

## **REVIEW**

for **Dr. Boris Blagovestov Shishkov**

on a competition for the academic position of "**Associate Professor**"

in professional field 4.6. Informatics and Computer Science  
(Context-Aware Information Systems)

**Reviewer: Acad. Ivan Petkov Popchev**

Pursuant to Art. 4, para. 2 of the ADAS in the Republic of Bulgaria, Art. 2, para. 2 of the Regulation of Application of the ADASRB and a Decision of the Scientific Council of IMI-BAS (Protocol No. 20 of 17.12.2021), by order No. 341/23.12.21 of the Director Prof. DSc. Peter Boyvalenkov on a proposal of Section "SOFTIS", in connection with the competition for the academic position of "Associate Professor" for the benefit of IMI, in the field of higher education 4. Natural sciences, mathematics and informatics, professional field 4.6. Informatics and Computer Science (Context-Aware Information Systems), as published in State Gazette - Issue 91/02.11.2021, I was appointed a member of the Scientific Jury.

I was elected a reviewer in the announced competition at a Scientific Jury meeting, Protocol No. 1/12.01.2022 г.

In my capacity of reviewer, I have received all 18 documents as included in the application package submitted on 22 December 2021 to the IMI-BAS Director for admission to participate in the competition.

In accordance with ADASRB, the Regulation of Application of the ADASRB, and the Regulation of Terms and Procedures for Earning Science Degrees and Taking Academic Positions (RTPESDTAP) at IMI-BAS, candidates for Associate Professor must fulfill certain terms and requirements.

Art. 24 (1) Candidates for taking the academic position of Associate Professor must fulfill the following requirements:

1. to have been awarded the educational and science degree of "Doctor";
2. for minimum two years:
  - a. to have occupied the academic position of Assistant Professor, Chief Assistant Professor;
3. to have presented a published monograph or equivalent publications in specialized scientific issues..., which do not reproduce those presented for acquiring the educational and science degree of "Doctor" and for acquiring the educational and science degree of "Doctor of Science";
4. to meet the minimal national requirements, as according to Art. 26, para. 2 and 3, respectively the requirements under Art. 26, para. 5;
5. to have no plagiarism in the scientific works, proven accordingly following the legally established order.

Art. 26 (1) A candidate must present a fulfillment statement concerning the coverage of the minimal national requirements as according to Art. 26, para. 2 and 3, respectively the requirements under Art. 26, para. 5, as well as a statement featuring the original scientific contributions, complemented by corresponding proof, as determined in this act, the regulation for its application, and the regulations of the higher education institutions and scientific organizations.

As according to RTPESDTAP at IMI-BAS, the minimum required points per indicator groups are determined in Art. 2(1), while according to Art. 3(1).2, at least 5 publications from those publications submitted at a competition for the academic position of "Associate Professor", are to be with IF or SJR.

Dr. Boris Shishkov **meets the requirements of Art. 24(1).1** since he holds a PhD certificate (diploma) No. 000048, issued on 22 February 2016, in Informatics, concerning a PhD Thesis entitled "Software Specification Based on Re-usable Business Components" defended on 26 September 2005 at Delft University of Technology, Delft, The Netherlands. The candidate has presented a notarized copy of a PhD Diploma, issued by Delft University of Technology The Netherlands, September 26, 2005.

Dr. Boris Shishkov **meets the requirements of Art. 24(1).2** because as according to a statement (Reference No. 742 / 03.11.2021), signed by the Director, Prof. DSc. P. Boyvalenkov, Dr. Boris Blagovestov Shishkov has been full-time employed at IMI, since 1 January 2015, holding the position Assistant Professor and per 1 November 2021 he has work experience of 10 (ten) years and 3 (three) months.

Dr. Boris Shishkov **meets the requirements of Art. 24(1).3** since he has submitted a published monograph of **234 pages**: "Shishkov B. (2020) **Designing Enterprise Information Systems: Merging Enterprise Modeling and Software Specification**. The Enterprise Engineering Series. Springer, Cham", ISBN: 978-3-030-22440-0.

Among the documents submitted for the competition are: „**List of scientific publications**“ – 79 publications and „**List of the scientific publications for the competition**“ – 21 publications.

A brief **analysis of the 21 publications submitted for the competition** shows that:

- 1 publication with no co-authors is the **monograph**;
- **17 publications are with SJR** – the publications numbered: 2s, 3s, 4s, 6s, 7s, 8s, 9s, 11s, 12s, 13s, 14s, 15s, 16s, 17s, 18s, 19s, and 20s.
- **9 publications are with Q3** – the publications numbered: 2s, 4s, 6s, 7s, 8s, 9s, 14s, 16s и 17s.
- 1 publication is with no co-authors – the publication numbered 6s.
- **All publications have been published in the 2006 – 2021 period and are in English.**

There is a „**List of citations**“ that features 119 citations of 35 publications. There is a „**List of citations for the competition**“ where 27 citations are mentioned, concerning 6 publications.

As according to the reviewer’s opinion, Dr. Boris Shishkov **meets the requirements of Art. 24(1).4** since he fulfills the minimal national requirements as according to Art. 26, para. 2 and 3, respectively the requirements under Art. 26, para. 5, as well as the requirements under **Art. 2 and Art. 3(1).2 or RTPESDTAP at IMI-BAS. As it concerns Art. 24(1).5 there is no plagiarism of the scientific works, proven accordingly following the legally established order.**

As it concerns Art. 26 of ADASRB the candidate has not submitted a „statement featuring the original scientific contributions“, but has presented an „**Author’s statement featuring the scientific contribution of the submitted works**“ (a document of **9 pages**) from where **the original contributions of Dr. Boris Shishkov** (assuming equal contribution of all co-authors) **can be systematized** as follows:

1. An approach (method) was created - SDBC (Software Derived from Business Components), that allows for specifying software based on business components, bridging the two in a component-based way. The approach was further enriched, aiming at a higher effectiveness of the developed software, especially with regard to fulfilling user needs (Publications 7s and 9s, and the monograph).
2. A categorization was proposed as it concerns context-aware systems, considering three relevant perspectives. The disciplines Autonomic Computing and Value-Sensitive Design (of Information Systems) were addressed in a new way, to form an innovative and holistic vision with regard to context-aware information systems (Publications 7s, 8s, 9s, and 12s, and the monograph).

3. The adequacy of relating context-aware information systems and the Naïve Bayesian Classification Approach was proved, this opening perspectives for counting on prognoses (as an alternative to using sensors) in determining the state/situation of the user (Publication 6s).
4. A conceptual context-awareness model was created, based on corresponding meta-models (Publication 2s).
5. A combined application of the SDBC approach and the language ISDL (Interaction Systems Design Language) was proposed (Publication 17s).
6. The SDBC approach was enriched in terms of semantics and pragmatics, considering semantic and pragmatic aspects, such as: intentions, negotiations, commitments, and so on (Publication 20s and the monograph).
7. A proposal was made to align software specifications with corresponding business process models, in a service-oriented way (considering SOA – the Service-Oriented Architecture) (Publication 19s and the monograph).

Dr. Boris Shishkov has: contributed to **8 international research and development projects**; chaired 40 international scientific events; edited 53 books; participated in 6 scientific juries.

The candidate has presented a statement dd. 1 December 2021, signed by **prof. DSc. I. Garvanov**, Chair of the „Information Systems and Technologies“ department at **ULSIT**, certifying that Dr. Boris Shishkov **has been conducting lecturing activities at ULSIT covering 3 disciplines**. The candidate has also presented a statement dd. 28 November 2021, signed by **prof.dr.ir. Marijn Janssen** certifying that in the 2018-2021 period Dr. Boris Shishkov **has conducted lecturing activities at TU Delft (The Netherlands) covering 2 disciplines**.

The „**scientometric image**“ of Dr. Boris Shishkov, referring to the world scientific bases, is as follows:

- **Scopus**: 105 documents, 236 citations, **h-index – 9**;
- **Web of Science**: 25 total publications, 23 sum of times cited, 20 citing articles, **h-index – 3**;
- **Google Scholar**: 652 citations, **h-index - 14, i10-index – 21**.

This „scientometric image“ deserves a careful critical self-analysis concerning new research directions and is a sufficient basis for further **independent publication activities aiming at editions with IF**, in full harmony with the team work.

In the application package for the competition are included concrete **letters of recommendation**, in support of Dr Shishkov's Assoc. Prof. promotion:

- prof. Dr. Neli Maneva – IMI-BAS;
- prof. dr. ir. Alexander Verbraeck – TU Delft (The Netherlands);
- prof. dr. Ivan I. Ivanov – SUNY Empire State College (USA);
- assoc. prof. dr. ir. Marten J. van Sinderen – University of Twente (The Netherlands).

I have firstly met Dr. Boris Shishkov several years ago and I know him as a devoted scientist and organizer who is capable of successfully combining theoretical investigations and the development and deployment of current information systems, in particular application domains. I trust his creativity and potential for further successful development as researcher, lecturer, and team organizer.

## CONCLUSION

All requirements, conditions, and criteria as according to ADASRB, the Regulation of Application of the ADASRB, and the RTPESDTAP at IMI-BAS are fulfilled and I give a **strongly positive conclusion** for selecting Dr. Boris Blagovestov Shishkov for the academic position of “Associate Professor” in the competition in professional field 4.6. Informatics and Computer Science (Context-Aware Information Systems).

**I suggest that the Scientific Jury unanimously votes a proposal to the Scientific Council of IMI-BAS to elect Dr. Boris Blagovestov Shishkov for the academic position of “Associate Professor” in professional field 4.6. Informatics and Computer Science (Context-Aware Information Systems).**

19 January 2022

Reviewer: .....

Acad. Ivan P. Popchev