educational programmes in Bulgaria, Germany, and the United States.

Assoc. Prof. A. Iliev completed his higher education in 1996. In 2009, he was awarded the educational and scientific degree of Doctor (PhD) by the University of Miami. Since 2012, he has been teaching machine learning, data analytics, and Python programming at the University of California, Berkeley, USA. Since 2017, he has held the academic position of Associate Professor at IMI-BAS, conducting research in the fields of artificial intelligence and intelligent systems. Since 2019, he has been a Professor at SRH University of Applied Sciences, Germany, where he also serves as Academic Director of the Master's degree programme in Big Data and Artificial Intelligence. Since 2022, he has been a Lead Scientist at Virtech Ltd., focusing on developments in agentic artificial intelligence and big data. His previous experience includes positions as Associate Professor at the University of Wisconsin–Stevens Point, USA (2017–2019); Software Engineer and Researcher at the University of Miami, USA (1998–2010); Product Manager at SONY–Gracenote, USA (2010–2012); and Director of Internet Business at Time Warner–bTV, Bulgaria (2012–2014).

Pursuant to Article 61 of the Regulations for the Implementation of the ADASRB, candidates for the academic position of Professor are evaluated on the basis of their compliance with the conditions set out in Article 60, paragraphs 1 and 2, and in accordance with the information provided in the statements referred to in Article 60, paragraph 3. Furthermore, under Article 1a, paragraphs 2 and 3, of the Regulations for the Implementation of the ADASRB, research institutions may establish additional requirements for candidates applying for academic positions in their internal regulations. Such requirements are stipulated in the IMI-BAS Regulations.

A review of the submitted documentation establishes that Assoc. Prof. A. Iliev, PhD, meets the requirements of the aforementioned regulatory provisions. According to a certificate issued by IMI-BAS, as of 1 August 2026, Assoc. Prof. Iliev had completed 8 years and 8 months of service at the Bulgarian Academy of Sciences in the academic position of Associate Professor, thereby demonstrating compliance with the required length of service.

Regarding compliance with the minimum national requirements and the additional requirements of IMI-BAS, as defined by the groups of evaluation indicators for the academic position of Professor in Professional Field 4.6. Informatics and Computer Science (pursuant to Article 2b, paragraphs 2 and 3, of the ADASRB), the following conclusions can be drawn:

- For **Group A** of the minimum national requirements, the candidate has provided documentation concerning his doctoral dissertation entitled “Emotion Recognition Using Voice and Prosodic Parameters”, defended in 2009 at the University of Miami, Florida, USA, for the award of the educational and scientific degree of Doctor (PhD). The degree has been officially recognized in Bulgaria, as certified by Diploma No. 000037, issued by IMI-BAS on 22 June 2015.
- For **Group C**, under *Indicator C4: Habilitation Work – Scientific Publications in Journals and Proceedings Referenced and Indexed in Internationally Recognized Scientific Databases*, the candidate has submitted four publications indexed in Scopus and assigned an SJR (SCImago Journal Rank) indicator. Two of these publications are also indexed in Web of Science (WoS) and have an Impact Factor (IF).
- For **Group D**, under *Indicator D5: Published Monograph Not Submitted as the Principal Habilitation Work*, the candidate has submitted two monographs. Under *Indicator D7: Scientific Publications in Journals and Proceedings Referenced and Indexed in Internationally Recognized Scientific Databases (Web of Science and Scopus), Excluding Those Included in the Habilitation Work*, 19 publications have been submitted. Of these, 11 are indexed in Web of Science (WoS), including one published in a journal with an Impact Factor (IF), and all 19 are indexed in Scopus, 14 of which have an SJR indicator. Under *Indicator D8: Published Book Chapter or Chapter in a Collective Monograph*, one book chapter has been submitted. Under *Indicator D9: Invention, Patent, or Utility Model for Which a Document of Protection Has*

Been Duly Issued, the candidate has submitted Utility Model Registration Certificate No. 5104 U1, dated 29 August 2025, issued by the Patent Office of the Republic of Bulgaria.

- For **Group E**, I accept 31 citations indexed in Web of Science (WoS) and/or Scopus, referring to 10 of the candidate's publications.
- For **Group F**, the requirements are met under Indicator F14, through participation in two national research projects; Indicator F15, through participation in five international research projects; and Indicator F19, through the publication of four university textbooks.

The analysis demonstrates that the candidate meets both the minimum national requirements and the minimum requirements established by IMI-BAS, as shown in the following table:

Group of Indicators	Indicators	IMI-BAS Minimum Requirements		National Minimum Requirements	
		IMI-BAS Criteria	Assoc. Prof. A. Iliev	National Criteria	Assoc. Prof. A. Iliev
A	Indicator 1	50	50	50	50
C	Indicator 4	100	130	100	195
D	Indicators 5, 7 8 и 9	220	444	200	616
E	Indicator 11	140	186	100	248
F	Indicators 14, 15 и 19	150	280	100	280

Article 3(1), Item 4, of the IMI-BAS Regulations stipulates that candidates for the academic position of Professor must have at least 12 publications in journals or proceedings with an Impact Factor or SJR. Of the publications submitted for consideration in the competition, 18 meet this requirement, namely publications [2, 6–14, 16–23].

Of the total number of publications submitted for consideration in the competition, all but one (publication [2]) were published after 2017, when Dr. A. Iliev was appointed to the academic position of Associate Professor at IMI-BAS. Therefore, the requirement set out in Article 3(3) of the IMI-BAS Regulations is also fulfilled. According to this provision, at least half of the submitted publications must have been published or accepted for publication after the date of the most recent procedure for obtaining an educational and scientific degree, a scientific degree, or an academic position.

Based on the facts presented above, it can be reasonably concluded that the candidate, Assoc. Prof. A. Iliev, PhD, not only fully meets but also exceeds both the minimum national requirements under the evaluation indicators for the academic position of Professor in Professional Field 4.6. Informatics and Computer Science and the additional requirements established by IMI-BAS.

3. General Overview of the Candidate's Research Activities and Achievements

The candidate's scientific works can be classified into three main research areas:

I. Research and development of methodologies and algorithms for process automation based on the identification of emotional content in speech – publications [1, 3, 4, 8, 10, 11, and G].

II. Development of intelligent ecosystems through the application of artificial intelligence and large language models – publications [A–F, H, 2, 5–7, 12–19, 21–23].

III. Investigation of financial and pricing factors and development of novel models with direct practical applications – publications [9, 20].

The scientific works submitted for consideration in the competition contain original research results. Their principal scientific contributions can be summarized as follows:

I. Scientific Contributions

- *Development and investigation of methods for speech emotion recognition through the analysis of acoustic, prosodic, and glottal features, using machine learning and deep learning techniques.*
- *Development of methodological frameworks for the analysis and comparative evaluation of generative artificial intelligence systems and large language models.*
- *Development and investigation of machine learning and deep learning models, including methods for feature selection, detection of manipulated digital content, and mitigation of biases in code generated by large language models.*

II. Applied Scientific Contributions

- *Development of intelligent systems for automated analysis and personalization of digital content, integrating emotion recognition, natural language processing, and hybrid recommendation algorithms.*
- *Development of a hybrid architectural model for big data processing and management, integrating components of the FIWARE platform and distributed data processing technologies.*
- *Development and experimental evaluation of intelligent predictive and classification models, with applications in healthcare, financial markets, digital forensics, and autonomous transportation systems.*

III. Practical Contributions

- *Development and registration of Utility Model No. 5104 U1, “Computer-Implemented System for Big Data Processing”, providing a technological foundation for scalable batch and streaming data processing.*
- *Implementation of practical AI-based software solutions, including systems for detecting deepfake images and fake user reviews, virtual product try-on applications, and automated forecasting.*
- *Development and implementation of educational and methodological materials and practical software solutions in the fields of machine learning and intelligent systems, used in the Master's degree programme “Big Data and Artificial Intelligence” at SRH University of Applied Sciences, Germany.*

The submitted documentation provides sufficient grounds for a positive assessment of the individual contribution of Assoc. Prof. A Iliev to the scientific and applied research results achieved.

Particularly significant evidence is provided by the two monographs, four textbooks, and one chapter in a scientific book, all authored independently by the candidate. These works demonstrate his ability to develop and systematize scientific knowledge in the fields of artificial intelligence, machine learning, and intelligent systems. His co-authored publications further complement his research profile through studies on emotion recognition, multimodal data processing, and generative artificial intelligence.

His participation as a researcher in international projects, including ENACT, BOWI, Cross4Health, and WE-TRANSFORM, confirms his commitment to interdisciplinary research and the practical application of scientific results. His applied scientific contributions are further supported by his involvement as a co-inventor of the registered Utility Model No. 5104 U1, “Computer-Implemented System for Big Data Processing”.

I consider the candidate's individual contribution to be substantial and convincingly supported by the submitted documentation. His independently authored works demonstrate his direct intellectual and scientific contribution, while his co-authored publications, participation in international projects, and applied research developments reflect a consistent research trajectory and a clearly established individual scientific profile.

No plagiarism has been identified and substantiated in accordance with the legally established procedures in the works submitted by Assoc. Prof. A. Iliev for evaluation.

4. Critical Remarks and Recommendations

I have no significant critical remarks regarding the scientific works submitted by Assoc. Prof. Aleksandar Iliev or the research results achieved.

Given the broad thematic scope of his research, I recommend that, in his future scientific activities, the candidate focus his efforts on further advancing his principal research areas, with particular emphasis on cognitive models and artificial intelligence methods for multimodal data analysis. It would also be advisable to extend the experimental validation of the developed models and to provide a clearer distinction of his individual contributions in co-authored publications.

These recommendations are intended to be constructive and do not diminish my positive assessment of the candidate's scientific and applied research activities.

CONCLUSION

The documents and materials submitted by Assoc. Prof. A. Iliev comply with all the requirements of the ADASRB, the Regulations for the Implementation of the ADASRB, and the IMI-BAS Regulations. The research results achieved fully satisfy both the minimum national requirements and the additional requirements established by IMI-BAS. The submitted scientific works are distinguished by their relevance, scientific significance, and practical applicability. The publications, monographs, international research projects, and registered utility model demonstrate consistent and productive research activity.

The candidate's international academic and research experience demonstrates his scientific independence and professional competence. The scientific qualifications of Assoc. Prof. A. Iliev, PhD, are beyond doubt, and his achievements in research, teaching, and applied scientific activities provide convincing grounds for a positive assessment of his candidacy for the academic position of Professor.

Based on the above, I give a **positive assessment** of the candidacy of Associate Professor Aleksandar Iliev Iliev, PhD, and recommend that the Scientific Jury prepare a report and proposal to the Scientific Council of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences recommending his appointment to the academic position of Professor in Higher Education Area 4. “Natural Sciences, Mathematics and Informatics”, Professional Field 4.6. “Informatics and Computer Science”, Scientific Specialty “Informatics” (Cognitive Models and Artificial Intelligence for Multimodal Data).

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