

ATTITUDE

in a competition for an academic position "Professor" in the Professional field 5.3 "Communication and Computer Engineering", in the scientific specialty System Programming, announced in the State Gazette, issue 5/17.01.2020, with candidate

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

Member of the scientific jury: Prof. DrSc. Eng. Andon Dimitrov Lazarov, Nikola Vaptsarov Naval Academy - Varna

1. General characteristics of the research and scientific-applied activity of the candidate

Assoc. Prof. Dr. Stanislav D. Simeonov is a lecturer and researcher, distinguished by high performance in applied research. For participation in the competition are presented scientific papers with a total number of 63, which are distributed as follows: one monograph abroad (dissertation), one monograph in Bulgaria, one textbook, 60 scientific publications, 29 of which in journals and conferences in abroad, (21 in indexed editions, 9 scientific publications in international conferences abroad, 33 scientific publications in refereed international conferences in Bulgaria.

Thematically, the scientific production is systematized in the following areas:

1. Operating systems - real time, system programming, computer networks.
2. Modeling of linear and nonlinear processes with application of neural and generalized networks.
3. Computer interfaces and specialized interfaces for the visually impaired.
4. Mobile robotic systems and computer based electronic control system.
5. Digitization of cultural and historical heritage.

The criterion "scientifically applied activity" is defended by the applicant with one patent "Braille display", nine national international research project contracts and six intra-university project contracts.

National projects:

"Autonomous robot - a platform for research of real-time operating systems" - funded by NSF, MES - Head, "Development, delivery and installation of specialized equipment for remote monitoring of existing luminous buoys with marking lamps." - member of the team, "Auxiliary computer interface for the visually impaired" - funded by NSF - team manager, "Innovation and creativity in the management and operational activities of staff in organizations in the IT industry" - manager, "Universities of Science, Informatics and Technology in the e-society" - team manager, "Academic career development - the key to establishing a new type of university" - team member. "Mobile research platform for wireless management" - team member.

International projects:

"Step to the light" - leader, "Knowledge Alliance to enable a European-wide exploitation of the potential of MOOCs for the world of business" - team member.

Internal university project contracts – a team manager of 5 projects, a member of the team of 1 project.

2. Assessment of the pedagogical preparation and activity of the candidate

There is a wide range of disciplines that Assoc. Prof. Dr. Stanislav Simeonov teaches: Computer Systems, Computer Architectures, Computer Networks, Communication Engineering, Wireless Networks, System Programming, Network Administration, Unix / Linux, Digital Signal Processing. The average annual number of hours of study load is 500-700 hours. A textbook "Guide for laboratory exercises in Signals and Systems" has been developed. Performs active learning activities as a Cisco instructor - a professional course for system administrators. There are three successfully defended doctoral students.

3. Main scientific and applied scientific contributions

Scientific contributions

1. A definition of object classification in real-time computing and virtualization of operating systems is proposed, as well as hierarchical planning in multi-core computer configurations, [1, 2, 8, 9, 10, 11, 12, 13, 17].
2. A concept for the use of linear structures in the kernel mode of the operating system for recognizing and counteracting attacks in computer networks has been developed [4, 5, 16, 19, 20].
3. Mathematical models of nonlinear systems are created and their stability is studied by impulse differential equations of a neural network and application of Lyapunov stability criteria [4, 5, 15, 25, 26, 28, 29,30].
4. Structural models of technological processes and information flows are built using the formal language of the generalized networks [6, 16, 22, 23, 26, 31, 33, 34, 35].
5. Mathematical models of linear systems are proposed and their stability is evaluated using Markov statistical processes [32].

Scientific contributions can be classified as "proving with new means of significant new aspects of already existing scientific fields, problems, theories, hypotheses" in the field of the system software and computer systems.

Scientific and applied contributions

1. Specialized computer interfaces for the visually impaired have been developed [36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47,48, 49, 50, 51, 52, 53], an assessment of the place and role of an operating system with real-time processes was made. An interface system based on computer-controlled solenoids has been built for visually impaired people.

2. The mathematical and software of a mobile robotic system has been developed, practically realized with the implementation of an operating system - real time [54-60].

3. A database for digital storage of images of architectural exhibits has been implemented [60, 61, 62]

Scientific and applied contributions can be classified as "creation of new classifications, methods, constructions, technologies" in the field of the system software and computer systems.

4. Significance of contributions to science and practice

The importance of the contributions in the works of the candidate is supported by the volume and quality of the scientific production corresponds to the quantitative and qualitative indicators of the criteria for holding the academic position "professor". The large number of citations, including by authors abroad, as well as the multifaceted design and patent activities are proof of the high professional qualities of the applicant.

5. Critical remarks and recommendations

Critical remarks can be made about the terminological dictionary used in describing the content of the works in Bulgarian. The great thematic diversity of the publications and the relatively limited number of individual works is impressive, which shows that the candidate works mainly in a team, which, of course, cannot be a shortcoming in his creative activity.

CONCLUSION

Assoc. Prof. Dr. Stanislav D. Simeonov participates in the competition with scientific production, possessing scientific, scientific-applied and applied contributions, which many times exceed the minimum requirements of the national scientific metric system for evaluation of the creative activity of the academic staff. Based on the positive evaluation of the presented scientific papers, their significance, the scientific and scientific-applied contributions contained in them, I find it reasonable to propose Assoc. Prof. Dr. Stanislav Denchev Simeonov to take the academic position of "professor" in the professional field 5.3 "Communication and Computer Engineering", specialty "System Programming".

Date: 25.07.2020

JURY MEMBER:

(Prof. Dr. AD Lazarov)