

OPINION

in competition for appointment on academic position “**Professor**“
at Professional field 5.3. „Communication and computer technology“
Speciality „Computer systems, complexes and networks“

announced in Government Gazette: № 4 / 13.01.2023
with candidate **Assoc. Prof. Milena Nikolova Mileva – Karova, PhD**

Member of scientific jury Assoc. Prof. Ivelina Stefanova Balabanova, PhD
Technical University of Gabrovo

1. General characteristics of the scientific research and applied research activity of the candidate.

The candidate Assoc. Prof. Milena Nikolova Mileva – Karova, PhD is distinguished by a rich wide-spectrum scientific research and scientific-applied activity, which is confirmed by the many times exceeded scientometric indicators - group "B" with 230 points (min. 100 points), "G" - 288.2 points with a minimum of 200 points, "D" with a score of 200 points (min. 100 points), "E" with a score of 315 points with a minimum of 150 points. In the competition for the academic position "Professor" he participated with 42 scientific papers and 2 teaching aids, of which 34 in English and 8 in Bulgarian. The total number of publications in indexed world-famous databases - Scopus, is 12, 10 of which are equated to Habilitation work of high scientific value. In terms of non-refereed works: 12 are reports at International Scientific Conferences, while 18 are published in scientific journals. The participation of Assoc. Prof. Milena Nikolova Mileva - Karova in a number of international and national scientific and technical projects is noteworthy. In the period 2014 - 2022, participation was carried out in 7 national and 1 international and 1 international project. Under the leadership of the candidate, 7 national projects have been implemented. The candidate is a reviewer of projects at NAAA and the international journal Advance in Science, Technology and Engineering Systems". He holds memberships in the "Territorial Organization of Science and Technology Unions Varna", as well as in the Technical and Program Committees of a number of international conferences in the country and abroad. Distinguished is the high share of citations of scientific works of Assoc. Prof. Milena Nikolova Mileva – Karova, PhD. According to the latest data from 2016 - 2023 on Google Scholar and Scopus, respectively 87 and 25 citations of 16 refereed publications with scientometric indicator h-index = 5 and h-index = 4. Regarding participation in scientific juries, I have information on 4 on dissertation works and 3 in connection with habilitation materials for the academic position "Associative Professor" and "Professor".

2. Assessment of the pedagogical preparation and activity of the candidate.

Areas of the main and pedagogical activities related to participation in the competition are "Objectoriented programming", "Parallel algorithms and systems", "Cryptography and data protection", "Artificial intelligence", "Genetic algorithms", "Interfaces in virtual 3D reality". The candidate has developed numerous training programs in the disciplines "Basic Programming", "Software Management projects", "Human-computer interaction", "Applied cryptography", "Fundamentals of artificial intelligence", etc. He is fluent in English, Russian and French at an excellent level. The teaching activity of the candidate is characterized by a high teaching load as in in the period 2022 - 2023, there is a total of 1204 auditory and non-auditory employment with a total of 1112 hours. Associate Professor Milena Nikolova Mileva - Karova is distinguished by her extremely active activity and work with students and doctoral students. At the moment, there are two successfully defended and two PhD students in the process of training. She was the supervisor of 27 graduates in EQD "Bachelor"

and "Master" from the specialty KST, SIT, SII and KMK. Assoc. Prof. Milena Nikolova Mileva - Karova is the scientific leader of the Student Club "Creative Code" and the Center for Retraining and Training at the Technical University - Varna, whose main appearances are related to participation in internal projects, active cooperation with companies in the IT sphere, chairmanship of State examination commissions in connection with awarding of the PQD of pedagogical specialists in secondary education. During her career in the period 2014 - 2022, she realized 19 teaching mobilities with the aim of teaching and increasing professional qualifications in Iceland, Spain, Hungary, Portugal, France, etc. All this gives grounds Assoc. Prof. Milena Nikolova Mileva - Karova to be qualified as a highly erudite and prepared specialist.

3. Main scientific and scientific-applied contributions

I accept the formulated scientific, scientific and applied contributions in the relevant fields. The summarized ones judgments concern a variety of disparate fields, including:

- mechatronics, robotics and transportation;
- analysis and classification of text content in different formats;
- information manipulation and encryption techniques;
- biometric iris diagnostics, image processing techniques;
- risk management and digitization when operating with internal information and customer service in the public sector (electronic document processing);
- ensuring the development of projects, etc.

Exceptionally good impression does the a priori in-depth knowledge and application of the empirically proven advantages and methods of Machine Learning, Artificial Neural Networks and Genetic Algorithms. Particularly relevant highly affected affected integration integration of the concept of "Artificial Intelligence" in the staged synthesis activities of innovative methods and approaches in the specified directions.

4. Significance of the candidate's contributions in the science and the practice.

The synthesized ones conceptual algorithms, tools and systems will significantly support the work of data security experts and analysts in implementing, modifying and creating new approaches to information encryption. The essential advantages are expressed in the potential to reduce the risk of illegal and malicious access to specified and classified information by employees in business companies, administrative, municipal and state centers and institutions. A common characteristic is the possibility of reducing the likelihood of cyberattacks and cybercrimes and ensuring control over qualitative electronic document management. This will significantly contribute to the increase in the share of digitization in the provision of services in banking, healthcare, the justice system, state administration and all business areas. Another essential aspect is to ensure the activities of administrators and developers when editing and compiling program code when creating ICT - based applications and platforms with remote access under varying dynamics in purpose, scope and managed resources.

5. Critical remarks and recommendations.

On this stage the materials provided to me for my materials for the preparation of an Opinion. I can recommend Assoc. Prof. Milena Nikolova Mileva – Karova, PhD to continue her research activities in national and international referenced databases and publications with an Impact Factor, giving a wider response to the scientific community regarding the pioneering activity of the results achieved in her work. Last but not least, I can add the expansion of participation in new National and International projects under various Operational programs and issuance of patents.

CONCLUSION

I express my highly positive impressions and assessment regarding presented results, reflecting main moments of the applicant's activity. Based on familiarization with the presented scientific works, their significance, the scientific, scientific-applied and applied contributions contained in them, I find it reasonable **to propose Assoc. Prof. Milena Nikolova Mileva Karova, PhD** to appointment on academic position "**Professor**":

in professional field **5.3. „Communication and computer technology“**,
at speciality **„Computer systems, complexes and networks“**,
subject **„Basic Programming“**.

Date:

09.06.2023

MEMBER:

/ Assoc. Prof. ~~Ivelina~~ Balabanova, PhD /

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