

REVIEW

of the submitted works for participation in a competition for the academic position of “PROFESSOR” in professional direction 4.6 “Informatics and computer sciences”, scientific specialty “Informatics” announced by ICT-BAS in SG No 21 of 15.03.2022 for the needs of the Department “Information Processes and Decision Support Systems”

Reviewer: Professor Daniela Ivanova Borissova, DSc

Candidate: Associate Professor Vassil Georgiev Guliashki, PhD

Pursuant to Order No 115/04.05.2022 of the Director of ICT-BAS, I am determined to be a member of the scientific jury under the announced procedure, and according to the minutes of the first meeting held on 18.05.2022, I am determined to prepare a review. For this purpose, I have received all the documents submitted by the applicant under the procedure.

I. BRIEF BIOGRAPHICAL DATA ON THE CANDIDATE

Assoc. Prof. Dr. Vassil Georgiev Guliashki was born on 21.06.1962. He graduated from the Higher Mechanical and Electrical Engineering Institute “V. I. Lenin” (now Technical University – Sofia) in 1988, and in 1994 he obtained the educational and scientific degree “doctor” (candidate of technical sciences). From 2009 to now he holds the academic position “Associate Professor” in the department “Information Processes and Decision Support Systems” at ICT-BAS.

II. ASSESSMENT FOR COMPLIANCE WITH MINIMUM NATIONAL REQUIREMENTS AND REQUIREMENTS OF ICCT-BAS

According to Art. 61 of the Regulations for the Implementation of the Law for Development of the Academic Staff in the Republic of Bulgaria (LDASRB) (respectively, Article 29 of the LDASRB and the Regulations on the Specific Conditions for the Acquisition of Scientific Degrees and for the Occupancy of Academic Positions at ICT-BAS), the candidates for occupation of the academic position “professor” is assessed against the fulfillment of the conditions under Art. 60, para. 1 and 2 and in accordance with the information from the references under Art. 60, para. 3. The fulfillment of these conditions is shown in the following table:

Candidates for the academic position of “professor” must meet the following conditions:	Submitted documents
Art. 60, para. 1(1) to have acquired an educational and scientific degree “doctor”	Diploma for educational and scientific degree “doctor” No 23432 from 20.02.1995 issued by VAK
Art. 60, para. 1(2) have held the academic position of “associate professor” in the same or in another higher school or scientific organization for not less than two academic years or not less than five years: a) have been lecturers, including part-time, or members of a research team at the same or another university or scientific organization, or b) have exercised artistic activity, or c) to have been specialists in practice and have proven achievements in their field	Submitted curriculum vitae; Service note for work experience, of which 13 years as “associate professor”; reference for teaching activity
Art. 60, para. 3 Candidates submit a certificate of compliance with the minimum national requirements, the requirements under Art. 1a, para. 2, as well as a reference to the original scientific contributions to which the relevant evidence is attached	Certificate of fulfilment of the minimum national requirements; Reference to original scientific and applied scientific contributions

The fulfillment of the minimum points for the groups of indicators for the academic position “professor”, in accordance with the specific requirements of IICT-BAS, is as follows:

Area 4. Natural sciences, mathematics and informatics,
Prof. direction 4.6. Informatics and Computer Science

Group of indicators	Contents	Professor (min. points)	Presented by the candidate in the competition
A	Indicator 1	50	50
B	Indicator 2	---	---
C	Indicator 3 or 4	100	120
D	Sum of indicators from 5 to 10	260	265
E	Indicator 11	140	384
F E	Sum of the indicators from 12 to the end	150	283.1

For Group C – the candidate has submitted information on 7 publications

indexed in ACM Digital Library, Scopus and/or Web of Science. For group D, 15 scientific works are presented, of which 12 indexed publications in Scopus and 3 book chapters. For the citations concerning group E, the candidate submitted a reference for 19 publications cited a total of 71 times. The presented data for group E significantly exceeds the required minimum. For group F, the candidate has submitted information about: one defending doctoral student under his leadership; participation in a national scientific project (1 item); participation in an international scientific or educational project (7 items); management of a national scientific project (3 items); attracted funds for projects managed by the applicant.

From the analysis made in this way, it is easily established that the candidate fully satisfies both the minimum national requirements and the specific requirements of IICT-BAS.

Scopus, Web of Science, and Google Scholar database reference show the following scientometric indicators for the candidate:

	Scopus	Web of Science	Google Scholar
h-index	5	2	8
Author documents	32	23	91
Citations	110	39	438

III. MAIN CONTRIBUTIONS IN THE SCIENTIFIC AND SCIENTIFIC-APPLIED ACTIVITY OF THE CANDIDATE

From the total of 22 publications presented, it can be summarized that Assoc. Prof. Guliashki's scientific interests are related to the optimal design and implementation of technical systems, realized through the use of single-criteria and mono-criterial models, incl. and development of methods, algorithms and approaches for solving the relevant optimization tasks. The main contributions in the publications presented for participation by Assoc. Prof. Dr. Vassil Guliashki can be systematized in the following main areas:

1. Scientific results in the field of optimal design and implementation of technical systems,
2. Scientific results in the field of multi-criteria optimization - formulated models, methods and algorithms,

3. Scientific results in the field of single-criteria optimization - formulated models, models, methods and algorithms.

In the field of the theory of optimal design and implementation of technical systems: 1) developed a multi-carrier filter bank based (FBB) secure modem. The modem is implemented on a programmable matrix (FPGA), where the cryptomodem principle is adopted. 2) Formulated problem for minimization of a time-averaged quadratic objective function of the identification error of a system including a simple IIR filter (infinite impulse spectrum filter). The approach using Nelder and Mead's Simplex method has been shown to be effective and efficient. 3) A model is proposed for the optimization of the schedule of an electricity storage system (the battery) in a microgrid, based on two one-criteria optimization tasks. 4) An accelerated genetic algorithm (called ASOGA) is proposed for solving multi-criteria optimization problems in an electrical microgrid connected to the main grid. 5) A methodology has been developed and an approach has been proposed for optimizing the energy efficiency of buildings connected in electro-microgrids.

In the field of multicriteria optimization: 1) A comparative analysis of 13 most effective and popular scalarization methods was made, based on which a generalized scalarization model was proposed for solving multicriteria problems with continuous and/or integer variables (called GENS). This model is the basis of a developed generalized scalar interactive method GENS-IM. 2) A new scalarization model of starting neighborhood is proposed, which is particularly suitable for solving integer problems. 3) A population-based interactive evolutionary algorithm is proposed, which is designed to solve multi-criteria optimization convex integer problems (EVALIMCO). 4) A procedure generating an initial population of uniformly distributed schedules for flexible manufacturing scheduling (FJSSP) optimization problems is proposed. 5) An algorithm for solving multi-criteria flexible production schedule planning (FJSP) problems is proposed, combining a heuristic algorithm with the Promethee I decision ranking method.

In the field of single-criteria optimization: 1) A heuristic algorithm is proposed for solving the flexible production scheduling problem (FJSP) using the "Make-span" criterion as an objective function. 2) A two-stage portfolio risk optimization approach based on the Markowitz mean-variance optimization (MVO) model is proposed. 3) A model is proposed for portfolio optimization tasks using time series, incorporating a quadratic diversification constraint.

IV. CRITICAL NOTES AND RECOMMENDATIONS

I have no critical remarks about the candidate Assoc. Prof. Dr. Vassil Guliashki. I believe that the documents have been prepared with the necessary precision.

V. PERSONAL IMPRESSIONS OF THE CANDIDATE

I personally know Assoc. Prof. Vassil Guliashki as a motivated and active scientist in the field of informatics and computer science, and more specifically in the field of single- and multi-criteria optimization. Evidence for this is not only the publications, but also the number of citations and courses conducted. In recent years, he has been actively working on various scientific projects with foreign scientists, as a result of which he is also the scientific supervisor of 4 doctoral students from abroad.

VI. CONCLUSION

Taking into account the fulfillment of all the regulatory requirements, according to the LDASRB, the Regulations for its implementation, as well as the Regulations for the terms and conditions for acquiring scientific degrees and for occupying academic positions at IICT-BAS, including the references on the fulfillment of the minimum national requirements, the scientometric indicators from Scopus, Web of Science and Google Scholar, it was established that the candidate fully satisfies the requirements for occupying the academic position according to the announced competition. **All this gives me enough reason to give a categorically positive assessment and I suggest that the scientific jury vote on a proposal to the Scientific Council of the Institute of Information and Communication Technologies at the BAS to elect Assoc. Prof. Dr. Vassil Georgiev Guliashki to the academic position of “professor” in professional direction 4.6 “Informatics and computer science”.**

30.06.2022

Review:

НА ОСНОВАНИЕ

331A