ABSTRACTS

of the scientific works for participation in the contest

for the academic position of "professor"

(Annotations of the materials under Art. 76 (1) of PRASPU for participation in the contest, including self-assessment of contributions)

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Twenty-two (22) scientific publications, two (2) books and three (3) monographs are presented for participation in this contest (see List of scientific papers for participation in the contest). All of them were published after the academic position of "Associate Professor" was acquired.

I. PUBLICATIONS

1. **Rahneva O.**, I. Maslinkov, A. Rahnev, *Approaches to testing and evaluation using DeTC*, Scientific conference with international participation "The knowledge economy - a challenge to higher education", Volume III, Burgas, 2008, ISBN 978-954-9370-63-8, pp. 262-267.

This paper describes the functional features and the developed tools for creation and automatic generation of tests in the Distributed e-Testing Cluster (DeTC). Special emphasis is made on the approaches to testing in assessment during a real group testing examination with DeTC.

2. Golev A., **O. Rahneva**, A. Rahnev, *Algorithms to Minimize the Number of Unique Tests in Real Group Testing Examination*, Scientific Works, Plovdiv University, vol. 36, book 3, 2009 – Mathematics, ISSN 0204–5249, pp 39-49.

This paper describes algorithms for finding fast the minimal number of unique tests in real group test examinations in Distributed e-Testing Cluster – DeTC, depending on the neighboring seats configuration. It suggests how to arrange unique tests on the testing seats, so that neighbors have different tests. The paper also suggests what algorithms should be applied and in what order for different configuration of the neighboring testing seats.

3. Pavlov N., A. Rahnev, **O. Rahneva**, *RIA-based e-Testing System,* International Conference "Challenges to Higher Education and Research in Crisis", Burgas, June 25-26, 2010, ISBN 978-954-9370-72-0, Vol. 3, pp. 206-213.

This paper describes the application of RIA in distant e-testing group examination. It highlights the advantages of RIA being an evolution step over Web 2.0 (HTML, CSS, and AJAX), which enhance the functionality of the Distributed e-Testing Cluster — DeTC. An overview is made of technologies Silverlight and WCF as means to implement RIA.

4. Pavlov N., **O. Rahneva**, A. Rahnev, *Virtual Classroom For E-Learning,* Jubilee Scientific Conference „TRADITIONS, DIRECTIONS, CHALLENGERS", Volume II, part II „NATURAL SCIENCE, MATHEMATICS AND INFORMATICS", 19-21 October 2012, Smolyan, Bulgaria, ISBN: 978-954-8767-43-9, pp. 107-112.

The paper describes a Virtual Classroom for electronic distance learning in high schools and universities and overviews the primary educational services. The integration capabilities with a software package for automating the administration of universities are outlined. Further, the integration capabilities with the Distributed e-Testing Cluster (DeTC) are emphasized as means to conduct real e-testing examination.

5. Valchanov N., Rahnev A., Pavlov N., **O. Rahneva**, *Agents For Preventing Copying,* Jubilee Scientific Conference „TRADITIONS, DIRECTIONS, CHALLENGERS", Volume II, part II „NATURAL SCIENCE, MATHEMATICS AND INFORMATICS", 19-21 October 2012, Smolyan, Bulgaria, ISBN: 978-954-8767-43-9, pp. 95-100.

This work describes the development of software agents that search for similarities in papers submitted by students within the dynamic website development class. These similarities are identified by specific code attributes that guarantee with high accuracy that the paper contains copied content. The agents are integrated in the e-testing process within the "Tourism" Master's program in Plovdiv university "Paisii Hilenradski", branch Smolyan. They are used for verification of papers on "dynamic website development with specialized tools".

6. Malinova A., Pavlov N., O**. Rahneva**, *The Electronic Textbook "Developing Business Web Applications" In The DisPeL Platform,* International Conference FROM DELC TO VELSPACE, Plovdiv, 26–28 March 2014, ISBN: 0-9545660-2-5, pp. 183-190.

This paper presents the electronic textbook "Developing Business Web Applications", which is implemented and introduced into the process of education by DisPeL (Distributed Platform for e-Learning). We describe the structuring and the adaptability of the learning content, the provided approach to creating unique tests – intermediate and final, as well as the results from the usage of the presented electronic textbook in student education in the Master's program "Business Software Technologies" at the Faculty of Mathematics and Informatics at the University of Plovdiv "Paisii Hilendarski".

7. Malinova, A., **O. Rahneva**, *Automatic generation of English language test questions using Mathematica,* CBU International Conference on Innovations in Science and Education, March 23-25, 2016, Prague, Czech Republic, Vol 4 (2016): CBU International Conference Proceedings 2016, ISSN: 805-997X (Print), 1805-9961 (Online), pp. 906-909.

This paper describes a computer algebra-aided generation of two types of English language tests, which further develops our recent work in this domain. The computer algebra system Wolfram Mathematica significantly advances the process of English language testing and assessment. The automatic generation of questions allows us to create a large set of equivalent questions of a certain topic based on a small amount of input values. This reduces authoring time during test creation, avails application of equal criteria and a fair assessment, and decreases the influence of subjective factors. In our previous work, we proposed methods for automatic generation of English language test questions. These were aimed at evaluating the students' knowledge of lexical and grammatical structures found in the text using test questions that involved matching words and their meaning, matching parts of the whole, and finding synonyms, antonyms, and generalizations or specializations of words. This paper provides new methods for the automatic generation of English language test questions. This includes generating questions for testing the students' knowledge of adverbs and adjectives, as well as word formation, especially with negative forms of adjectives.

8. Angelova E., **O. Rahneva**, Terzieva T., Arnaudova V., *Adaptive Learning Through Electronic Javascript Textbook In DisPel*, Proceedings of the Scientific Conference "Innovative ICT in Business and Education: Future Trends, Applications and Implementation", Pamporovo, 24-25 November 2016, 143-152, ISBN: 978-954-8852-72-2.

In this article we present the creation of an electronic JavaScript textbook using the Distributed e-learning platform – DisPeL (Distributed Platform for e-Learning). We describe in depth the structuring of learning content in lessons, to achieve adaptability, develop a system of tests for self-assessment and intermediary control of knowledge. We emphasize on creating tests to diagnose achievements after completion of the training course via e-textbook for teaching students on the course "Audio Visual and Information Technologies in Education" for students from Plovdiv University "Paisii Hilendarski" – branch Smolyan.

9. Malinova A., **O. Rahneva**, A. Golev, *Automatic Generation of English Language Test Questions on Parts of Speech*, International Journal of Pure and Applied Mathematics - IJPAM, Vol. 111, No. 3, 2016, pp. 525-534, ISSN 1311-8080 (printed version), ISSN 1314-3395 (on-line version), (**SJR 2016: 0.244**)

This paper describes computer algebra aided generation of English language test questions for evaluating learners' knowledge of the different parts of speech. The aim of our work is automatic generation of test questions, which are automatically assessed as well. This is a further development of our recent work in the domain; in our previous work we have proposed methods for automatic generation of English language test questions connected with evaluating learners' knowledge of the lexical and grammatical structures that are met in the text; matching words and their meaning; matching parts of the whole; finding synonyms, antonyms and generalizations/specializations of words; test questions for adverbs and adjectives as well as word formation, particularly negative forms of adjectives. As a result, we obtain reduced time consumption during tests authoring, application of equal criteria, fair assessment and decreased influence of subjective factors.

10. Terzieva T., **O. Rahneva**, Arnaudova V., Karabov A., *Application Of DisPeL For Adaptivity And Individualization In The Training*, Proceedings of the Scientific Conference Innovative Software Tools and Technologies with Applications in Research in Mathematics, Informatics and Pedagogy of Education, Section B: Innovative Software Tools and Technologies in Education, Pamporovo, 23-24 November 2017, p. 175-182, ISBN: 978-619-202-343-0.

In this article we present some results from using the Distributed Platform for e-Learning DisPeL in the implementation of an adaptive e-learning course for students of the speciality "Tourism" at the Smolian Branch of the University of Plovdiv. Various pedagogical approaches are analysed to apply adaptability and individualization in learning. We discuss the possibilities on DisPeL for adaptive customized training and assessment. One of the functionalities of the system is the generation of statistical information about the exams. In this way, teachers can make personal references to a particular student or group of students and reach out relevant conclusions about the extent of learning, difficulties encountered, etc.

11. E. Angelova, A. Malinova, V. Kyurkchiev, **O. Rahneva**, *A Note on the Xgamma Cumulative Sigmoid. Some Applications,* 6th Int. Conf. on New Trends in the Applications of Differential Equations in Sciences (NTADES 2019), Sts. Constantin and Helena; Bulgaria; 1-4 July 2019, AIP Conference Proceedings 2159, 030001 (2019); **(SJR 2019: 0.190).**

In this paper we prove upper and lower estimates for the one–sided Hausdorff approximation of the Heaviside function by means of a Xgamma cumulative sigmoid (XGCS) proposed by Sen, Maiti and Chandra in 2015.

Some applications of the cumulative sigmoid for analysis of the "data on the development of the Drosophila melanogaster population", published by biologist Raymond Pearl in 1920, and the "actual data to estimate the number of software residual faults" are presented.

Numerical examples using CAS Mathematica, illustrating our results are given.

12. A. Malinova, **O. Rahneva, A**. Golev, V. Kyurkchiev, *A Note On The "Transmuted Transmuted–G Family" Of Cumulative Distribution Functions,* International Journal of Differential Equations and Applications, Vol. 18, No. 1, 2019, 111-122, ISSN (Print): 1311-2872; ISSN (Online): 1314-6084

In 2019 Mansour, Elrazik, Afify, Ahsanullah and Altun proposed a new "transmuted transmuted – G (TT–G) family" of distributions. The authors' assertion that probability distribution (in some particular cases) produces very good results in approximating specific data from different fields such as population dynamics, biostatistics, survival analysis and others has encouraged us to conduct further studies on "saturation" in Hausdorff sense of the corresponding cumulative function to the horizontal asymptote. We also analyze some experimental data. The experiments show that in some cases the use of the model proposed by cited authors and analyzed in this article with "respect to the Hausdorff distance" is satisfactory. Numerical examples, illustrating our results are presented using programming environment CAS Mathematica.

13. A. Malinova, **O. Rahneva**, T. Terzieva, E. Angelova, *On The "Supersaturation" Of The Generalized Log–Burr–III Cumulative Function*, International Journal of Differential Equations and Applications, Vol. 18, No. 1, 2019, 99-110, ISSN (Print): 1311-2872; ISSN (Online): 1314-6084

In this paper we study the characteristic – "supersaturation" of the cumulative distribution function of the generalized Log–Burr–III distribution to the horizontal asymptote in the Hausdorff sense. We also analyze some experimental data. The experiments show that in some cases the use of the model proposed by Bhatti, Ali, Hamedany and Ahmad in 2019 and analyzed in this article with "respect to the Hausdorff distance" is satisfactory. Obviously, such studies are a must for the experimenter in the search for dialecticalunity "data–model". Numerical examples, illustrating our results are presented using programming environment CAS Mathematica.

14. Y. Chukanska, T. Terzieva, **O. Rahneva**, G. Koleva, *Design and Creation of 3D Instruments for Education in Music for Children with Special Educational Needs*, Proceedings of the Anniversary International Scientific Conference "Synergetics and Reflection in Mathematics Education", 16-18 October 2020, Pamporovo, Bulgaria, ISBN: 978-619-202-595-3, pp. 221-228.

Teaching children with special educational needs requires an individual approach and adaptation of the educational content to a form suitable for perception. The use of computer and information technologies facilitates adaptation to specific individual needs. In this paper we describe how using computer and 3D printing technologies can facilitate the education in Music for children with severely limited sight. We demonstrate a form of a circle of fifths, suitable for transliteration into Braille. A 3D model of the circle of fifths in Braille is designed. The developed topics provoke interest to carry out similar developments in other areas, not only in music education.

15. Malinova, A., **Rahneva, O**., Pavlov, N., Golev, A., Kyurkchiev, V., *A Look at the Garima Cumulative Distribution Function. Some Related Problems*, 7th Int. Conf. on New Trends in the Applications of Differential Equations in Sciences (NTADES 2020), Sts. Constantin and Helena; Bulgaria; 1-4 September 2020, AIP Conference Proceedings, 2021, Vol. 2331, Art. num. 030022. **(SJR 2020: 0.177)**

In 2019 Abebe, Tesfay, Eyob and Shanker considered the following new two–parameter power Garima (PG).

Also of interest to the specialists is the task of approximating the Heaviside function with the new cumulative function in the Hausdorff sense.

We define a new family of recurrence generated transmuted power Garima (TPG) with c.d.f. $M_{i+1}(t) = M_i(t)\,(\mu_{i+1} + 1 - \mu_{i+1} M_i(t))$, $i = 0, 1, 2, \ldots,$.

Some properties and applications to the specific data are given.

Numerical examples, illustrating our results are presented using programming environment CAS Mathematica.

16. M. Vasileva, **O**. **Rahneva**, A. Malinova, V. Arnaudova, *The Odd Weibull-Topp-Leone-G Power Series Family of Distributions*, International Journal of Differential Equations and Applications, Volume 20, No. 1 (2021), pages: 43-58, ISSN (Print): 1311-2872; ISSN (Online): 1314-6084; **(SJR 2020: 0.103)**

In 2021 Oluyede, Chipepa and Wanduku developed a new generalization of the Weibull–Topp–Leone–G family of distributions called the odd Weibull–Topp–Leone–G–power series (OW–TL–GPS) family. In the paper we study one of the important characteristics "saturation" of this new family of cumulative functions to the horizontal asymptote with respect to Hausdorff metric. We prove estimates for the Hausdorff approximation of the Heaviside step function by means of this family. Also we construct and study families of recurrence generated adaptive functions based on the odd Weibull-Top-Leone-G power series family. In additional we consider a new adaptive model with "polynomial variable transfer". Some numerical examples and simple programming modules, illustrating the new results are given.

17. N. Kyurkchiev, **O**. **Rahneva**, A. Malinova, A. Iliev, *On Some Adaptive G–Families. Applications*, International Journal of Differential Equations and Applications, Volume 20, No. 1 (2021), pages: 89-101, ISSN (Print): 1311-2872; ISSN (Online): 1314-6084; **(SJR 2020: 0.103)**

In this article we study some general classes of trigonometric cumulative distribution functions. We consider also modified families of "adaptive functions" with "fractional linear correction". Here we will also focus on a hypothetical adaptive function, which we will call the "difference adaptive function" (DAF). We study the "saturation"-d in the Hausdorff sense for some special cases of the families. Numerical examples, illustrating our results using CAS MATHEMATICA are given.

18. N. Kyurkchiev, A. Iliev, **O**. **Rahneva**, V. Kyurkchiev, *A Look at Some Trigonometric-G Families with Baseline Inverted Exponential (cdf). Applications*, International Journal of Differential Equations and Applications, Volume 20, No. 1 (2021), pages: 103-119, ISSN (Print): 1311-2872; ISSN (Online): 1314-6084; **(SJR 2020: 0.103)**

In this article we study some general classes of trigonometric cumulative distribution functions with baseline inverted exponential (cdf). We consider also modified families of "adaptive functions" with "polynomial variable transfer" with applications to the Antenna-feeder Analysis. We study the "saturation"-d in the Hausdorff sense for some special cases of the families. Numerical examples using CAS Mathematica, illustrating our results are given.

19. E. Doychev, A. Terziyski, P. Atanasova, **O. Rahneva**, V. Ivanova, A. Stoyanova-Doycheva, *"A Regional Data Center for Intelligent Agriculture"*, The 7th IEEE International Conference "Big Data, Knowledge and Control Systems Engineering" (BdKCSE'2021), 28–29 October 2021, pp. 1-6, Sofia, Bulgaria.

The research presented in this article is part of the National Research Program "Intelligent Crop Production" with the support of the Bulgarian Ministry of Education and Science and it is

approved by decision of the Ministry Council. The research in this program aims at supporting the development of agriculture as a high-tech, sustainable, highly productive, and attractive area of the Bulgarian economy, which will help to improve the living conditions of farmers and rural areas in general. Among the goals of the program is to develop a pilot project for a virtual operational center for intelligent agriculture in the region of Plovdiv. An essential component of this pilot project is the development of a regional data center for intelligent agriculture. The article presents the architecture of the regional data center in the field of intelligent crop production. The architecture of the regional data center as a private cloud is also discussed. The advantages of the private cloud over the public ones are presented – lower latency, higher security, and greater control over the data. The article also presents the data storages in the regional data center – relational databases and NoSQL databases for storing dynamic data coming from sensors and measurements as well as ontologies for storing constant and relatively unchanging data in the field of crop production.

20. M. Vasileva, A. Malinova, **O. Rahneva** and E. Angelova, *New Properties of The Odd Weibull Inverse Topp-Leone Cumulative Distribution Function*, International Journal of Differential Equations and Applications, Volume 20, No. 2 (2021), pages: 263-272, ISSN (Print): 1311-2872; ISSN (Online): 1314-6084; **(SJR 2020: 0.103)**

In 2021 Almetwally introduced a new lifetime distribution named the odd Weibull inverted Topp-Leone (OWITL) distribution. In this note we study one of the important characteristics "saturation" of this new cumulative function to the horizontal asymptote with respect to Hausdorff metric as we prove some estimates. In additional we consider a new adaptive model with "polynomial variable transfer". The applicability of the model is proved in simulation study to "COVID-19 data". Some numerical examples and software modules within the programming environment CAS MATHEMATICA are presented.

21. T. Terzieva, **O. Rahneva**, V. Dilyanov, *Pedagogical Strategies for Development of Cognitive Skills in A Digital Environment*, International Journal of Differential Equations and Applications, Volume 20, No. 2 (2021), pages: 251-231, ISSN (Print): 1311-2872; ISSN (Online): 1314-6084; **(SJR 2020: 0.103)**

One of the main tasks of modern education is to form in students the knowledge and competencies applicable in different fields, to increase their interest in learning, to form and develop their cognitive motivation. The variety of applied teaching methods has a strong motivating potential in this respect, with an emphasis on interactive teaching methods in a digital environment. This article presents some pedagogical strategies for development of various cognitive skills for learners. We discuss different methodological approaches to learning through the application of innovative educational tools and point out the advantages they offer in the learning process. In the research we focus on pedagogical approaches, which create conditions for provoking students' thinking, for free expression of opinions and defense of one's own position, for provoking creative thinking rather than reproducing information.

22. M. Vasileva, A. Malinova, **O. Rahneva**, E. Angelova, *A Note on the Unit–Rayleigh "Adaptive Function"*, 8th Int. Conf. on New Trends in the Applications of Differential Equations in Sciences (NTADES 2020), Sts. Constantin and Helena; Bulgaria; 6-9 September 2021, AIP Conference Proceedings, 2021, (In print).

Some new facts about a simple one-parameter unit distribution, called the unit-Rayleigh distribution are given by Bantan, Chesneau, Jamal, Elgarhy, Tahir, Ali, Zubair and Anam in 2020. When studying the intrinsic properties of these families, in addition to the analysis of the important characteristic "confidential bounds", it is appropriate to study the "saturation" – d to the horizontal asymptote in the Hausdorff sense. In this work we also define a new "adaptive unit–Rayleigh model with polynomial variable transfer". The applicability of the model is proved in simulation study to "neck cumulative cancer data". Some numerical examples are presented using CAS MATHEMATICA.

II. TEXTBOOKS AND MONOGRAPHS

23. Malinova, A., A. Golev and **O. Rahneva**, *Developing Business Web Applications*, Lightning Source UK Ltd., Milton Keynes, UK, 2014, ISBN: 978-3-99034-204-6.

Although the Web was initially conceived as a vehicle for delivering documents, it is now being used as a platform for sophisticated interactive applications which could offer businesses numerous advantages, such as instant access, automatic upgrades, and opportunities for collaboration on a massive scale. Modern business Web applications, as part of the modern e-business solutions, follow the users' constantly increasing requirements for efficiency, personalization, integration with accounting and payment systems, instant notification, automatic updates of changes to pricing, products and customers, and so on. Thus, creating Web applications requires a different approach than traditional applications and involves the integration of numerous technologies. This textbook will introduce you to the Web technologies and give you basic experience with different approaches to creating business Web applications. In the process you will learn about markup languages, scripting languages, network protocols, server-side and client-side programming, and see how they all work together to deliver Web applications. The second part of the textbook is devoted to developing a modern online store using the Magento e-commerce software. Magento offers a lot of ready-to-use built-in capabilities, such as catalog management, promo pricing and coupon codes, detailed statistics, security measures and SEO options. The textbook ends with a discussion of the basic aspects of Internet advertising and introduction to search engine advertising.

The textbook has fifteen (15) chapters, and every chapter has a test over the covered material.

24. A. Iliev, **O. Rahneva**, N. Pavlov, *Insurance and Insurance Information Systems*, Printed in UK by Lihgtnig Source UK Ltd., 2014, ISBN 978-3-99034-205-3.

Insurance is a way to protect against damage or liability from damage done in unexpected situations. Insurance worldwide has evolved into a living, self-sustaining organism, a unique environment where insurers both compete for customers, but also support and protect each-other against risks. Being an old and massive business, insurance was amongst the first industries to adopt information technologies. There were developed enormous information systems, usually in the COBOL programming language. Nowadays, insurance business faces the necessity to modernize that software. Modern software frameworks come to help in this tremendous task.

The textbook has ten (10) chapters. Chapters 1 to 3 describe insurance as a process, the types of insurances, parties and the key functions of insurance. Chapters 4 and 5 present the importance of information systems for insurance, and how they can improve the insurance as a process, increase the market of the insurer, and give competitive advantages. Chapter 6 makes a brief introduction to software frameworks as means to improve quality and reduce costs. Chapters 7 through 9 describe the specific requirements of business applications in general, as a super-layer of insurance information systems. Chapter 10 presents the readers with the description of a contemporary insurance information system. This book provides readers with a technical and managerial understanding of the processes of analyzing, developing, implementing, and managing successful business software applications. Every chapter has a test over the covered material.

25. O. Rahneva, A. Golev, G. Spasov. *Investigations On Some New Models In Debugging And "Growth" Theory (Part 3)*, LAP LAMBERT Academic Publishing, 2020, ISBN: 978-620-2-66655-8.

This monograph is dedicated to the newest modeling trends in debugging theory and their applications. A Hausdorff metric is chosen to evaluate the test data which are fitted to the sigmoid models. The models are tested with real data.

In first Chapter we study the task of approximating the Heaviside function at the median level with the new function in the Hausdorff sense. The real datasets of "actual data to estimate the number of software residual faults" and “Witty worm infection” behavior are examined.

The second chapter is devoted to the " saturation " in Hausdorff sense. Datasets of "cdf of the number of Bitcoin received per address" and "Software Failure Data { Release \#1" are examined.

The Hausdorff approximation of the shifted Heaviside function by sigmoidal functions based on the Song-Chang-Pham cumulative functions is investigated and an expression for the error of the best approximation is obtained in Chapter 3. The results of numerical examples confirm theoretical conclusions and they are obtained using programming environment Mathematica.

In Chapter 4 we study: upper and lower estimates for the one-sided Hausdorff approximation of the Heaviside step-function by means of a Xgamma cumulative sigmoid (XGCS) and the characteristic - "supersaturation" of the cumulative distribution function of the generalized Log-Burr-III distribution. Similar issues have been addressed using other families.

In each chapter real datasets are examined.

26. Kyurkchiev N., **O. Rahneva**, A. Iliev, A. Malinova, A. Rahnev, *Investigations on Some Generalized Trigonometric Distributions. Properties and Applications*, Plovdiv University Press, 2021, ISBN: 978-619-7663-01-3

In the last few years, there have been serious studies in the literature related to the proposed general classes of trigonometric distributions. Various modifications of this “powerful” class of functions have been proposed and studied by a number of researchers. We will note that the “sine potential correction” can be used to construct other families of adaptive functions for modeling processes in the field of Debugging and Test Theory, Population Dynamics and Computer Viruses Propagation. In this monograph we study some general classes of trigonometric cumulative distribution functions (cdf) and “saturation” in the Hausdorff sense for some special cases of the families. We consider also modified families of generalized “adaptive functions” with “polynomial variable transfer” and the possibilities that are found for simulating radiation diagrams and filter characteristics. Some families of recurrence generated functions based on trigonometric (cdf) are constructed. Numerical examples, illustrating our results using CAS MATHEMATICA are given. The monograph is appropriate for teaching PhD students.

27. O. Rahneva, Pavlov N., *Distributed Systems And Applications In Learning*, Publisher: Plovdiv University Press, 2021, ISBN: 978-619-7663-06-8

This monograph presents a software framework for distributed applications for the business and education, apposite to the modern connected world. As part of the work, the monograph identifies key requirements for business and educational software and defines a set of reusable

components to facilitate implementation of common functionality. Special emphasis is made on the techniques to bridge the gap between the physical data model and how users perceive and work with data.

The monograph continues with description of a new models for electronic education and electronic testing examination and assessment. The software environment Distributed e-Testing Cluster (DeTC) developed with the software framework, is described. Special emphasis is put on group testing examination, both in general and in specific domains – electronics, and accounting.

The third focal point of the monograph is the software environment Distributed Platform for e-Learning (DisPeL), which is also developed using the framework and is an evolution of DeTC. It evolves with services that automate more activities of the learning process – administration and reporting, e-learning, customizable and adaptable learning content. The work presents a cloud-based architecture used for the development of DisPeL.

The monograph is appropriate for researchers, and PhD, Masters and Bachelor students who work in the fields of distributed cloud-based software systems and electronic education.

Signature:

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07.01.2022
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