



БЪЛГАРСКА АКАДЕМИЯ НА НАУКИТЕ

ИНСТИТУТ ПО ИНФОРМАЦИОННИ И
КОМУНИКАЦИОННИ ТЕХНОЛОГИИ

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OPPINION



of Assoc. Prof. Dr. Velizar Shalamanov,
from the Institute of Information and Communications technologies - BAS
in the competition for the academic position "Associate Professor" in the field of higher
education 5 "Technical Sciences",
professional field 5.2. "Electrical Engineering, Electronics and Automation",
announced in State Gazette 81 from 11.10.2022 for the needs of the Information Technologies
in Security Department
at the Institute of Information and Communication Technologies
at the Bulgarian Academy of Sciences
with a single candidate
Dr. George Ivanov Sharkov,
in the position of Chief Assistant Professor in
Plovdiv University "Paisii Hilendarski",
FMI (Faculty of Mathematics and Informatics)
ФМИ (Факултет по математика и информатика)

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

In the competition for the academic position of "Associated Professor" at IICT-BAS, there is only one candidate - Dr. George Ivanov Sharkov. His list of publications consists of 38 titles, which include: reports and articles presented at scientific conferences at home and abroad - 36, chapters of a collective monograph - 2. Five of the publications are independent, and the rest are co-authored - a total of 33 publications. Of the presented publications, 36 are in English, and 2 are in Bulgarian. Co-authored publications are the result of scientific and applied projects / studies with the participation of Dr. Sharkov.

Dr. George Sharkov demonstrates competence and qualities as a researcher in the field of computer science, cyber security (approaches and models for building cyber terrains, approaches and models for designing and building secure software systems), information systems (designing and building software systems).

The works that are submitted for review are outside of those used for the awarding of the educational and scientific degree "Doctor".

The candidate has participated in research activities on theoretical models and concepts for the study of security, resilience and risks of complex systems of systems.

The candidate's scientific development demonstrates a consistent accumulation of knowledge and skills in research and implementation of solutions in the field of complex interconnected systems and simulation cyber-ranges of a hybrid type, development of cyber-terrains.

Dr. Sharkov presents his participation in 4 international research and educational projects.

The self-assessment of compliance with the minimum requirements of the announced competition, provided by the candidate, proves that the minimum national requirements are met, according to the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), the Rules for its Implementation and the Rules for the Specific Conditions for Awarding Scientific Degrees and for occupying academic positions at IICT-BAS, updated on 26.10.2022.

2. Evaluation of the candidate's special training and activity

Dr. Sharkov obtained the educational and scientific degree "Doctor" (candidate of mathematical sciences) in 1993, with the defense of a dissertation work "Presentation and interpretation of knowledge from the field of membrane biophysics" (Diploma No/date: 28911 / 05.05. 1993, approved by Protocol No/date: 10-PVAK/ 25.04.1993).

The candidate has been engaged in research, teaching and development career since 2013 at Plovdiv University "Paisiy Hilendarski" - FMI (Faculty of Mathematics and Informatics), where Dr. Sharkov is currently (2023) in the position of " Chief Assistant Professor" at Plovdiv University "Paisiy Hilendarski" - FMI (Faculty of Mathematics and Informatics).

I can practically say that I have known Dr. Sharkov since 1977, as a student at Mathematical School in Pleven, and since 2014 from working together with the candidate in the Ministry of Defense and on projects, which gives me a reason to confirm his knowledge and experience in

the field of communications and information technology and systems, especially in the field of security/resilience, cyber-defense and artificial intelligence. In the period 2014-2021, Dr. Sharkov, as an advisor to the Minister of Defense on cyber resilience, made a leading contribution to the development of a concept for cyber resilience in defense and a National Cyber Security Strategy.

3. Main scientific results and contributions

The candidate's work is divided into the following areas:

- Theoretical models and concepts for the study of security, resilience and risks of complex systems of systems - G04, G07, G09, G10, G12, G15, G16, G19, B01, B04, B05.
- Conceptual models for structuring knowledge and object-oriented models in the so-called "cyber-terrain" - B01, B02, B03, B04, B05, B06, B07, G03, G04, G06, G08, G17.
- Development and implementation of models and standards for design and implementation of reliable IT / software systems, including development of standards for "security by design" and "resilience by design" - B07, B08, G01, G05, G06, G08, G18, G11, G13, G14, G20, G21, G22, G23.

The scientific and scientific-applied contributions in the works of Dr. George Sharkov fall under professional direction 5.2. "Electrical Engineering, Electronics and Automation" and can generally be defined as: systematization and generalization of existing knowledge, methods and approaches for the study of systems of systems and cyber-simulation environments.

The author's participation is documented and is in full compliance with the research activity of the institute.

From the analysis of the presented documents, I conclude that Dr. Sharkov's research and published results are up-to-date and appreciated by a wide range of researchers, which is proven by the 22 citations, of which 19 are in Scopus and Web of science and 3 in collective volumes with peer review.

4. Evaluation of the significance of the contributions for science and practice

Characteristic of the scientific and scientific-applied contributions in the activity of Dr. George Ivanov Sharkov is their topicality, practical applicability and comprehensiveness. The results of the candidate's work have been used in a number of projects, in his educational activities and in his practical work as an advisor and national coordinator on cyber security.

5. Critical notes on the works presented

I have no critical notes and comments on the scientific works provided to me.

6. Conclusions

On the basis of the above statement and taking into account the self-assessment of the candidate, Dr. George Ivanov Sharkov, I accept that the requirements of the ZRASRB, the Regulations for its implementation and the Regulations for the specific conditions for awarding scientific degrees and for holding academic positions in IICT-BAN.

On this basis, I confidently give my positive assessment and propose to the members of the esteemed scientific jury to vote for awarding Dr. Georgi Ivanov Sharkov the academic position of "Associated Professor" in the field of higher education 5. "Technical sciences", professional direction 5.2. "Automated information processing and management systems" for the needs of the "Information Technologies in Security" section at the Institute of Information and Communications Technologies at the Bulgarian Academy of Sciences.

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