

## STATEMENT

For the competition for occupation of the academic position "Associate Professor" in the professional field 5.3 Communication and computer equipment, announced in SN no. 68 / 31.07.2020 for the needs of the department "Communication systems and services" of the Institute of Information and Communication Technologies, Bulgarian Academy of Sciences (IICT-BAS)

Candidate: Dr. Eng. Svetozar Valeriev Ilchev

Member of the Scientific Jury: Prof. DSc. Eng. Elena Shoikova

### 1. Biographical data of the candidate

The only candidate in the competition is Professor Dr. Eng. Svetozar Ilchev. He was born on June 10, 1984. In 2007 graduated with honors, Bachelor's degree in Information Technology, Engineering, Economics, and in 2009 Master's degree in Information Technology, Engineering, Law at the Faculty of German Engineering Education and Industrial Management at the Technical University - Sofia. In 2014 he obtained the educational and scientific degree "Doctor" in Computer Systems, Complexes and Networks from the Institute of Information and Communication Technologies, Bulgarian Academy of Sciences. He worked as an assistant at the Karlsruhe Institute of Technology, Germany (2009-2012) and as an assistant at the IICT-BAS from 2014 until now.

### 2. General description of the submitted documents

In the competition Dr. Eng. Svetozar Ilchev participated with a total of 25 scientific papers, 1 patent and 3 utility models. Information on 18 citations and participation in 4 national and international projects, as well as all other normative documents are presented.

The review of the documents submitted by the candidate shows that the basic requirements of the Academic Staff Development Act in the Republic of Bulgaria and the Regulations for its implementation, the Regulations for the conditions and procedure for acquiring scientific degrees and for holding academic positions in IICT - BAS, as well as the specific requirements for the minimum number of points by indicators for the academic position "Associate Professor" at IICT-BAS are fulfilled.

### 3. Evaluation of the and scientific- research and applied activity of the candidate

The and scientific-research and applied activity of the candidate is focused entirely in the field of the present competition and in particular related to the topics: Internet of Things in Industry, Steganography and Digital Marking and Neural Networks.

The scientific publications are divided into the following groups:

- Publications that correspond to a group of indicators B: 12 articles in collections and editions that are referenced and indexed in world-famous databases, of which 10 are with SJR and all are visible in Scopus and WoS.
- Publications that correspond to a group of indicators D: 13 scientific publications - 1 published monograph; 1 published book on the basis of a defended dissertation for the award of educational and scientific degree "Doctor"; 3 scientific publications in collections and editions that are referenced and indexed in world-renowned databases of scientific information, of which 2 with SJR and all visible in Scopus and WoS; 8 Scientific publications in non-refereed collections and editions with scientific review or in edited collective volumes.

Information on citations of the candidate's works is presented, which shows that the candidate has 14 citations in refereed scientific collections and editions, and indexed in world-famous databases with scientific information, or in monographs and collective volumes and 4 citations in non-refereed scientific collections and editions with scientific review. It is necessary to emphasize that the applicant submits 1

patent and 3 utility models. The participation of the candidate in four national and international projects also deserves a positive assessment. In addition to the above, it should be noted that out of all 25 scientific publications, 24 are written in English and 1 in Bulgarian, in one publication the candidate is an independent author, and in the others he participates in co-authorship, of which in 16 papers he is in the first place.

The indicated quantitative and qualitative indicators for the educational and professional achievements of the candidate are an indication that he has developed systematically, thoroughly and successfully so far in his professional life.

#### 4. Main scientific-research and applied contributions

I accept the contributions defined by the candidate in the attached reference. The main achievements in the scientific works of the candidate, which are presented in this competition, can be summarized as follows:

- The contributions in the field of the industrial Internet of Things are reflected in publications [1-13], [18], the current patent [26] and the current utility models [27-29]. Methods and solutions for designing systems for remote monitoring and control are proposed; Research and modeling of sensor networks; Management of laser systems for industrial and multimedia applications.
- Contributions in the field of Steganography and Digital Marking are presented in scientific publications [15-17] and [19-22]. New services and innovative technology for steganography and digital marking have been developed, which improve the security when exchanging multimedia files on the Internet.
- Contributions in the field of Neural Networks are presented in scientific publications [14, 23, 24 and 25]. An information model of a biological neuron, a classification method based on one internal and one external hypersurface, an original method for pre-processing and classification of objects using a high-recognition neural network, an original method for pre-processing images have been developed of single objects, through which a partially invariant description of the object is obtained, based on a radial profile of its contour.

#### 5. Significance of contributions to science and practice

The relevance and importance of the research and development of the candidate in the field of industrial Internet of Things, innovative services and technologies for steganography and digital marking and the application of neural networks for modeling and classification of objects is indisputable. The active publishing activity of the candidate and the approbation of his research and development in front of national and international professional audiences, as well as the current utility models and patents, prove in an indisputable way the importance and usefulness of the contributions to science and practice.

#### 6. Critical remarks and recommendations

I have no general remarks and recommendations to the materials presented in the competition.

#### CONCLUSION

**Based on my review and assessment of the submitted scientific papers, the scientific-research and applied contributions, as well as the fact that in all indicators the candidate meets the requirements of the Academic Staff Development Act in the Republic of Bulgaria, the Regulations for its implementation, the Regulations and the procedure for acquiring scientific degrees and for holding academic positions in IICT - BAS, as well as the Specific requirements for the minimum number of points on indicators for the academic position "Associate Professor", IICT - BAS, I find it reasonable to propose Dr. Eng. Svetozar Ilchev to take the academic position of "Associate Professor" in the professional field 5.3 Communication and computer technology for the needs of the department "Communication Systems and Services" of the IICT - BAS.**

November 6, 2020

Member of the Scientific Jury:



(Prof. DSc Eng Elena Shoikova)