

OPINION

On the competition for occupying the academic position of “Associate Professor” in the professional field **5.1. Mechanical Engineering**, scientific specialty “**Robots and Manipulators**” (**Electronic Control and Power Supply Systems in Service Robotics**), announced in the *State Gazette* No. 61 of 29.07.2025, p. 214, for the needs of the **RIMIS Section, NLRH Laboratory**,

with candidate: **Dr. Yasen Kirov Paunski, Chief Assistant Professor**

Member of the Scientific Jury: **Eng. August Yordanov Ivanov, Professor, PhD**

Grounds for preparation of the opinion: Order No. 117/29.09.2025 of the Director of the Institute for the appointment of a scientific jury and Decision of the Scientific Jury, Protocol No. 1 / 02.10.2025 from the first meeting of the scientific jury.

1. General characteristics of the candidate's research, applied scientific, and pedagogical activity

From the submitted documents and materials it is evident that the candidate holds a Master's degree in **Engineering Physics** (2001) from Sofia University “St. Kliment Ohridski.” He obtained the **educational and scientific degree “Doctor”** in 2018 at the Institute of Robotics, BAS. From 2017 to 2019 he worked as an Assistant at the Institute, and since 2019 he has held the position of **Chief Assistant Professor**. He is **Head of the “Electronics” Division** within the **National Laboratory of Robotics and Artificial Intelligence** at the Institute of Robotics “St. Apostle and Evangelist Matthew,” Bulgarian Academy of Sciences. His scientific interests are in the field of **service robotics**, **electronic control systems**, and **power supply systems in service robotics**. Dr. Paunski has participated in the implementation of the **CySPEED project**, funded by the European Commission under the **Marie Curie Programme No. 77720** (2.7 million BGN). He is actively involved in the **Center of Competence QUASAR No. BG05M2OP001-1.002-0006** (13.5 million BGN), as well as in its second phase. He is a **leading researcher** in three projects: **FNI-KP-06-H57/8** (170 thousand BGN); **FNI-KP-06-M47/6**; and **BG-RRP-2.017-0011-C01** under the Recovery and Resilience Plan – contract No. 44/05.12.2024 (444 thousand BGN). Between 2005 and 2015, he took part in ten national research projects as a **developer and researcher** (CV reference). He has been awarded a **Gold Medal** from the **International Autumn Fair – 2008**, Plovdiv, for the **series of IP surveillance cameras “PIXEYE.”**

2. Quantitative characteristics of the candidate's scientific output

Dr. Yasen Paunski participates in the competition for “Associate Professor” with the **monograph** “*Power Supply and Drive Systems for Mobile Robots*”, Robotic Publishing, 2025, ISBN 978-619-93266-1-9, and **nine scientific publications** in journals and proceedings indexed in internationally recognized databases. Of these, one publication is single-authored, two are co-authored (with the candidate as first author), and six are written in scientific collectives. Two papers are published in *Comptes Rendus de l'Académie Bulgare des Sciences*; three were presented at international conferences in Bulgaria; three – at international conferences in Spain, Croatia, and Turkey; and one in the journal *Biology & Life Sciences* (IF = 2.5). In addition, **fourteen papers** were presented in non-indexed but peer-reviewed journals or edited collective volumes. Three of these have two authors (in two, the candidate is leading author; in one, first author). Eleven are co-authored within larger collectives, including two conference papers presented in Spain. Abstracts in both Bulgarian and English are provided for all publications.

Citations: Seven citations of four papers are presented – two papers cited once, two cited twice, and one cited three times. Each citing article is indexed in *Scopus*. There is no doubt that the presented works are the candidate's own contributions. They are visible at the national level and recognized by the international scientific community. Nine of the listed publications and all cited references are indexed in *Scopus*. The publication and scientific activities of **Chief Assist. Prof. Dr. Yassen Kirov Paunski** fully meet, and in indicators **G** and **D** exceed, the **minimum national requirements** for the academic position of *Associate Professor* in the professional field 5.1 Mechanical Engineering, scientific specialty *Robots and Manipulators (Electronic Control and Power Supply Systems in Service Robotics)* at the Institute of Robotics, BAS.

3. Main scientific and applied scientific contributions

Chief Assist. Prof. Dr. Yassen Paunski claims **one scientific** and **three applied scientific contributions**:

- **Creation of a new educational specialty in robotics.** A state educational standard (SES), curriculum, study plan, and examination program have been developed for the first Bulgarian specialty "Robot Programmer." (Related publications: SES, curriculum, and study plans "Robot Programmer," examination program at the Ministry of Education, Monograph.)
- **Design and implementation of an integrated management and charging system for lithium-ion batteries in mobile service robots.** The system allows real-time monitoring of robot energy consumption and optimization of efficiency. (Related publications: G7.6, G7.8, G8.3, G8.13, Monograph.)
- **Development of a power supply system for service robots based on hydrogen fuel cells.** It offers an innovative solution to one of robotics' key challenges – sustainable and reliable energy supply. (Related publications: G7.1, G7.2, Monograph.)
- **Development of a low-latency control system for mobile service robots using next-generation mobile and wireless (4G / 5G, Wi-Fi) networks.** A method has been created for evaluating the communication channel speed and latency within the Robot Operating System (ROS). (Related publications: G7.3, G8.4, G8.5, G8.6.)

I accept the substantive validity of the above-stated contributions and consider them sufficient in both quantity and content for the academic position of *Associate Professor*.

4. Extent to which the presented works and contributions are personally authored by the candidate

Of the **twenty-four works** submitted for this competition, **two are single-authored** (Nos. G7.1 and the Monograph), **five list the candidate as first author** (Nos. G7.6, G7.9, G8.3, G8.6, G8.13), and the remainder are in co-authorship with equal contribution.

This provides sufficient grounds to state that the works and contributions presented in the competition are **personally authored** by the candidate.

The requirements of **NACID** regarding fulfillment of the **minimum national criteria** under Art. 2b, paras. 2 and 3, as well as those under Art. 2b, para. 5 of the **Act on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB)**, as defined in its Implementing Regulations, are fully satisfied for the academic position of *Associate Professor* in professional field 5.1 Mechanical Engineering.

5. Personal impressions

I have known **Chief Assist. Prof. Dr. Yassen Paunski** since his appointment at the Institute of Robotics – BAS and through our joint work in the **Center of Competence QUASAR**.

I am convinced that, as a scientist and specialist, he possesses all necessary qualities. Upon successful completion of this competition, the **Institute of Robotics “St. Apostle and Evangelist Matthew,” BAS – Sofia**, will gain a highly qualified researcher and capable organizer.

I have **no joint scientific studies or publications** with Dr. Paunski. No claims or data from third parties regarding authorship, contributions, results, or other forms of intellectual property have been brought to my attention concerning the materials submitted in this competition.

6. Critical notes and recommendations

No substantial shortcomings were found in the candidate's works, and I have no remarks regarding the submitted materials.

I would recommend that the candidate, in reflecting future research, give **priority to high-ranking publishers** and take **active part in doctoral training** at the Institute of Robotics – BAS.

Conclusion

The existence of a monograph, the presented publications and citations, the scientific and applied contributions, the research, applied, and organizational activities, and the broad dissemination of results provide me with full conviction to **propose Chief Assist. Prof. Dr. Yassen Kirov Paunski** for appointment to the **academic position of “Associate Professor”** in the field of higher education 5. *Technical Sciences*, professional field 5.1. *Mechanical Engineering*, scientific specialty “*Robots and Manipulators*” (*Applications of Service Robotics and Control Systems with Elements of Artificial Intelligence*), for the needs of the **Institute of Robotics, BAS**.

Date: 29 October 2025

Signature:

(Prof. August Ivanov, PhD)

