ACADEMIC OPINION
on the competition for the academic position of Associate Professor

Field of higher education:	4. Natural Sciences, Mathematics and Informatics
Professional field:	4.6. Informatics and Computer Science
Scientific specialty:	Informatics (Adaptive Educational Software Systems)
Announced in:	State Gazette, No. 63 of 10 July 2026, and on the website of IMI
For the needs of:	Institute of Mathematics and Informatics, Bulgarian Academy of Sciences (IMI-BAS)
Prepared by:	Assoc. Prof. Dr. Krassimira Minkova Ivanova
Member of the scientific jury of the competition, according to:	Order No. 88 of 8 September 2026 issued by the Director of IMI

Dr. Dessislava Dakova Vassileva is the sole applicant in the competition.

I. General Description of the Submitted Materials

1. Application Details

Dr. Dessislava Dakova Vassileva graduated from the Faculty of Mathematics and Informatics at Sofia University “St. Kliment Ohridski”, obtaining a Master’s degree in Mathematics with a specialization in information and communication technologies. In 2011, she obtained the educational and scientific degree of Doctor in Informatics at the same institution after defending a dissertation entitled “Adaptive Software Systems for E-Learning”.

She has worked as a research associate and project researcher at Sofia University “St. Kliment Ohridski”, as well as a programmer at the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences. She has participated in a number of national and international research projects. In addition, she has held positions as software engineer, team leader, and senior software engineer in technology companies in Bulgaria and Spain.

For the competition, the candidate has submitted 22 scientific publications and two registered utility models. She has also provided information on participation in seven national and five international projects.

Her scientific publications address adaptive e-learning, personalization of educational content, adaptation of educational video games to users' behaviour and emotional states, and the development and application of serious educational games.

The submitted materials are consistent with the subject area of the announced competition.

2. Content Analysis of the Applicant's Scientific and Scientific-Applied Achievements Contained in the Materials for Participation in the Competition

The 22 scientific publications submitted for the competition reflect sustained research in adaptive educational software systems, personalization of learning, and the use of educational video games. The scientific and applied research results can be summarized in three main thematic areas.

The first area concerns the modelling and development of adaptive educational systems and e-learning technologies [1–7, 14]. The research covers formal models for describing and managing adaptive processes, mechanisms for personalizing learning content, and approaches that take learners' individual characteristics into account. Among the more significant results is the separation of adaptation rules from the core program logic, enabling more flexible construction and further development of adaptive systems. These ideas have been put into practice in the APOGEE platform, developed for the automated creation of personalized educational video games, including by users without specialized programming skills.

The second area examines the adaptation of educational video games based on players' emotional states and behaviour [8–11]. Approaches have been developed for dynamically modifying the game environment and task difficulty through the analysis of physiological indicators, facial expressions, and game performance. Methods for recognizing behavioural patterns and tracking player progress have also been investigated. A significant contribution is the integration of different sources of user information to achieve more appropriate and individualized adaptation. The experimental studies presented demonstrate the practical applicability of the proposed solutions.

The third area brings together research on game-based learning and the development of serious educational games [12, 13, 15–22]. It addresses the identification of playing and learning styles, the design of game scenarios, the adaptation and personalization of educational games, and their application in different subject areas. Notable results include studies of the relationship between gaming behaviour and individual learning styles, as well as the development of technological approaches to the adaptation and personalization of educational video games. This area demonstrates the progression of the research from specific adaptive mechanisms toward broader technological solutions and applications.

The applied research results are complemented by two registered utility models related to the measurement of skin conductance and the assessment of individual emotional arousal. They provide practical means of recording users' physiological responses and are thematically linked to research on emotion-based adaptation.

The submitted scientific and applied research results demonstrate thematic consistency, a combination of formal models and software implementation, and an emphasis on practical application and experimental investigation of the proposed solutions. The contributions are directly relevant to the scientific specialty of the announced competition.

With regard to scientometric indicators, the candidate reports 130 points in Group B (against a required minimum of 100) and 346 points in Group G (against a required minimum of 220). Her publication record includes two articles in journals with an impact factor (in Q1 and Q2, respectively), 12 publications in venues with an SJR impact ranking but no impact factor, and eight publications in indexed scientific venues without an impact factor or SJR ranking. These results substantially exceed the minimum national requirements for the respective groups of indicators.

A list of 25 citations, excluding self-citations, to nine of the publications submitted for the competition has been provided. The citing publications are indexed in Web of Science and/or Scopus (150 points against a required minimum of 70), indicating interest in the published research results.

In reviewing the submitted scientific publications, I have not identified any evidence of plagiarism.

3. Evaluation of Projects Work and Other Activities

Dr. Dessislava Vassileva has substantial research experience acquired both through work in an academic environment and through participation in national and international projects. From 2008 to 2011, she held the position of Research Associate, Third Grade, at the Research Sector of Sofia University "St. Kliment Ohridski"; from 2020 to 2021, she worked as an R2 researcher on the project for the establishment and development of the Centre of Excellence "Heritage BG".

She has participated in a number of national and international research projects, including the national projects ADOPTA, APOGEE, APTITUDE, and "Heritage BG", as well as the international projects TENCompetence (FP6), SISTER (FP7), RAGE (Horizon 2020), E-CREHA (Erasmus+), and LUDUS (SEE TCP). A substantial proportion of these projects concern adaptive e-learning, educational video games, and personalization of learning content, and are directly related to the scientific results presented.

The candidate also has teaching experience as a part-time assistant at the Faculty of Mathematics and Informatics of Sofia University "St. Kliment Ohridski", where she taught courses in Java programming, modern markup languages, XML technologies, and the Semantic Web between 2005 and 2011.

She also has extensive practical experience in the software industry, including the design and development of information systems, web applications, and software services, as well as team management. I consider the combination of research activity and practical experience to be a positive feature of her candidacy, particularly in view of the applied nature of research in adaptive educational software systems.

4. Recommendations

I have no critical remarks concerning the submitted materials. I recommend that the candidate continue the positive trend of publishing her research results in highly ranked international scientific journals.

5. Application Conclusion

The scientific and applied research results presented by Dr. Dessislava Dakova Vassileva are directly relevant to the subject of the announced competition and demonstrate sustained research activity in adaptive educational software systems. The candidate possesses the necessary research and professional experience, and the submitted materials meet and exceed both the minimum national requirements and the requirements of IMI-BAS for the academic position of Associate Professor.

II. Overall Conclusion

On the basis of the submitted materials and the assessment presented above, I consider that Dr. Dessislava Dakova Vassileva meets the requirements for appointment to the academic position of Associate Professor in professional field 4.6. Informatics and Computer Science.

I give a positive assessment of her candidacy and strongly recommend that the Scientific Jury propose to the Scientific Council of IMI-BAS that Dr. Dessislava Dakova Vassileva be elected to the academic position of Associate Professor in field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.6. Informatics and Computer Science, scientific specialty “Informatics” (Adaptive Educational Software Systems).

Sofia Prepared by:

01.11.2026 (Assoc. Prof. Dr. Kr. Ivanova)