

STATEMENT

by Prof. Dr. Aneta Karaivanova, IICT-BAS

of the materials submitted for the competition
for occupation of the academic position of "Professor"
at the Institute of Information and Communication Technologies - BAS
in the professional field 4.6. Informatics and Computer Science

Reason for this statement: By order No. 115/04.05.2022 of the Director of IICT-BAS I was appointed as a member of the scientific jury of the competition for the occupation of the academic position "Professor" in the professional field 4.6 Informatics and Computer Science, announced in the State Gazette, no. 21/15.03.2022.

Only one candidate has applied for participation in this competition: Assoc. Prof. Dr. Vassil Georgiev Guliashki from the Department "Information Processes & Decision Support Systems", IICT-BAS.

1. Short CV of the candidate.

Assoc. Prof. Guliashki obtained his MS degree from the Faculty of Automatics of Technical University - Sofia. After full-time doctoral studies at IIT-BAS in 1994 he defended his PhD thesis entitled "Algorithms for Solving Convex Nonlinear Integer Programming Problem" and received a PhD degree in Informatics. Since 1992 he has been working at IIT-BAS (IICT-BAS at present) as an engineer, Assistant Professor and Associate Professor.

2. General presentation of the submitted materials

The candidate Assoc. Prof. Vassil Guliashki participates in the competition with all the necessary documents in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for the implementation of this law, the Rules for the Acquisition of Academic Degrees and Occupation of Academic Positions at BAS, and the specific rules of IICT-BAS.

- 22 full-text scientific publications, all of them visible in the SCOPUS and/or Web of Science databases (including 1 monography, 1 book, 1 book chapter and 19 scientific paper), which have not been used in the doctoral dissertation and in the promotion for an Associate Professor and have not been submitted to NACID, are presented for review. 13 of the presented publications have SJR, and 2 publications have Impact Factor. The total number of publications is 126.
- For the competition Assoc. Prof. Guliashki has submitted a list of 71 citations (40 citations are visible in Scopus, 17 – in Web of Science, 12 – in IEEE Xpore, 2 – in Zentralblatt). The author's h-index in SCOPUS (without auto citations) is 4.

- Assoc. Prof. Gulashki is a lecturer at the Centre for Education at the Bulgarian Academy of Sciences (lecture course for PhD students “Methods for Optimization”) as well as lecturer in the framework of Erasmus, Erasmus+ and Tempus.

The candidate participated in 7 international and 4 national research and educational projects (PI for 3 of the national projects). Below is a table with the minimal value of indicators for the academic position "Professor" in the professional field 4.6. Informatics and Computer Science at IICT-BAS and the values of the indicators, achieved by Assoc. Prof. Guiashki.

Table. Minimal value of indicators for the academic position “Professor” in the professional field 4.6 in IICT-BAS, and indicators value of Assoc. Prof. Guiashki.

Group of indicators	Content	Required indicators for “Professor”	Indicators of Dr. Guiashki
A	Indicator 1 (PhD dissertation)	50	50
B	Indicators 3 and 4	100	120
C	Indicators 5-10	260	265
D	Indicators 11	140	384
E	Indicators 12-18	150	283.1
		Total: 700	1102.1

3. General characteristics of Dr. Guliashki scientific and applied activities and contributions in the submitted for review materials

Dr. Guliashki’s scientific and applied activity is in the field of Informatics and Computer Science. His main scientific results are related to the development and study of novel models, methods and algorithms for multi-criteria optimization and their application for solving real life problems. The proposed methods and algorithms are program coded and tested thus proving their functionality and efficiency. The main contributions/achievements in the presented materials for this review can be summarized in 4 groups:

- Theoretical contributions for solving multi-criteria optimization problems (publications No. 2, 3, 4, 8, 12,16, 17, 19, 21).

A comparative analysis is performed and new scalarization models are developed (i.e, methods for transforming a multi-criteria optimization problem into a single-criteria optimization problem). A new scaling interactive method is proposed. New algorithms have been developed (interactive evolutionary algorithm, database management algorithms, machine learning algorithms, and algorithms with application in the field of signal processing, etc.) and tested.

- Development of new/improved algorithms for solving single-criteria and multi-criteria problems for flexible job shop schedules/timetables (publications No. 5, 6, 9, 15, 20).

An analysis of the approaches, techniques and algorithms for solving multi-criteria problems for job schedule planning and flexible job shop scheduling is performed. New algorithms are proposed for the flexible scheduling case: a heuristic algorithm and a combined algorithm.

- Development of models and algorithms for solving portfolio optimization scalarized problems (Publications 13, 18, 22).

A portfolio optimization model using time series is proposed. A two-stage portfolio risk optimization approach is proposed. An analysis of multi-criteria evolutionary algorithms for portfolio optimization is performed and a model for optimization of some parameters is proposed.

- Approaches, models and algorithms for solving applied problems (publications 1, 7, 10, 11, 14)

A number of specific real life problems are considered and original solutions are proposed.

4. Citations

The total number of citations presented by the candidate for the competition is 71, (40 citations are visible in Scopus, 17 – in Web of Science, 12 – in IEEE Xpore, 2 – in Zentralblatt). A simple check in the database Scopus shows 110 citation and h-index 4 (without auto citations). 263 citations of 46 publications of Dr. Guliashki are visible in the system for academic and expert activities SONIX (all of them after acquiring the academic position of Associate Professor), of which 90 are from WoS and Scopus.

5. Personal contribution of the candidate

All of the publications submitted for the competition are co-authored, but it is natural to work in teams in this area. The applicant's personal contribution is beyond doubt.

6. Critical remarks and recommendations

I have no critical remarks. My recommendation is to be even more active in project work.

CONCLUSION

The documents and materials presented by Assoc. Prof. Dr. Vassil Guliashki meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for the implementation of this law, the Regulations of BAS and the corresponding regulations of IICT-BAS. The results achieved by Assoc. Prof. Guliashki are in full compliance, and by many indicators exceed the specific requirements of IICT-BAS for the academic position of "Professor".

After acquaintance with the materials and scientific works presented in the competition and analysis of their importance and their contributions, I am convinced of my positive assessment

and I strongly recommend to the Scientific Jury to submit a recommendation to the Scientific Council of IICT-BAS for the selection of Assoc. Prof. Vassil Guliashki in the academic position of "Professor" at IICT-BAS in the professional field 4.6 Informatics and Computer Science.

04. 07.2022

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