



REVIEW
from

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*In a competition for the academic position "Professor" in the
professional field 5.3. "Communication and Computer Technology"
(System programming)*

with candidate Assoc. Prof. Dr. Eng. Stanislav Denchev Simeonov

The competition for a professor is in the field of higher education 5. Technical sciences, professional field 5.3. Communication and Computer Technology, in the scientific specialty "System Programming", announced by the University "Prof. Dr. Asen Zlatarov"- Burgas (State Gazette, issue 5 / 17.01.2020) for the Department of Computer Systems, Technical Faculty.

One candidate participated in the competition - Assoc. Prof. Dr. Eng. Stanislav Denchev Simeonov from the same university, who presented the necessary set of documents.

1. General background and biographical data of the candidate

Assoc. Prof. Dr. Eng. Stanislav Simeonov is a graduate of the Technical University of Chemnitz, Germany. He was a doctoral student, Faculty of Electrical Engineering and Computing, at the same university. In 1994 he defended his dissertation. Since 2001 he has held the academic position of "Associate Professor" in the professional field 5.3. Since 2011 he has been the Head of the CST Department and Deputy. Dean of R&D at the Faculty of Technical Sciences, at the University "Prof. Dr. Asen Zlatarov", Burgas.

2. General description of the presented materials

The candidate participates in the competition with a total of 37 papers outside those presented for the academic position of "Associate Professor" and educational and scientific degree "Doctor", as follows:

- 1 piece. monograph, indicator B3;
- 1 piece. university textbooks, indicator E23;
- 1 piece. teaching aids, indicator E24;

- 21 pcs. scientific publications in publications, referenced and indexed in world-famous databases - Scopus, indicator G7;

- 49 pcs. scientific publications published in journals and scientific peer-reviewed collections, indicator G8.

The scientific publications are in specialized journals, periodicals and in collections of scientific papers at international university conferences in the country and abroad. Presented is the article: "Almost Periodicity in Impulsive Fractional-Order Reaction-Diffusion Neural Networks With Time-Varying Delays", in the journal IEEE Transactions on Cybernetics, 2020, Print ISSN: 2168-2267, Online ISSN: 2168-2275, with impact factor 11.47.

The implementation of the main indicators defining the requirements for the academic position "Professor" for area 5. "Technical Sciences" are systematized in a table.

It is made according to the Regulations for the conditions for holding academic positions at the University "Prof. Dr. Asen Zlatarov", Appendix No. 1, considering the minimum requirements for Professor.

Group of indicators	Minimum number of points	Number of points of the candidate	Number of points by main indicators per group	
A	50	50	Certificate for recognition and date of issue: 604- Higher Attestation Commission / 29.06.1996 with Protocol No / date: 13 / 29.05.1996	
B	200	217	B3	100 т. monograph and publications
C	500	539.5	C7	220
			C8	319.5
D	200	302	D12	230 sample selected quotes from Scopus
			D13	
			D14	72 – sample selected quotes
E	200	701	E17	80
			E18	40
			E19	60
			E20	60
			E21	80
			E22	441
			E24	10
Total:	600	1171,11		

From the submitted documents it can be seen that all scientific papers have been used only for this competition. The candidate has developed a habilitation thesis, which is much more worthy of the competition compared to the presentation of equivalent publications.

3. General characteristics of the candidate's research activity

Assoc. Prof. Simeonov participated in the competition with a monograph on "Real time in autonomous mobile and static embedded systems - challenges and solutions", which summarizes the author's research on linear systems and their application in the field of real time. Studies of impulse behavior of systems are also presented. Studies of real-time operating systems are available. The main attention is paid to the general problem of planning a set of tasks in a single-processor system. The objectives, performance indicators and hypotheses presented, and the planning problem is precisely formalized.

The research and applied research activities in the publications of Assoc. Prof. Simeonov can be summarized as follows:

1. A classification of real-time control objects is proposed. A concept for modular real-time control objects is given, creating conditions for research and virtualization of real-time operating systems (No. 1).

2. Real-time operating systems are studied and the problem of planning the processing of aperiodic and periodic tasks and realization and planning of a polling server is presented, the problem of planning is formalized. Models for real-time multitasking planning are proposed (No. 1, 8, 9, 10, 11)

3. Neural networks are modeled with the help of impulse differential equations, the dynamics of systems described with neural networks is studied (No. 24, 25, 28, 29, 30).

4. A set of exponential stability criteria using the Lyapunov continuous function has been studied. The impulse effect on the resistance of a class of neural networks at delays and the pulse size was determined (No. 24, 25, 26, 28, 29, 30).

5. The structure of a specialized computer interface for the blind is presented. The software interface of open source systems has been studied. A model for voice communication in the interface for the blind has been proposed (No. 36, 37, 38, 40, 42, 43, 44, 45, 49).

6. A formal description and modeling of the movement of chain mobile platforms is given. A robotic platform has been created as an open source system for teaching students in automation (No. 54, 55, 56, 57, 60).

7. Ontologies for a digital library of Bulgarian museum collections were used (No. 61, 62).

8. A patent has been issued of RB No. 66527 / 28.04.2016 Braille display, D. Karastoyanov, S. Simeonov.

9. A patent has been filed of RB No. 110795 / 11.11.2010 Braille display, A. Dimitrov, D. Karastoyanov, S. Simeonov.

4. Assessment of the pedagogical preparation and the educational activity of the candidate

The biography shows that Assoc. Prof. Dr. Eng. Stanislav Simeonov has a long experience as a teacher (nearly 30 years). He has a rich educational activity at the Burgas Free University and the University "Prof. Dr. Asen Zlatarov" - Burgas. He has lectured on fundamental and profiling disciplines: Computer Architectures, Operating Systems,

Computer Communications, Communication Technology, Signals and Systems, UNIX / Linux Wireless Networks, Network Administration.

He has conducted courses and trained specialists in network administration, Unix / Linux and various organizations. He is a certified instructor of the CISCO Academy Program.

He has lectured, led lecture courses and led graduates at the Technical University - Sofia, Technical University - Gabrovo, University of Shumen and others.

He has lectured on the Erasmus program and other programs at technical universities in Germany, Turkey, Malaysia, and the United States.

He is the supervisor of three doctoral students who have successfully defended.

Supervisor and reviewer of successfully defended graduates.

5. Main scientific and applied scientific contributions

In the proposed claims of the candidate for scientific, scientifically applied and applied contributions I have considered that contributions 1. and 2. are scientific applied, not scientific, as suggested by the author and contribution 1. is applied, not scientifically applied. I accept the other contributions as presented by Assoc. Prof. Simeonov.

Scientific contributions

1. Models have been developed, classification has been made and real-time control objects have been studied [1], [8], [9], [10], [11].

2. A description has been made and neural networks with pulse differential equations has been modeled [24], [25], [28], [29], [30].

3. The dynamics of systems described by neural networks has been studied [25], [26], [28], [29], [30].

4. Structural modeling of processes using the means of generalized networks has been proposed [26], [31], [32], [33], [34], [35].

5. A model for voice communication in a specialized interface for the blind has been proposed [42], [43], [44], [45].

6. A program model of an interface for the blind based on solenoids has been proposed [39], [41], [51], [52].

Scientifically applied contributions

1. Technological parameters in the production of products from composite materials with certain mechanical properties have been studied [27].

2. An analysis of control operating systems has been performed [37], [40], [52], [53].

3. The performance of file systems has been studied with a view to their application as an element of real-time systems [13], [14].

4. A concept for the realization of linear structures and steaks in kernel mode operating system, recognition and treatment of attacks on computer networks has been proposed [5] [16] [19] [20].

5. A criterion has been proposed and core-mode filters have been developed to detect and prevent attacks in high-performance computer networks [18], [19], [20].

6. A model for creating a virtual driver has been developed [22], [23].

7. A classification of type systems for real-time is proposed in accordance with the requirements for operation of specialized interfaces has been proposed [1], [54], [59].

8. A formal description of the elements in a real-time operating system has been made, the movement has been modeled and the control of specialized mobile installations has been implemented [55], [57], [60].

Applied contributions

1. An independent system interface has been developed and implemented, with universal application in information systems [21].

2. A study of the software interface of open source systems for the needs of the blind has been conducted and a common interface structure has been proposed [36], [37], [38], [40], [49].

3. A model for voice communication in a specialized interface for the blind has been proposed [42], [43], [44], [45].

4. A program model of an interface for the blind based on solenoids has been proposed [39], [41], [51], [52].

5. An analysis of control operating systems has been performed [37], [40], [52], [53].

6. Original texts from archival documents and three-dimensional images have been digitized and preserved [60].

Significance of contributions to science and practice

The areas in which the candidate works are prospective and current, and the contributions are significant. Most of the developments have been implemented and patented. The significance is confirmed by the numerous citations.

The candidate has presented a rich scientific activity. There are works in which he is the sole author, and in nearly 50% of them he is the first author. The large number of foreign co-authors and international creative teams makes a good impression. These data give grounds to consider that all contributions are the personal work of the applicant.

6. Critical remarks and recommendations

I have no significant remarks to the candidate. I would like to make the following recommendations: to continue his active research work in one or two promising fields of technology, to patent his inventions, to reduce his administrative and teaching work at the expense of research.

7. Personal impressions

I have known the candidate personally since 2003, when we were at a Microsoft seminar in Prague. He made a good impression on me even then as a scientist and

lecturer, from the many conferences where we were together and last but not least as a lecturer in "Computer Architectures" in the Department of Computer Science at TU-Gabrovo. For me, Assoc. Prof. Simeonov is a proven professional, who has passed all the stages of teaching, has a high level in research, a famous scientist in the field of computer technology at home and abroad. Impressive for me is his active international activity and completed projects.

CONCLUSION

The candidate Assoc. Prof. Stanislav Simeonov significantly exceeds all the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for Application of this act and the Rules on the conditions and the procedures for awarding scientific degrees and for the occupation of academic and teaching positions at the University "Prof. Dr. Asen Zlatarov"- Burgas on the terms and conditions for holding the academic position of "professor". There is a sufficient volume of scientific production with scientific, scientifically applied and applied contributions. The practical and patent realization of the obtained results from scientific researches is impressive.

Based on the above, I propose Assoc. Prof. Dr. Eng. Stanislav Denchev Simeonov to take the academic position of "Professor" in the professional field 5.3. Communication and Computer Technology in the scientific specialty "System Programming"

08/08/2020
Gabrovo

Reviewer:

Prof. R. Harionov

