

REVIEW

of Chief Assist. **Svetozar Valeriev Ilchev**, PhD
for a competition for the academic position of “**Associate Professor**”
in professional field 5.3. Communication and computer technology
Reviewer: Acad. Ivan Petkov Popchev

By order No. 185, Sofia, 02.10.2020 of the director of IICT-BAS, Prof. G. Angelova, D.Sc., pursuant to Art. 4, Paragraph 2 of the Act on Development of the Academic Staff In the Republic of Bulgaria (ADASRB) and a decision of the Scientific Council of IICT (meeting minutes No. 9 of 30.09.2020), I have been appointed as a member of the Scientific Jury of the competition for the academic position of “**Associate Professor**” in professional field 5.3. Communication and computer technology announced in State Gazette (SG), issue 68 / 31.07.2020 for the needs of department “Communication Systems and Services”.

I was chosen as a reviewer of the announced competition at a meeting of the Scientific Jury, meeting minutes No. 1 / 06.10.2020.

According to the ADASRB, the regulations on the implementation of the ADASRB (RIADASRB) and the specific requirements of IICT, the candidates for Associate Professor have to meet some specific conditions and requirements.

Art. 24. (1) The applicants to occupy the academic position of Reader must meet the following conditions:

1. to have been awarded the educational and scientific degree of Doctor;
2. for minimum two years:
 - a) to have occupied the academic position of Assistant, Chief Assistant;
3. to have presented a published monograph or equivalent publications in specialized scientific issues..., which do not reproduce those presented for awarding the educational and scientific degree of Doctor and for awarding of the scientific degree of Doctor of Science.
4. to meet the minimum national requirements under Art. 2b, Para. 2 and 3, respectively the requirements under Art. 2b, Para. 5;
5. to have no plagiarism proven as per the legally established order in the scientific works.

(2) The academic position of Reader shall be occupied on the basis of a competition and election.

(3) A competition for occupying the academic position of Reader shall be opened, if it is possible the relevant teaching and research load to be provided, according to the relevant rules of procedure of the higher school or scientific organization.

According to the specific requirements of IICT (Art. 3), the minimum required points, by groups of indicators, for Associate Professor in professional field 5.3. Communication and computer technology are as follows: A – 50, B – 100, C – 220, D – 60 and E – 20.

Chief Assist. Svetozar Valeriev Ilchev, PhD **meets the requirements of Art. 24(1).1**, as he has defended a dissertation work on the topic “Modular methods for digital data embedding into images for the improvement of security on Internet-based communication platforms”. He has a Diploma No. 000420, issued on 26.05.2014.

Chief Assist. Svetozar Valeriev Ilchev, PhD **meets the requirements of Art. 24(1).2a**, as a certificate of service, ref. No. 757 / 08.09.2020, signed by S. Moncheva – human resources and Director Prof. G. Angelova, D.Sc., attests that Chief Assist. Svetozar Valeriev Ilchev, PhD has been working as Chief Assistant 8 hours per day since 17.11.2014 and has professional experience of 05 years, 09 months and 21 days.

Chief Assist. Svetozar Valeriev Ilchev, PhD **meets the requirements of Art. 24(1).3**, as he has presented 12 publications in specialized scientific editions, which do not repeat the ones presented for attaining the educational and scientific degree “Doctor”.

In the documents for the competition, there is a “**List of the scientific publications of Svetozar Valeriev Ilchev for participation in the competition**” – 29 publications, incl. **25 scientific publications, 1 patent and 3 utility models**.

The analysis of **25 scientific publications** shows the following:

- 12 publications are in **journals and editions with SJR** (No. 1, 2, 3, 5, 6, 7, 12, 13, 15, 19, 22 and 23);
- 11 publications are in journals and conference proceedings (No. 4, 8, 9, 10, 11, 14, 16, 17, 18, 24 and 25);
- 1 publication is a monograph (No. 20);
- 1 publication is a book – dissertation work (No. 21);
- **24 publications have co-authors;**
- 1 publication is **not co-authored** (No. 21).

The “**List of citations**” includes **18 citations of 9 publications**, some of which are from previous procedures.

Chief Assist. Svetozar Valeriev Ilchev, PhD **meets the requirement of Art. 24(1).4**, as he satisfies the minimum national requirements under Art. 2b, paragraph 2 and 3, respectively the requirements under Art. 2b, paragraph 5, as well as the **Specific Requirements of IICT**. According to **Art. 24 (1).5**, **there is no plagiarism proven as per the legally established order in the scientific works**.

Chief Assist. Svetozar Ilchev, PhD presented on 7 pages a “**Reference to the original scientific and scientific-and-applied contributions**” in three main areas: **Internet of Things (IoT) in the Industry, Steganography and Digital Watermarking and Neural Networks**.

According to Art. 26(1) of ADASRB, the candidates shall also submit “a reference to the original scientific contributions, to which shall be attached the relevant evidence set out in this Act, its implementing regulations and the regulations of the higher schools and of the scientific organizations.”

In accordance with the above requirement, the **contributions of Chief Assist. Svetozar Ilchev, PhD**, assuming equal participation in the co-authored works, can be systematized briefly, as follows:

1. A **method** based on the extended Kalman filter and the "extreme machine learning" algorithm is proposed to reduce the time for the prediction of climatic parameters in urban areas [No. 2].
2. A **method** for pre-processing and classifying objects using a neural network is proposed in order to simplify the calculation of the input vectors as compared to already known methods and to achieve a high recognition rate [No. 24 and 25].
3. A **method** for modeling and simulation of the parallel integration of sensor data in wireless sensor networks with 802.15.4 protocols is proposed [No. 7].
4. Four modular **methods** for steganography and digital marking are created, each one with a basic and an application-specific module. These methods, by calculating various metrics, also ensure the invisibility of the data to any unauthorized persons [No. 19].
5. An information **model** of a biological neuron is developed with three main characteristics of the cell: the synaptic connections, the cell membrane and the reaction of the cell soma depending on the summary input signal [No. 14].
6. A **method** for classification with an internal and an external hypersurface is created and a classification rule is defined as the smallest distance between the point to be classified and the points of intersection of the two hypersurfaces with a ray starting at this point [No. 23].
7. An Internet of Things (IoT) communication **protocol** for low-cost devices in heterogeneous networks is presented [No. 13].

The analysis of the “**List of patents and utility models**” shows the participation of Chief Assist. Svetozar Ilchev, PhD, as a **co-author** in:

- **Patent 66700/28.06.2018. Mobile system for remote monitoring of the environment.** Published in bulletins No. 07.1/16.07.2018, p. 13, and No. 08.1/15.08.2018, pp. 35-40.
- **Utility models:**
 1. 2909/30.03.2018. **Electronic driver of a semiconductor laser for portable use.** Published in bulletins No. 03.2/30.03.2018, p. 602, and No. 04.2/30.04.2018, pp. 4702–4708.

2. 2832/30.11.2017. **Waterproof electronic controller for the measurement of temperature and humidity.** Published in bulletins No. 11.2/30.11.2017, p. 56, and No. 12.2/29.12.2017, pp. 120-126.

3. 2807/31.10.2017. **Industrial electronic controller with extensible peripherals.** Published in bulletin No. 10.2/31.10.2017, p. 40.

Chief Assist. Svetozar Ilchev, PhD has participated in 2 national projects and 2 international projects.

A generalized “**scientometric profile**” of Chief Assist. Svetozar Ilchev, PhD can be built using data from world scientific databases:

- **Scopus:** 19 documents by author, 28 citations, h-index 3;
- **Web of Science:** 7 publications, 4 sum of times cited, h-index 1;
- **Scholar.google:** 63 citations, h-index 4, i10-index 1;
- **Researchgate:** 5.06 RG Score, h-index 3, h-index 2 excluding self-citations.

The generalized “**scientometric profile**” deserves to be the subject of careful and critical **self-analysis**, to form a future concentration of the research and to present enough grounds for **independent** publication activity in **editions with IF/SJR**.

I am acquainted with Chief Assist. Svetozar Ilchev, PhD as a **reviewer** of his dissertation and publications in journals and conference proceedings. **I am convinced of his eminent and proven qualities and potential for successful development and effectiveness.**

CONCLUSION

All requirements, conditions and criteria according to the ADASRB, RIADASRB and the Specific Requirements of IICT have been met and I give a **definitive positive conclusion** for the election of Chief Assist. Svetozar Valeriev Ilchev, PhD in the competition for the academic position of “Associate Professor” in professional field 5.3. Communication and computer technology.

I propose that the Scientific Jury should vote unanimously for a proposal to the Scientific Council of IICT-BAS to elect Chief Assist. Svetozar Valeriev Ilchev, PhD to the academic position of “Associate Professor” in professional field 5.3. Communication and computer technology.

13.10.2020

Reviewer: .



Acad. Iyan P. Popchev