

# Opinion

## On concourse

for achieving the academic position of "Associate Professor", professional field 5.3.  
"Communication and computer technique" for the section "Communication  
systems and services", announced in the State Gazette no. 68 from 31.07. 2020

**Member of the scientific Jury:** Assoc. Prof. PhD. Tatyana Ivanova Ivanova,  
Lecturer at the Technical University - Sofia, College of Energy and Electronics, Botevgrad

**Candidate:** Chief Assistant Prof. Eng. PhD Svetozar Valeriev Ilchev

The only candidate in the concourse is Dr. Svetozar Valeriev Ilchev, who obtained his bachelor's degree in information technology in the Technical University of Sofia and a master's degree in the Technical University of Karlsruhe (now the Karlsruhe Institute of Technology), Germany. He worked at the IBM Development Laboratory, Böblingen, Germany, at the Karlsruhe Institute of Technology and as an assistant and chief. Assistant at the Institute of Information and Communication Technologies, Bulgarian Academy of Sciences. He defended his dissertation for the educational and scientific degree "Doctor" on "Modular methods for embedding digital information in images to improve the security of Internet-based communication platforms" in 2014.

### 1. General characteristics of the candidate's research and applied activity

Dr. Ilchev has presented a complete set of necessary documents, which characterize in detail his overall research and organizational activities. The list of Dr. Ilchev's scientific works includes 23 scientific publications, one monograph, one book, one patent and three useful models. 15 of his scientific publications are articles published in scientific journals, indexed in Scopus or Web of Science. 12 of these publications have an SJR rank (impact factor). 8 other publications are peer-reviewed and published in journals or conference proceedings, indexed in other important scientific libraries such as Google Scholar, Research Gate, Pro Quest. The candidate is the first author of 15 of the publications, which shows his leading contribution to the conduct of research and presentation of their results. The importance of his publications is evidenced by 18 presented citations, 14 of which came from sources indexed by Scopus. Dr. Ilchev has also participated in 2 national and 2 international research projects.

### 2. General scientific, scientific-applied and applied contributions

The candidate has classified his contributions in the following main directions: in the area of Internet of Things (IoT) in industry, Steganography and digital watermarking and Neural networks. 26 scientific and applied contributions are listed, the most significant of them are:

- The developed new IoT platform HybridNET has been Developed, which uses several types of wired and wireless communication for controlling devices and collecting sensory data for the environment;

- A new approach for conceptual modeling of IoT ecosystems, allowing the creation of models that integrate IoT devices and activities has been proposed;
- An original mobile system for remote monitoring of the environment is developed and protected by a valid patent;
- A new method for predicting climatic parameters, e.g. temperature, humidity and atmospheric pressure level in urban areas based on a combination of an extended Kalman filter and an algorithm for "extreme machine learning", has been proposed.
- The developed model of wireless sensor networks with low power for estimating the energy consumption of wireless sensor nodes and the method for modeling and simulation of the parallel integration of sensor data in wireless sensor networks are presented;
- The developed thermoelectric cooling driver for laser projection systems and ultra-compact and highly efficient laser driver designed for use in positioning laser devices for industrial machines have been developed.

### 3. Significance of scientific works and contributions

The importance of candidate's scientific papers is shown by the higher percentage of publications indexed in Scopus (over 65%, 80% of which have an impact factor) and citations from sources indexed in Scopus (14 are citation sources, indexed in Scopus of total 18 presented citations), as well as the fact that there are registered patents related to some of contributions.

### 4. Opinions and recommendations

The candidate has extensive experience and significant achievements as a researcher and participant in national and international research projects. I recommend more accurate classification of the contributions as scientific, scientific-applied and applied.

### Conclusion

From the presented summarized data on important criteria in tables it can be seen that the candidate meets all the requirements for holding the academic position of "Associate Professor". Moreover, on most of the criteria present materials show their significant over fulfillment. Therefore, I strongly recommend to the Distinguished Scientific Jury of IICT-BAS to elect Chief Assistant Professor PhD Svetozar Ilchev for the academic position of "Associate Professor" professional field 5.3. "Communication and computer technique".

Date: 20.10.20

Member of the scientific Jury:

