EVALUATION STATEMENT

with regard to a contest for the academic position of Professor
in 'System Programming' scientific profile,
5.3 'Communication and Computer Equipment' professional orientation
5. 'Technical Science' higher education area,
announced in SG, Issue 5 of 17/01/2020

Scientific Jury Member: Prof. Mihail Petkov Iliev D. Eng. Sc

1. General Characteristics of the Applicant's Scientific and Applied Research

Assoc. Prof. Stanislav Denchev Simeonov PhD participates in the contest for the academic position of Professor with a monograph, 60 scientific publications and a study guide. 58 of the articles are in English and 2 are in Bulgarian. 3 of the scientific publications are single-authored and 57 are produced in collaboration. The applicant is the lead author in 28 of the collaborative works. 29 of the scientific publications are published in foreign magazines and conferences. 21 articles are in indexed editions having IF 19,703.

The submitted co-authors' declarations for most of the applicant's collaborative articles indicate equal authorship for all contributors listed. I have also assumed equal authorship for the contributors in the scientific publications where no appendix for assignment of the authorship has been presented.

SCOPUS author citation report as of 09/07/2020 indicates that the applicant has published 21 documents in the database cited 31 times in 29 articles with an H index of 4.

2. Evaluation of the Applicant's Pedagogical Competence and Activities

Assoc. Prof. Stanislav Simeonov PhD has been employed with 'Prof. Dr. Asen Zlatarov' University of Burgas since 2011. He had previously worked at Chemnitz University of Technology, the Technical University of Gabrovo and, between 1995 and 2011, at Burgas Free University (BFU) where he was selected for the academic position of Associated Professor in 2002. While at BFU Assoc. Prof. Stanislav Simeonov PhD was elected for the Vice Dean position of the Centre for Information Technologies and Technical Sciences. The submitted factsheet indicates that at 'Prof. Dr. Asen Zlatarov' University of Burgas the applicant had lectured 10 academic subjects, had developed the syllabi of 10 academic courses and had acted as a doctoral advisor for 3 PhD students, all successfully defended their theses and were awarded doctorate degrees.

All in all, it can be concluded that the teaching work of Assoc. Prof. Stanislav Simeonov PhD is diverse and meaningful.

3. Key Scientific and Applied Research Contributions

The applicant's contributions can be summarized across areas of study and categorized as follows:

3.1. Operating Systems – Real-Time Environment, System Programming, Computer Networks

- A classification is proposed, models are developed and research on objects for real-time control is carried out [1], [8], [9], [10], [11];
- A variant of general-purpose operating system is implemented with the addition of a real-time allocator [11], [12], [13]. [14];
- A model and development of allocators for real-time operating systems in a virtual machine are proposed [10], [11], [12], [13], [14];

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- Models and parameterization of allocators in real-time operating systems are proposed [10], [11], [12], [13], [17];
- The proposed concepts are implemented in real-world systems [2], [6], [7], [17], [18];
- File systems performance is explored in view of their application as an element of real-time systems [13], [14];
- A separate system interface having universal application in information systems is developed and implemented [21];
- A concept for implementation of linear structures and stacks in kernel mode of the operating system is proposed for detection and processing computer network attacks [4], [5], [16], [19], [20];
- A criterion is proposed and kernel mode filters are developed for detection and defense against attacks on high-performance computer networks [16], [19], [20];
- A virtual driver model is developed [22], [23].

3.2. Modelling of Linear and Non-linear Processes. Neural and Generalized

- A description is made and neural networks are modelled using impulsive differential equations [24], [25], [28], [29], [30];
- The dynamics of systems described by neural networks is investigated [25], [26], [28], [29], [30];
- Technological parameters have been studied in the manufacturing of products from composite materials with certain mechanical properties [27];
- Structural modeling of processes is proposed using the means of generalized networks [26], [31], [32], [33], [34], [35].

3.3. Computer Interfaces and Specialized Interfaces for the Visually Impaired

- The software interface of open-source systems for the visually impaired is explored and a general interface structure is proposed [36], [37], [38], [40], [49];
- A voice communication model is proposed in a specialized interface for the visually impaired [42], [43], [44], [45];
- A software interface model for visually impaired based on solenoids is proposed [39], [41], [51], [52];
- An analysis of management operating systems is conducted [37], [40], [52], [53].

3.4. Mobile Robotics and Computer-Controlled Electronics

- A classification of real-time systems is proposed in accordance with the requirements for operation of specialized interfaces [1], [54], [59];
- A formal description of real-time operating system elements is made, the motion is modelled and the control of specialized mobile installations is implemented. [55], [57], [60].

3.5. Digitization of Cultural and Historical Heritage

- Original texts from archival documents and three-dimensional images are digitized and stored [60];
- Network models are designed, distributed databases connecting private collections are created and visualization options are proposed [60];
- A skeleton and data model is proposed which can be used for movable cultural heritage [62].

4. Significance of Contributions to Science and Practice

The scientific, applied research and practical contributions of Assoc. Prof. Stanislav Simeonov PhD are as follows:

- Argumentation of significant new aspects of existing scientific areas, problems, theories, hypotheses by employing new means;
- Formulation of new approaches, methods, algorithms and technologies and gathering supporting facts.

5. Critical Remarks and Recommendations

I would recommend that the applicant:

- Narrow down his research area in view of achieving more significant results and their publishing in high impact scientific journals;
- Intensify his work with PhD students, postgraduates and young scientists in order to build a team with sufficient capacity for participation in significant research programmes.

CONCLUSION

The scientific production of Assoc. Prof. Stanislav Denchev Simeonov PhD submitted within the contest is in line with the requirements for filling the academic position of 'Professor' outlined in the Act on Academic Staff Development in the Republic of Bulgaria, its Implementing Regulations and the Rules on the Terms and Conditions for Taking Academic Positions at 'Prof. Dr. Asen Zlatarov' University of Burgas.

Upon a complex assessment of the applicant's scientific production submitted for preparation of an evaluation statement, as well as assessment of the scientific, applied research and practical contributions of the presented scientific work and the overall scientific and teaching activity of the candidate, I would reasonably propose that Assoc. Prof. Stanislav Denchev Simeonov PhD be selected for the academic position of 'Professor', 5.3 'Communication and Computer Equipment' professional orientation, 'System Programming' scientific profile at 'Prof. Dr. Asen Zlatarov' University of Burgas.

29/07/2020   Prof. Mihail Petkov Iliev D. Eng. Sc