

EVALUATION STATEMENT

On the competition for acquirement of the academic position of “Professor”

In the PROFESSIONAL FIELD 5.3. Communication and computer science

Scientific specialty "Computer systems, complexes and networks"

Educational discipline „Administration of local and Internet networks“

Announced in State gazette issue 29/31.03.2023.

With applicants: Assoc. Prof. Dr. Eng. Hristo Georgiev Valchanov

Member of the scientific jury: Prof. Dr. Eng. Stanislav Denchev Simeonov

The present evaluation statement was made according to Order № 336/23.05.2023 of the Rector of the Technical University - Varna.

1. General characteristics of the scientific research and applied research works of the applicant

Only one candidate takes part in the competition for the acquirement of the academic position of “Professor” – Assoc. Prof. Hristo Georgiev Valchanov. The candidate submitted a total of 70 scientific works. They are classified as follows:

- 14 pcs. publications, according to criterion C.4. (Habilitation thesis - scientific publications (not less than 10), in publications that are referenced and indexed in world-famous databases with scientific information);
- 22 pcs. publications according to criterion D.7. (Publications outside the group of monographic works, in publications referenced and indexed in world-famous databases with scientific information);
- 34 pcs. publications according to criterion D.8. (Publications in non-refereed peer-reviewed journals).

Further, the materials presented for the competition include:

- 20 pcs educational handbooks, one independently and 19 co – authored by the candidate;
- Information about the participation in 23 scientific projects – three of them international.

Table 1. Scientific results in accordance with the criteria.

Groups of indicators	Requirements for a professorship	Performance by the candidate
Indicators group A.	<i>At least 50points</i>	50
Indicators group B.	--	--
Indicators group C.	<i>At least 100 points</i>	300
Indicators group D.	<i>At least 200 points</i>	640.3
Indicators group E	<i>At least 100 points</i>	828
Indicators group F.	<i>At least 150 points</i>	471,8
Indicators group G.	<i>At least 120 points</i>	1500

Art. 29 i. 3 of the ZRASRB requires the candidate in the competition to have "a published monographic work or to have presented equivalent publications in specialized scientific publications. In his documents, the candidate has presented a certificate of fulfillment of the minimum requirements, as well as a certificate of original scientific contributions with relevant evidence.

The scientific production submitted to the competition is summarized in Table 1.

After the formal summary of the competition materials made in Table 1, I can add that they are, at every point, important components in the evaluation of the candidate's scientific activity. It is clear from the table that the materials many times exceed the requirements for occupying the academic position "Professor".

2. Assessment of the pedagogical preparation and activities of the applicant

From the materials presented by Assoc. Prof. Valchanov, it is clear that he developed and participated in the development of scientific curricula for the educational and qualification degree of "Bachelor" in 13 disciplines, among them "Computer Networks", "Operating Systems", "Computer and Network Security", etc. ., for "Bachelor" Degree in English - one program, in "Operating systems". He develops and participates in the development of 11 PhD scientific programs. Since 2013, seven mobility's have been implemented. Lectures were given in Budapest - Hungary, Wroclaw - Poland, Dublin - Ireland, Pilsen - Czech Republic. These facts give me the right to conclude that Assoc. Prof. Valchanov is a proven teacher in the field.

3. Main scientific and applied research contributions

Assuming equal participation of the co-authors, I can summarize the contributions found in the scientific publications submitted as follows:

Based on the author reference, I divide the scientific publications presented by the candidate thematically as follows:

- Research in the field of cloud services;
- Research in the field of methods and means of increasing the quality of services (QoS) in modern wireless networks;
- Research in the field of security of modern computer networks;
- Research in the field of computer systems and technologies.

I could summarize the contributions in the presented scientific publications, with equal participation of the co-authors, as follows:

A. Applied science research

- An algorithm is proposed for allocating resources in a LiFi network based on the prioritization of traffic classes. Algorithms and approaches are proposed to improve QoS for LTE networks based on traffic prioritization in the scheduler;
- Algorithms are proposed for building an energy-balanced ZigBee network, for allocating resources in a 6LoWPAN network based on traffic prioritization and finding the best path in a LoRaWAN network.
- Approaches to improve QoS for wireless sensor networks based on LiFi, ZigBee, 6LoWPAN and BLE technologies are proposed;
- Approaches for detecting botnet attacks based on genetic algorithms and for testing vulnerabilities in wireless networks are proposed;
- An approach for transferring multimedia traffic through low-speed global networks, as well as for building hybrid multithreaded libraries, is proposed.

B. Applied research

- A method for activating a wearable device with a touch-sensitive bezel with 2 fingers is proposed;
- A pose recognition method when activating a wearable device interface is proposed;

- A web-based system for the sale of crypto-tokens for ICO (Initial Coin Offering) based on the Ethereum block chain has been created;
- Web-based and cloud-based systems for booking medical examinations have been developed;
- Prototypes for LiFi communication have been developed;
- A prototype of an indoor LiFi network implementing horizontal handover was implemented;
- A simulation environment has been developed for LTE, 6LoWPAN, ZigBee, LoRaWAN and BLE networks, implementing proposed and known algorithms;
- An experimental network for implementing 6LoWPAN, ZigBee and BLE technologies has been implemented;
- A simulator of botnet DoS attacks has been developed;
- Botnet DoS attack generator developed.

4. Significance of the contributions for the science and practice

There is no doubt about the relevance and reliability of the scientific works submitted for participation in the competition for the academic position of “Professor”. The research work is in accordance with the modern requirement towards the research in the field of computer networks and operating systems. The results of the research are current, significant and have a scientific and practical application. I was especially good impressed by the candidate's experience in the field of parallel computing and working with MPI, which coincides with my research interests.

5. Critical remarks and recommendations

I have no specific remarks. The elements of a "scientometric image" indicate successful and productive research activity. I will try to constructively comment to Assoc. Prof. Valchanov to increase the activity in the realization of publications in journals from Q1 and Q2.

CONCLUSION

All the conditions according to the law for the development of the academic staff in Bulgaria and the Additional requirements for the academic position of “Professor” of the Regulation for the terms and conditions for occupation of academic positions at the Technical University – Varna are met and I give may categorically positive conclusion for the election of Assoc. Prof. Dr. Hristo Georgiev Valchanov in the competition for the academic position “Professor” in professional field 5.3. Communication and computer science, educational discipline „Administration of local and Internet networks“

Date: 19.07.2023

Burgas

MEMBER OF THE JURY: _____

/Prof. Stanislav Simeonov/