## **Software Engineering** Exploratory Analysis of Hypertensive Patient Data for Data-Driven Modelling of Personalized Treatment Dosing ..... 10 Alexander Kshenin, Anna Semakova, and Nadezhda Zvartau Personalized Recommendation Algorithm Selection Using Binary Vectors of Metadata ...... 15 Alexander Nechaev, Nataly Zhukova, and Vasily Meltsov JavaScript Animation Libraries Comparison...... 20 Nikita Vozisov, Ilia Gosudarev, and Irina Gotskaya Node is Frameworks Performance Comparison ..... 24 Danil Demashov and Ilya Gosudarev Preprocessing Methods of Traffic Signs Images for Effective Classification with CNN ...... 29 Valentyn Sichkar and Sergey Kolyubin Development of System for Detecting Parking Space Occupancy Using Deep Learning Algorithms . . . . . . . . 33 Ekaterina Kosareva, Artemii Zenkin, and Ivan Kirilenko Agile Architecture Automata Based Approach to Monitoring Systems Development ...... 37 Saddam Abbas, Michael Chervontsev, Alexander Vodyaho, and Natalia Zhukova On Distributed Genetic Algorithm-Based Music Generation with VAE Genotype-to-Phenotype Mapping ..... Gleb Rogozinsky and Aleksei Shchekochikhin Semantic Tomography: a Word Embedding Method Using Quantum Probability Framework ...... 48 Aleksei Platonov, Aleksandr Trukhanov, and Igor Bessmertny 52 Dmitry Kulikov, Artem Vostropyatov, and Kamo Abramyan Numeric Data Extraction from Natural Language Text ..... 57 Ivan Uskov, Alexander Yarkeev, and Evgenii Tsopa Algorithmic Approaches to Analysis of Internet Contents Effect on Its Target Audience...... 61 Andrey Zavodov and Andrey Dergachev 64 Kirill Uryvaev and Alena Rusak Analysis of Navigation Algorithms for Intelligent Agent in Virtual Soccer ...... 68 Michail Panteleyev and Anushervon Salimov The System for Finding the Shortest Path Using the Genetic Algorithm and Reinforcement Learning . . . . . . . 73 Vadim Kholoshnia and Elena Boldyreva Software Development Aspects for Studying the Relationship between Type of Thinking and Facial Features.. 79 Darya Panarina and Pavel Balakshin Anytime Algorithms for Pass Implementation in Virtual Soccer..... 84 Borislav Novikov and Michail Panteleyev Improving Web Applications Throughput in the PHP Ecosystem ..... 89 Oleg Laktyushkin, Vladimir Ryashentsev, and Ilya Gosudarev

Results of Implementation System Management and Drawing for Persons with Special Health Needs 92  Oleksii Zhukov and Alexander Belozubov	
Comparison of Web Frameworks on Python and Node.js Platforms	
Analysing Text Tonality: Comparative Study of Classic ML Techniques	
Methods for Determining the Preferred Type of Behavior Through a Web Application with Dynamic Script 105 Sosipatrova Natalia and Bilyi Andrei	
II Cyber-Physical Systems	
Effective Implementation of the Signals Receiver MODE-S Format on the FPGA	
Priority Service Model for Mobile Nodes of Ubiquitous Sensor Network	
Adaptive L1 Cache Prefetching Algorithm for RISC-V Microprocessors	
Web Application Development Problems Using DBMS on Microcontroller Platforms	
Flight Motion Control System for UAV	
Mathematical Method for the Synthesis of Technological Systems from Analogue-Element Set	
Model of Secure Informational Messages for Confidentiality Assurance in Smart Factory Networks	
Graphic Programming Language for Cyber-Physical Systems Serving Housing and Communal Services 141  Arkady Kluchev , Alexey Platunov, Vladislav Zhovnitsky , Vladislav Kluchev , Yaroslav Gorbachev	
Experience in the Automation of Educational Laboratory Research in the Field of Thermal Physics	
Research on the Physical Characteristics of Sensor Devices in the Digital Farms	
Estimation of the Sensor Devices Characteristics in Three-dimensional Space of Agriculture	
Thermal Analysis and Thermal Management in Smart Home Systems on the LMT4Home Platform	
Development of a Bionic Prosthesis of a Human Hand with the Possibility of Reprogramming and Combined Control	
Training and Research Using The Robotic Platform of The Anthropomorphic Robot Greta 2.0	
Information Security of Production on the Affairs about Administrative Offenses under the Management of Geoinformation System	

Digital Production Models Development Using the IIoT Platform
Application of the Simulation Method to Assess the Frequency of Implementation of Accident Scenarios 18  Marina Avdeeva, Anastasia Uvarova, and Sergey Shavurov
Method of Converting an Induction Motor to a Permanent Magnet Synchronous Motor (LS-PMSM) with Linear Starting Using FEA for Mechatronic Systems
III Computer Systems and Networks
Statistical Research and Modeling Network Traffic
Multipath Redundant Transmissions of Packets Without Connection Establishment
Evaluation of the Cluster Operating Time with the Migration of Virtual Machines while Ensuring the Continuity of the Computing Process
Development of Horizontal Scaling Management System for Applications in Heterogeneous Environment 20 Elizaveta Kuzenkova, Iurii Korenkov, Ivan Loginov, Aglaya Ilina, and Andrey Dergachev
Data Migration Rate of the CRUSH-based Distributed Storage with Dynamic Topology
Trust, Reputation, and Game Theory Approach to Secure Communication in a Group of Unmanned Vehicles 21 Egor Marinenkov, Sergei Chuprov, and Ilya Viksnin
Access Control Model to Global Infocommunication Resources
The Probability of Timely Redundant Service of Requests by a Sequence of Servers in a Multi-level Cluster 22 Vladimir Bogatyrev, Stanislav Bogatyrev, and Anatoly Bogatyrev
Method of Diagnosis Integrated Systems and Communication Systems Based on Wavelet-Transform Thermogram of Electronic Modules
Empirical Study on Modeling of Crowd Behavior in Emergency Situations
Process Safety Instrument System Optimization by Monte-Carlo Method
Improving Educational Process Management Applying Blockchain Technology
Caler. A Cross-platform Utility for Cloud Backend Systems Autoscaling Optimization
IV AR/VR/MR and Multimedia
The Use of a Smell Sensor Channel in Virtual Reality Environments

Development of a Custom Teleportation System for Virtual Imp-Art Museum	256
Approach for Vehicle Model Re-Identification via Deep Visual Features Matching	260
The Influence of Digital Colors Perception at Human Computer Interaction	265
Development of Software and Hardware Complex for Fire Detection of Gas and Oil Wells	269
VR Training for Railway Wagons Maintenance	274
The Synthesis of Virtual Environment	278
Applying Numerical Optimization to Virtual Reality Interface for Historical Moscow Center Reconstruction Leonid Borodkin, Lemak Stepan, Margarita Belousova, Anna Kruchinina, Maxim Mironenko, Viktor Chertopolokhov, and Sergey Chernov	283
Unsupervised Deep Learning with Iterative Warping for Motion Estimation	287
Using Mobile Vision API for Reading Measurement Information from Metering Devices	291
Experimental Evaluation of Different Camera Layouts in Marker Motion Capture System	295
EEG Emotion Recognition and Its Problems	300
Models and Algorithms for Action Utility Assessment in Virtual Football	304