STATEMENT

considering the procedure for

„Associate Professor“

in the field of 5. Engineering sciences,

professional field 5.1. Mechanical Engineering,

scientific specialty "Robots and Manipulators"

(Applications of service robotics and control systems with elements of artificial intelligence), announced in the "State Gazette", issue 61/ 29.07.2025, page 214 for the needs of the "RiMIS" section, at the Institute of Robotics - BAS.

The statement was prepared by: Prof. Dr. Ivan Nikolov Chavdarov, Sofia University, 4.6 Informatics and Computer Science and 5.1. Mechanical Engineering / Robotics, in my capacity as a member of the scientific jury for the competition in accordance with Order No. 117/29.09.2025 of the Director of the Institute of Robotics - BAS.

The only candidate in the procedure who submitted documents is:
Ch. assistant dr. Eng. Georgi Tsvetanov Angelov, Institute of Robotics - Bulgarian Academy of Sciences, "RiMIS" section.

I. GENERAL DESCRIPTION OF THE SUBMITTED DOCUMENTS

1. Application information

All the documents presented by the applicant are in accordance with the requirement ofrequired laws in republic of Bulgaria, namely: ЗРАСРБ, ППЗРАСРБ as well as, the Regulations on the conditions and procedure for acquiring scientific degrees and occupying academic positions (ПУРПНСЗАДСУ) at the Institute of Robotics - BAS.

To participate in the competition, the candidate Georgi Angelov has submitted a list of a total of 24 titles, including 24 publications in Bulgarian and foreign scientific journals and scientific forums, 0 studies, 1 monograph, 0 books, 0 certificates and patents, 0 textbooks and teaching aids. 0 other documents (in the form of official notes and certificates from an employer, project manager, funding organization or project assignor, references and reviews, awards and other appropriate

evidence) supporting the candidate's achievements have also been submitted. The total number of points according to the Regulations for the implementation of the law on the development of the academic staff in the Republic of Bulgaria is 100 for indicator B3 (out of 100 required), 235 for indicator D7 and 8 (out of 200 required) and 70 for indicator D12 (out of 50 required), which satisfies the requirements for the position held.

Notes and comments on the documents.

All submitted documents meet the requirements and regulations of the Institute of Robotics - Bulgarian Academy of Sciences.

2. Candidate details

Georgi Angelov graduated from the Sofia University "St. Kliment Ohridski" in 2001 with a master's degree in "Medical Physics" and "Integrated and Discrete Optoelectronics in Optical Communications" in 2001. In the period 2001-2017, he worked in private companies with engineering activities in the field of information and communication technologies, where he held management positions. From 2017 to now, he has been working as an assistant and chief assistant at the Institute of Robotics at the Bulgarian Academy of Sciences (IR-BAS). In 2018, he defended his doctoral dissertation in the Scientific specialty: 5 "Technical Sciences", 5.2 "Electrical Engineering, Electronics, Automation" (Robots and Manipulators) on the topic: "Research, modeling and implementation of software systems for control and communication of service and mobile robots in the conditions of a TCP/IP network environment" at the IR-BAS.

3. General characteristics of the candidate's scientific works and achievements

The scientific and applied work and results of Georgi Angelov can be divided into three main areas:

– Design of an automated, computer-controlled electrochemical impedance spectrometer, which finds application in the study of bilayer phospholipid membranes - a model of biological cell membranes. These works are mainly of an applied nature;

- Design and creation of a series of educational robots Bebot (from Beginner Bot) and Maxibot, with applications in the field of STEM education and social pedagogy;

- Participation in the design, development and construction of the transport and logistics robot Spartacus.

The results of the candidate's activities have been presented at international scientific forums in the country and abroad. Five articles have been published in scientific journals and 19 in conference proceedings. Ten of the submitted papers have been reviewed and referenced in the world databases (Scopus) and the remaining 14 have been published in non-refereed journals with scientific review. The papers meet the minimum national requirements (under Art. 2b, para. 2 and 3 of the Law on the Protection of Scientific and Technological Resources of the Republic of Bulgaria) and, respectively, the additional requirements of the Institute of Robotics at the Bulgarian Academy of Sciences for holding the academic position of "associate professor" in the scientific field and professional direction of the competition. The scientific papers submitted by the candidate do not repeat those from the previous procedures for doctor and chief assistant. There is no plagiarism proven in accordance with the statutory procedure in the scientific papers submitted for the competition.

4. Characteristics and evaluation of the teaching activities of the candidate

No documents regarding the candidate's teaching activities have been submitted.

5. Content analysis of the scientific and applied achievements of the candidate, contained in the presented materials

A model has been implemented and a software system for controlling service robots has been created, developed for the needs of the educational process. A user interface for controlling service robots with an integrated web-based programming editor has been created, which is consistent with the specific requirements of the educational process. This development creates prerequisites for integrating robots into curricula in robotics, informatics and electronics.

Software components for a cyber-physical system have been created, including service robots that work together with teachers and students in a networked environment. This solution introduces a new model of learning – remote, interactive and based on real robots. The system allows for flexibility.

A conceptual model of a charging system for the production and storage of green hydrogen, which is applicable to powering mobile robots, has been created. This solution is aimed at one of the most important tasks of modern robotics - sustainable energy supply.

A methodology for implementing a voice-controlled user interface using elements of artificial intelligence has been created. For the purpose of testing, a demonstration interface based on the created methodology has been implemented. The interface is oriented towards natural human-

machine interaction, which is especially important for service robotics. Using voice commands, robot control becomes more natural, accessible and effective.

The candidate participated in the creation of a new state educational standard and a curriculum for a new specialty "Robot Programmer" intended for secondary schools. I believe this is an important applied contribution.

The first group of articles has elements of scientific and applied contributions related to the enrichment of existing knowledge. The second and third groups find the application of scientific achievements in practice.

The works are presented in articles published in journals and at international conferences, there are 24 in total. Their distribution by scientific metrics is as follows: Q3 – 3 articles; SJR without quartile – 1; Refereed and indexed without SJR/IF – 5. One article is independent and the remaining works are co-authored with other authors, assuming that the contribution of the authors is distributed more equally. A list of 7 citations is presented, with all citing articles being in journals referenced in SCOPUS or Web of Science. These indicators confirm the high value of the presented scientific works.

6. Critical notes and recommendations

I recommend that the candidate's future work increase scientific and applied scientific activity. The results obtained should be supported by in-depth theoretical and experimental research that should be published in refereed journals indexed in international databases such as Scopus and Web of Science.

7. Personal impressions about the candidate

I have known the candidate Georgi Angelov since 2017, and I have excellent impressions of his professional work.

8. Conclusions about the application

Having familiarized myself with the materials and scientific papers presented in the competition and based on the analysis of their significance and the scientific and applied scientific contributions contained therein, I **confirm** that the scientific achievements meet the requirements of the Law on the Protection of Scientific and Applied Scientific Research, its Regulations for its

implementation and the relevant Regulations of the Institute of Robotics - BAS for the candidate to occupy the academic position of "associate professor" in the scientific field and professional field of the competition. In particular, the candidate meets the minimum national requirements in the professional field and no plagiarism has been established in the scientific papers presented in the competition.

I give my **positive** assessment of the application.

II. GENERAL CONCLUSIONS

Based on the above, I recommend that the scientific jury propose to the competent body for the selection of the scientific council of the Institute of Robotics - BAS to elect Senior Assistant Professor Dr. Eng. Georgi Tsvetanov Angelov to occupy the academic position of "Associate Professor" in the professional field 5.1. Mechanical Engineering, scientific specialty "Robots and Manipulators" (Applications of service robotics and control systems with elements of artificial intelligence).

Sofia, 29.10. 2025 г. Written by: Prof. Dr. Ivan Nikolov Chavdarov