

OPINION

by *Prof. Ivan Ganchev Garvanov, D.Sc., Eng.*

Subject:

Competition for the academic position of **Professor** in Higher Education Area 4 (Natural Sciences, Mathematics, and Informatics), Professional Field 4.6 “Informatics and Computer Sciences” (Cognitive Models and Artificial Intelligence for Multimodal Data), announced by the Institute of Mathematics and Informatics – BAS.

1. Information about the competition

The competition was announced in the State Gazette, Issue 54 of June 12, 2026, to meet the needs of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences (IMI-BAS). I am a member of the scientific jury for the competition, appointed pursuant to Order No. 78 of August 10, 2026, issued by the Director of IMI-BAS. At the first meeting of the scientific jury, held on August 14, 2026, I was selected to prepare an expert opinion. I received the complete set of documents for the competition electronically.

2. Brief information about the competition candidate

The sole candidate to submit documents for the competition is Assoc. Prof. Dr. Alexander Iliev Iliev. He holds a PhD in Electrical and Computer Engineering (awarded in 2009), having defended a dissertation on speech emotion recognition at the University of Miami in Florida, USA. From 2014 to 2017, he served as an Assistant Professor at IMI-BAS, and since July 3, 2017, he has held the position of Associate Professor at IMI-BAS. Concurrently, from September 2017 to January 2019, he was an Associate Professor at a university in Wisconsin, USA, and since November 2019, he has been a Professor at a university of applied sciences in Berlin, Germany. Assoc. Prof. Alexander Iliev also possesses extensive practical experience as a software engineer, product manager, instructor, and researcher at prestigious companies and

universities.

3. Fulfillment of requirements for the academic position

The candidate, Assoc. Prof. Dr. Aleksandar Iliev Iliev, has submitted four scientific publications for the competition to meet the requirements of indicator V; two of these have an Impact Factor (IF)—ranked Q1 and Q2 respectively—while the other two have an SJR ranking. Regarding indicator G, the candidate has submitted two monographs, one chapter in a collective monograph, one utility model, and 19 scientific publications; of these, one has an IF, 13 have an SJR ranking, and the remaining five appear in publications refereed and indexed in Scopus and/or Web of Science. The requirements for indicator group D are met through a submitted record of 38 citations across 10 scientific publications. The requirements for indicator group E are met through documentation of participation in two national research projects and five international scientific or educational projects, as well as the development of four university textbooks.

The submitted scientific works have not been used by the candidate in previous procedures for obtaining the educational and scientific degree of “Doctor” or for appointment to the academic position of “Associate Professor.”

The candidate meets the minimum national requirements for the position of “Professor” in Field 4 (Natural Sciences, Mathematics, and Informatics), Professional Field 4.6 (Informatics and Computer Sciences), as shown in the table below:

Group of indicators	Contents	Professor	Assoc. Prof. Dr. Aleksandar Iliev Iliev
A	Indicator 1	50	50
B	Indicator 2	--	--
V	Indicator 3 or 4	100	130
G	Sum of indicators from 5 to 10	200	444

Group of indicators	Contents	Professor	Assoc. Prof. Dr. Aleksandar Iliev Iliev
D	Sum of points for item 11	100	228
E	Sum of items from 12 to the end	100 for PF 4.6	280
Total:		550	1 132

Data from Scopus, Web of Science, Google Scholar, and ResearchGate as of September 17, 2026, show the following scientometric indicators:

Scopus: H-index 7, papers 41, citations 245

Web of Science: H-index 5, papers 25, citations 118

Google Scholar: H-index 12, citations 539

ResearchGate: H-index 10, citations 381

4. Brief overview of the submitted scientific works

The candidate's research activities fall within the following scientific fields:

A. Research and development of methodologies and algorithms for process automation through the recognition of emotional content in speech:

1. Research, development, and advancement of methods for data discovery, filtering, and recommendation through emotion analysis in speech and images: 1, 10, 11, G

2. Research in the field of digital representation and preservation of cultural, historical, and scientific heritage: 3, 4, 8

B. Research on the development of smart ecosystems using artificial intelligence (AI) and large language models (LLMs):

1. Research in the field of intelligent systems and devices: A, B, C, D, E, F, 2, 5, 6, 13, 22, 23

2. Research in the fields of security, forensics, and the detection of disinformation and fake news: 7, 12, 18, 21

3. Application of large language models for code generation in modern software engineering: 14

4. Application of artificial intelligence in the development of autonomous vehicles and smart urban parking systems: 15, 16

5. Application of deep generative models (including GANs – Generative Adversarial Networks, VAEs – Variational Autoencoders, diffusion models, and transformers) for detection of forged images (Deepfakes): 17, 19

6. Architectures and infrastructures for Big Data processing, the Internet of Things (IoT), and smart ecosystems: H

C. Research and development of new models regarding financial and pricing factors with direct practical application:

1. Methods and tools for analyzing and forecasting real estate prices using machine learning: 9

2. Methods and tools for analyzing and forecasting cryptocurrency markets using machine learning: 20

I have not detected any plagiarism in the scientific works submitted for review under the current procedure.

5. Synthesized assessment of the candidate's key scientific and applied-scientific contribution

The candidate's scientific works and developments are distinctly multidisciplinary in nature and focus on critical, rapidly evolving areas of modern information technology: artificial intelligence, speech and image processing, intelligent environments, big data processing, and machine learning in the financial sector.

The candidate's scientific contributions can be classified as follows:

Modeling of emotional content and digital assets: New theoretical methods and algorithmic approaches have been developed for data detection, analysis, and filtering

based on emotional indicators in speech and images, with applications in the digitization and preservation of cultural-historical and scientific heritage.

Generative architectures and security: New methodological frameworks have been defined for analyzing deep generative models (GANs, VAEs, diffusion models, and transformers), aimed at identifying manipulated images (deepfakes), disinformation, and fake news.

AI-driven econometric modeling: New theoretical models based on machine learning have been created to analyze pricing factors and track complex dependencies in highly dynamic markets (real estate and cryptocurrencies). The candidate's scientific and applied contributions can be classified as follows:

Smart ecosystems and IoT: Architectures for the Internet of Things (IoT) and Big Data processing have been designed and implemented to support the operation of smart environments and specialized smart devices.

Application of Large Language Models (LLMs): Applied algorithms for the automated generation of software code using LLMs have been developed, optimizing processes in modern software engineering.

Autonomous systems and urban mobility: AI-based practical systems have been implemented for the control of autonomous vehicles and for intelligent planning and parking within urban environments.

Analytical tools for the financial sector: Applied software tools for the accurate forecasting of price movements in cryptocurrencies and real estate have been created, ready for direct practical integration.

The candidate's scientific and applied results are highly relevant, align with current global trends in artificial intelligence and computer science, and possess significant potential for practical implementation across the industrial, security, public, and financial sectors.

6. Key critical remarks and recommendations

I would like to recommend that Assoc. Prof. Alexander Iliev publish a monograph based on his research work in the future and also serve as a supervisor for doctoral students.

7. Personal impressions of the candidate

I do not know Assoc. Prof. Dr. Alexander Iliev personally, but I am impressed by his body of work. We have no joint publications.

8. Conclusion

Based on the candidate's significant scientific contributions, I believe that all requirements and criteria set forth in the Law on the Development of Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for its implementation, and the specific criteria of IMI-BAS have been met. I therefore unreservedly support the appointment of Assoc. Prof. Dr. Alexander Iliev to the academic position of “Professor” in the professional field of 4.6 Informatics and Computer Science.

I propose that the esteemed Scientific Jury support the candidate and vote to recommend to the Scientific Council of IMI-BAS the appointment of Assoc. Prof. Dr. Alexander Iliev to the academic position of “Professor” in the professional field of 4.6 Informatics and Computer Science (Cognitive Models and Artificial Intelligence for Multimodal Data) for the needs of IMI-BAS.

05.10.2026 г.

Sofia

Signature:

/Prof. Ivan Garvanov, D.Sc., Eng./