

REVIEW

for

Assoc. Prof. Alexander Iliev Iliev, PhD

for the competition for the academic position of **Professor** in the professional field **4.6 Informatics and Computer Science**, scientific specialty **Informatics (Cognitive Models and Artificial Intelligence for Multimodal Data)**

Reviewer: Acad. Ivan Petkov Popchev – Bulgarian Academy of Sciences (BAS)

Pursuant to **Article 29a, Paragraph 1 of the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB)**, **Article 12, Paragraph 4 of the Regulations for the Conditions and Procedures for the Acquisition of Academic Degrees and the Occupation of Academic Positions at BAS**, and by Decision of the Scientific Council of the Institute of Mathematics and Informatics (Minutes No. 7/10.07.2026), by Order No. 78/10.08.2026 of the Director of the Institute of Mathematics and Informatics, Corresponding Member Prof. Petar Boyvalenkov, D.Sc., I was appointed as an external member of the Scientific Jury for the competition for the academic position of **Professor** in the professional field **4.6 Informatics and Computer Science**, scientific specialty **Informatics (Cognitive Models and Artificial Intelligence for Multimodal Data)**, published in the **State Newspaper**, No. 54/12.06.2026.

As a reviewer, I have received all **19 documents** submitted on **10 August 2026** for participation in the competition.

According to the **Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB)**, the **Regulations for its Implementation (RIADASRB)**, and the **Regulations for the Conditions and Procedures for the Acquisition of Academic Degrees and the Occupation of Academic Positions at the Institute of Mathematics and Informatics, BAS**, a candidate for the academic position of „**Professor**” must satisfy a number of statutory requirements.

Article 29 (1). Candidates for the academic position of "**Professor**" must meet the following conditions:

1. To have acquired the educational and scientific **degree of Doctor (PhD)**;
2. To have held the **academic position of Associate Professor** at the same or another higher education institution or research organization for not less than two academic years;
3. To have presented a published monograph or equivalent publications in specialized scientific journals, which do not duplicate those submitted for the acquisition of the educational and scientific degree of Doctor (PhD), the scientific degree of Doctor of Science (D.Sc.), or for appointment to the academic position of Associate Professor;

4. To have presented other original scientific research works, publications, inventions, scientific and applied developments, or artistic achievements, to be evaluated as a whole;
5. To meet the minimum national requirements under **Article 2b, Paragraphs 2 and 3**, respectively the requirements under **Article 2b, Paragraph 5**;
6. To have no plagiarism in scientific works established under the procedure prescribed by law.

Article 29 (3). Candidates shall submit a report on the fulfillment of the minimum national requirements under **Article 2b, Paragraphs 2 and 3**, respectively the requirements under Article 2b, Paragraph 5, together with a report on the original scientific contributions, to which the relevant supporting evidence specified in this Act, the Regulations for its implementation, and the regulations of the higher education institutions and scientific organizations shall be attached.

According to the Regulations for the Implementation of the **ADASRB at IMI-BAS, Article 3(1)**, Item 3, the publications submitted for participation in a competition for the academic position of "Professor" must include at least **12 publications** in scientific journals indexed with an Impact Factor (IF) or SCImago Journal Rank (SJR).

Assoc. Prof. Alexander Iliev, PhD satisfies the requirements of Article 29, Paragraph 1, since he has submitted:

- ☐ a diploma issued by the **University of Miami, Florida**, dated **17 December 2009**, certifying the award of the educational and scientific degree **Doctor of Philosophy (PhD)**;
- ☐ Diploma No. **000037** awarding the educational and scientific degree **Doctor (PhD)**, issued by the **Institute of Mathematics and Informatics – Bulgarian Academy of Sciences** on **22 October 2015**.

Assoc. Prof. Alexander Iliev, PhD satisfies the requirements of Article 29, Paragraph 1, Item 2, according to Official Certificate No. **984/04.08.2026**, issued by the Director of IMI-BAS, Corresponding Member Prof. Petar Boyvalenkov, D.Sc. As of **1 August 2026**, Dr. Alexander Iliev has a total of **11 (eleven) years, 3 (three) months and 9 (nine) days** of professional experience, including **8 (eight) years and 8 (eight) months** as an **Associate Professor** at the Institute of Mathematics and Informatics – BAS.

Assoc. Prof. Alexander Iliev, PhD satisfies the requirements of Article 29, Paragraph 1, Item 3, as he has submitted **two monographs published in 2026**.

Assoc. Prof. Alexander Iliev, PhD satisfies the requirements of Article 29, Paragraph 1, Item 4, as he has submitted **23 scientific publications, one book chapter, and one utility model**.

Assoc. Prof. Alexander Iliev, PhD satisfies the requirements of Article 29, Paragraph 1, Item 5, according to the submitted "**Report on Compliance with the Minimum National Requirements for Candidates in a Competition for the Academic Position of Professor at IMI-BAS**" in the professional field **4.6 Informatics and Computer Science**.

Assoc. Prof. Alexander Iliev, PhD satisfies the requirements of Article 29, Paragraph 1, Item 6, since there is no legally established plagiarism in his scientific publications.

The submitted document entitled "6. List of Scientific Works Submitted for the Competition" includes:

- ☐ **Monographs:** A, B;
- ☐ **Study Books:** C, D, E, F;
- ☐ **Book Chapter:** G;
- ☐ **Utility Model:** H;
- ☐ **Scientific Publications:** 23.

The analysis of the 23 scientific publications submitted for the competition shows the following:

- ☐ **3 publications** have been published in journals indexed by SJR, possessing an **Impact Factor (IF)** and ranked **Q1/Q2 (№ 14 (Q1), 16 (Q4), and 19 (Q2))**;
- ☐ **15 publications** have been published in journals indexed by SJR (**№ 2, 6 (Q2), 7, 8 (Q3), 9 (Q4), 10 (Q4), 11 (Q4), 12 (Q4), 13 (Q4), 17, 18, 20 (Q4), 21 (Q4), 22 (Q4), and 23**);
- ☐ **5 publications** have appeared in **conference proceedings (№ 1, 3, 4, 5, and 15)**;
- ☐ **Two publications (№ 1 and 17)** are single-author publications.

The publications are written in **English** and were published during the period **2018–2025**.

According to the submitted **"10. General List of Citations"**, as of **10 August 2026**, the candidate's publications have received **310 citations** documented in **17 citing publications**. Part of these citations had already been used in previous academic promotion procedures, while the remaining citations are presented for the present competition. Publication **No. 19**, submitted in the present competition, has been cited **41 times**.

According to **Article 29, Paragraph 3 of ADASRB**, candidates shall submit a **Report on Original Scientific Contributions**, accompanied by the corresponding supporting evidence specified in the Act, its implementing regulations, and the regulations of the respective higher education institutions and research organizations.

Assoc. Prof. Alexander Iliev, PhD has submitted **"7. Report on the Original Scientific Contributions"** (dated **10 August 2026**) comprising **18 pages**, without the corresponding supporting evidence.

According to the submitted report, the scientific publications presented for the competition fall within **three principal research directions**:

A. Research and development of methodologies and algorithms related to process automation through the identification of emotional content in speech.

B. Scientific research in the development of intelligent (Smart) ecosystems through the application of Artificial Intelligence (AI) and Large Language Models (LLMs).

C. Research and development of new models in the field of financial and pricing factors with direct practical applications.

The reviewer summarizes the principal scientific contributions as follows:

1. **A three-layer Big Data architecture (Edge – Processing and Storage – Application) based on the FIWARE platform (Publication No. 16).**
2. **A DeepFake image detection model based on convolutional neural networks and Explainable Artificial Intelligence (XAI) (Publication No. 19).**
3. **An integrated framework for detecting and mitigating bias in code generated by Large Language Models (LLMs) through Counterfactual Prompt Engineering (CPE) and Reinforcement Learning with Human Feedback (RLHF) (Publication No. 14).**
4. **Models for predicting the risk of diabetes and stroke, based on the comparative evaluation of medical features using the Integrated Feature Selection (IFS), Hybrid Feature Selection (HFS), Genetic Feature Selection (GFS), and Deep Learning Feature Selection (DLFS) strategies (Publication No. 22).**
5. **Demonstration of the superior predictive accuracy of short-term (two-day) forecasting compared with models based on a 30-day forecasting horizon in cryptocurrency markets (Publication No. 20).**
6. **An AI-based perception framework for autonomous vehicles, incorporating object detection, semantic segmentation, pedestrian recognition, and traffic sign classification (Publication No. 15).**
7. **A utility model for a computer-implemented Big Data processing system based on the FIWARE platform and the Internet of Things (IoT) (Utility Model H).**

Three reports and one certificate, as of 10 August 2026, have also been submitted, as follows:

Assoc. Prof. Alexander Iliev, PhD has submitted a "**Report on Other Professional Activities**", comprising the following sections:

- ☐ Research activities;
- ☐ Scientific and applied research activities;
- ☐ Teaching activities;
- ☐ Scientific, organizational, and public activities;
- ☐ International scientific and academic activities;
- ☐ Expert activities;
- ☐ Contributions to the development of the scientific community and the education of young researchers.

Report on Teaching Activities:

- ☐ **SRH Berlin University, Germany;**
- ☐ **University of California, Berkeley, CA, USA;**

- University of Wisconsin–Stevens Point, WI, USA;
- University of Miami, FL, USA.

Report on Published Study Books:

Study Books C, D, E, and F.

Certificate:

SRH BERLIN UNIVERSITY OF APPLIED SCIENCES

ERNENNUNGSURKUNDE ZUM PROFESSOR

for **Mr. Alexander Iliev, PhD**

Berlin, 1 November 2019

Prof. Dr. Victoria Büsch, President

A **Certificate**, dated **12 July 2026**, signed by **Prof. Dr. Rumen Nikolov**, confirms Dr. Alexander Iliev's participation in international research projects.

As a summary of the candidate's **scientometric profile**, the major international scientific databases indicate the following:

- **Web of Science:** 29 total publications, 113 citations, h-index 4;
- **Scopus:** 29 documents, 238 citations, h-index 7;
- **Google Scholar:** 525 citations, h-index 12, i10-index 14;
- **ResearchGate:** 49 publications, 5,728 reads, 368 citations;
- **ORCID:** 31 works;
- **IEEE Xplore:** 6 publications, 21 citations;
- **ACM Digital Library:** 12 records;
- **AIS eLibrary:** 7 records;
- **zbMATH Open:** 1 publication, 1 citation;
- **MathSciNet (AMS):** 2 publications.

The candidate's **scientometric profile** should be the subject of continued critical self-assessment and should serve as an incentive for further research published in journals with an **Impact Factor (Q1 and Q2)**.

As a reviewer, being deeply convinced of the candidate's scientific potential, I recommend that he prepare and submit a dissertation entitled "**Big Data and AI: Problems and Decisions**" for the scientific degree of **Doctor of Science (D.Sc.)**.

Conclusion

All requirements stipulated by the **Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB)**, the **Regulations for its Implementation (RIADASRB)**, and the **Regulations of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences (IMI-BAS)** have been fully satisfied.

Based on the submitted scientific production, the demonstrated scientific contributions, the fulfillment of all statutory and institutional requirements, the candidate's teaching, research, and international academic activities, as well as the overall evaluation of his scientific achievements, **I give my unequivocally positive assessment** of the candidacy of **Assoc. Prof. Alexander Iliev Iliev, PhD** for the academic position of **Professor** in the professional field **4.6 Informatics and Computer Science**.

I recommend that the Scientific Jury unanimously vote in favor of proposing to the Scientific Council of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences the election of Assoc. Prof. Alexander Iliev Iliev, PhD to the academic position of Professor in the professional field 4.6 Informatics and Computer Science, scientific specialty Informatics (Cognitive Models and Artificial Intelligence for Multimodal Data).

Sofia

4 September 2026

Reviewer:

(Acad. Ivan Petkov|Popchev)