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Nota di contenuto	Advances in Mathematics and Bio-mathematics -- Functional Systems Integrated with a Universal Agent of Artificial Intelligence and Higher Neurocategories -- Genetic Interpretation of Neurosemantics and Kinetic Approach for Studying Complex Nets: Theory and Experiments -- Focal Curves in the Problem of Representing Smooth Geometric Shapes -- Method of Fuzzy Agreed Alternative Selection in Multi-agent Systems -- Evaluation of the Effect of Preprocessing Data on Network Traffic Classifier based on ML Methods for Qos Predication in Real-time -- The Task of Improving the University Ranking Based on the Statistical Analysis Methods -- Deep-learned Artificial Intelligence for Consciousness -- Thinking Objectization to Rationalize a Person -- Algorithmization of Computational Experiment Planning based on Sobol Sequences in the Tasks of Dynamic Systems Research -- Modification of the Hausdorff Metric in Combination with the Nearest Point Algorithm ICP in Point Cloud Construction Problems -- Calculation of the Current Distribution Function over a Radiating Structure with a Chiral Substrate Using Hypersingular Integral Equations -- Influence of

Image Pre-processing Algorithms on Segmentation Results by Method of Persistence Homology -- Influence of Delays on Self-oscillations in System with Limited Power-supply -- Cognitive Prediction Model of University Activity -- Advances in Medical Approaches -- Temperature Reaction of a Person with a Contact Method of Exposure to a Thermal Signal -- Study of the Force-moment Sensing System of a Manipulative Robot in Contact Situations with Tenzoalgotometry of Soft Biological Tissues -- The Influence of Hydroplasma on the Proliferative and Secretory Activity of Human Mesenchymal Stromal Cells -- The Biotechnological Method for Constructing Acoustic and Vibration Sequences based on Genetic DNA Sequences -- Modelling of Piezoelectric Disk Transducers Operated on Non-axisymmetric Oscillations for Biomedical Devices -- Inherited Bio-symmetries and Algebraic Harmony in Genomes of Higher and Lower Organisms -- Telemedicine Monitoring with Artificial Intelligence Elements -- Modeling of the Cognitive Properties of the Brain Thalamus as a System with Self-organized Criticality -- Advances in Technological and Educational Approaches -- The Natural Intelligence of the Wind Castle Design with the World Natural Heritage of Jeju Island -- The Impact of Interactive Visualization on Trade-Off-Based Decision-making Using Genetic Algorithm: A Case Study -- Advantages of Fuzzy Controllers in Control of Technological Objects with a Big Delay -- Synthesis of I-coordinate Parallel Mechanism without Singularities -- SWOT Analysis of Computer Distance Learning Systems -- Research on Student Achievement Prediction based on BP Neural Network Method -- Post-quantum Digital Signature Scheme for Personal Data Security in Communication Network Systems -- A Motor Fault Detection Method based on Optimized Extreme Learning Machine -- Multi-fidelity Multicriteria Optimization of Strain Gauge Force Sensors Using a Neural Network-Based Surrogate Model -- Traffic Intelligent Control at Multi-section Crossroads of the Road Networks -- On the Efficiency of Machine Learning Algorithms for Imputation in Spatiotemporal Meteorological Data -- Virtual Simulation Experiment Scheme for Software Development Courses based on Situational Teaching -- Evaluation Model of Sports Media Talent Training System in the New Media Era -- Network Module of Generative Adversarial Network for Low-light Image Enhancement -- Research on the Influence of Rules of Ships Entering and Leaving Port on Waiting Time of Large and Small Ships -- A Neural Network Featured System for Learning Performance of Students.

## Sommario/riassunto

This book covers the latest advances for the development of artificial intelligence systems and their applications in various fields from medicine and technology to education. The proceedings comprise refereed papers presented at the Fourth International Conference of Artificial Intelligence, Medical Engineering, Education (AIMEE2020), held at the Mechanical Engineering Institute of the Russian Academy of Sciences, Moscow, Russia, in 3–4 October 2020. Given the rapid development of artificial intelligence systems, the book emphasizes the need for the intensification of training of a growing number of relevant specialists, in particular, in medical engineering to increase the effectiveness of medical diagnosing and treatment. In digital artificial intelligence systems, scientists endeavor to reproduce the innate intellectual abilities of human and other organisms, and the in-depth study of genetic systems and inherited biological processes can provide new approaches to create more and more effective artificial intelligence methods. Topics of the included papers concern thematic materials in the following spheres: mathematics and biomathematics; medical approaches; technological and educational approaches. The book is a

compilation of state-of-the-art papers in the field, covering a comprehensive range of subjects that is relevant to business managers and engineering professionals alike. The breadth and depth of these proceedings make them an excellent resource for asset management practitioners, researchers, and academics, as well as undergraduate and postgraduate students interested in artificial intelligence and bioinformatics systems as well as their growing applications. Intended readership includes specialists, students, and other circles of readers who would like to know where artificial intelligence systems can be applied in the future with great benefit. .

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