CONTENTS

INFORMATICS, COMPUTER ENGINEERING AND AUTOMATION

Batiuk S.G., Vasianovych V.M., Voroniuk M.V., Voroshylov A.I.
INVARIANT MODELS OF CONTROL OBJECTS AND UNIVERSAL STRUCTURES
OF PID-CONTROLLERS IN THE IMITATION MODELING OF THERMAL ENERGY SYSTEMS
OF AUTOMATIC REGULATION.....1

Berezhna O.B.
SYNERGY OF INFORMATION TECHNOLOGIES AND NEURAL NETWORKS
FOR TEXT CONTENT GENERATION.....13

Borovskova Ye.A.
DETERMINING OPTIMAL CACHING STRATEGIES FOR IMPROVING PERFORMANCE
OF SERVER APPLICATIONS ON NESTJS.....18

Garashchuk B.V.
A METHOD FOR OPTIMIZING IOT NETWORKS BASED ON BLOCKCHAIN
TECHNOLOGY USING A LIGHTENED CONSENSUS ALGORITHM 27

Hiorhizova-Hai V.S., Kyriusha B.A.
CLOUD SERVICES IN CORPORATE INFRASTRUCTURE.....32

Golubev L.P., Kiva I.L.
AN AUTOMATED SYSTEM FOR MONITORING ELECTRIC ENERGY CONSUMPTION
BY DEVICES BASED ON HOME ASSISTANT..... 40

Zvieriev V.P., Bushkov V.H.
CROSS-CHANNEL ANTI-FRAUD SYSTEMS AS A TOOL FOR COMPREHENSIVE
PROTECTION OF ELECTRONIC COMMUNICATIONS IN THE DIGITAL ECONOMY..... 46

Ivanyshyn V.V., Moshensky A.O.
ONTOLOGICAL STRUCTURE AND PARAMETERS OF THE APIARY CONTROL SYSTEM
MEASUREMENTS.....56

Ilchuk M.S.
A ROBUST BARCODE DETECTION SYSTEM WITH MACHINE LEARNING.....63

Caceres A., Globa L.S.
INTEGRATION OF AI AND MULTI-AGENT SYSTEMS
FOR MULTI-CRITERIA DECISION ANALYSIS IN MULTI-CLOUD ENVIRONMENTS..... 68

Kyrychenko Ye.O., Kyrychenko O.L.
BUILDING NEURAL NETWORK MODELS IN A CLOUD BY MEANS OF AWS EMR..... 75

Kozub V.V.
PRACTICE OF USING NEW TECHNOLOGIES IN MICROSERVICE ARCHITECTURE
OF SOFTWARE DEVELOPMENT.....80

Korotynskyi A.P., Abramova A.O., Skladannyy D.M.
DEVELOPMENT THE RECTIFICATION COLUMN MODEL IN THE ACETIC ACID
PRODUCTION AND ITS SIMPLIFICATION FOR CONTROL PROBLEMS.....89

Kurganov I.D., Kharlamenko V.Yu.
MODELING OF THE DRIVE DRUM OF A BELT CONVEYOR AS A CONTROL OBJECT
OF A SYSTEM WITH DISTRIBUTED PARAMETERS.....98

Lobanchykova N.M., Lysenko M.S.
ANALYSIS OF THE STATE OF PROVIDING VIRTUAL ACCOMPANIMENT IN HEALTHCARE
FACILITIES FOR LOW-MOBILITY POPULATION GROUPS.....104

Marchuk D.M., Fesiuk I.I., Rosa T.V., Karpin O.O., Maksymiuk T.A.
RESEARCH ON THE INFORMATIVENESS AND EXPLAINABILITY OF ARTIFICIAL
INTELLIGENCE ALGORITHMS.....112

Nadutenko M.V., Vasylenko O.D.
THE AGI-ALS CONCEPTION AND ITS METHODOLOGICAL FOUNDATIONS.....117

Nevliudov I.Sh., Yevsieiev V.V., Gurin D.V.
DEVELOPMENT OF A MODEL OF DYNAMIC DESCRIPTION OF THE ENVIRONMENT OF A COLLABORATIVE MANIPULATOR ROBOT WITHIN THE CONCEPT OF INDUSTRY 5.0.....128
Novak D.S., Moshenskyi A.O., Guida O.H., Ometsynska N.V., Dromenko V.B.
SATELLITE IMAGE SEGMENTATION SOFTWARE DEVELOPMENT.....134
Oleshchenko L.M.
SOFTWARE IMPLEMENTATION OF THE HUFF GRAVITY MODEL FOR OPTIMAL SPATIAL PLACEMENT OF URBAN SERVICE FACILITIES.....140
Oleshchenko L.M., Tarelkina K.O.
USER-DRIVEN VIDEO COLORIZATION SYSTEM DEVELOPMENT USING GENERATIVE ADVERSARIAL NEURAL NETWORK.....149
Orlov M.V., Hrybovskyi O.M., Zhovnir Yu.I., Duda O.M.
FROM CONCEPT TO REALITY: THE ROLE OF DEVOPS METHODOLOGY IN IOT ECOSYSTEMS.....157
Patsora A.A.
THE CONCEPTUAL MODEL OF REPRESENTING WEB 3.0 INFRASTRUCTURE IN THE PROCESSING OF A SUBJECT.....165
Platov I.M., Pavlovska Yu.O.
RESEARCH ON THE DEPENDENCE OF THE ENERGY CONSUMPTION OF A WALKING HEXAPOD ON THE TRAJECTORY OF LIMB MOTION UNDER CONDITIONS OF UNCERTAINTY.....172
Potrashkova L.V., Paziura K.S.
A METHODOLOGY FOR SELECTING AUGMENTED REALITY CHARACTERISTICS FOR WEBSITES DEDICATED TO THE VISUAL ARTS.....181
Potrashkova L.V., Kovalenko V.I.
METHODOLOGY FOR DEVELOPING A WEBSITE DESIGN USING UKRAINIAN ETHNICITY.....186
Prokopovych-Tkachenko D.I.
GRAPHICAL VISUALIZATION AND NEURAL NETWORKALGORITHMS: INNOVATIVE APPROACHES TO MONITORING THE STATES OF INFORMATION SYSTEMS.....192
Prokopovych-Tkachenko D.I., Sarychev V.I., Zvieriev V.P., Bushkov V.G., Khruskov B.S.
MODELING STATE INFORMATION SECURITY AS A COMPLEX TECHNOLOGICAL SYSTEM: A STRATEGIC APPROACH TO RISK MANAGEMENT.....200
Rudnitskiy P.Ye.
METHOD FOR CREATING A SECURE ELECTRONIC DOCUMENT MANAGEMENT SYSTEM BASED ON BLOCKCHAIN TECHNOLOGY.....209
Savula A.A., Korotynsky A.P.
APPLICATION OF SOUND FEATURE FOR MONITORING THE TECHNICAL AND OPERATIONAL CONDITION OF INDUSTRIAL EQUIPMENT 215
Sahaida P.I., Kostikov O.A.
ALGORITHMS FOR THE VERIFICATION METHOD OF THE ONTOLOGICAL MODEL USING CATEGORY THEORY DURING THE DESIGN OF DATA AND KNOWLEDGE WAREHOUSES OF INFORMATION SYSTEMS.....221
Sazonov A.Yu., Ladieva L.R., Cherednychenko V.I.
ANALYSIS OF SOFTWARE-LEVEL OPTIMIZATION SOLUTIONS FOR MOBILE WALKING RESCUE ROBOT LOCOMOTION CONTROL SYSTEM.....228
Fu Bin, Sarnatskyi V.V.
DESIGN AND IMPLEMENTATION OF A SITUATIONAL AWARENESS SYSTEM BASED ON MULTI-SOURCE SECURITY LOG ANALYSIS.....234
Ciapa S.M.
CYBERSECURITY THREATS AND VULNERABILITIES IN CONNECTED AND AUTONOMOUS TRANSPORTATION SYSTEMS.....244

TRANSPORT

Boikiv M.V., Zherebetskyi N.V.
STUDY OF TRAFFIC CONDITIONS AT INTERSECTION
WITH A HEAVY TRAFFIC FLOW IN THE MAIN DIRECTION..... 251

Boiko S.M., Kotov O.B., Zhukov O.A., Reuta A.V., Zhurid V.I., Deryabina I.O.
PROSPECTS FOR IMPLEMENTING INTELLECTUALIZATION INTO ENERGY
SUPPLY SYSTEMS OF AIRPORT INFRASTRUCTURE FACILITIES..... 259

Yevchuk Yu.Yu.
PATTERNS OF CHANGES IN PUBLIC TRANSPORT DELAYS
IN DIFFERENT WAYS OF ITS PRIORITIZATION..... 264

Karapysh A.S., Kharchenko O.I., Barkalova N.O.
THEORETICAL FOUNDATIONS FOR FORMING SUSTAINABILITY INDICATORS..... 272

Kravchenko O.A., Lugovoy T.A.
OVERVIEW OF THE NEWEST INNOVATIVE TECHNOLOGIES FOR UKRAINE
TO REDUCE THE NEGATIVE IMPACT ON THE ENVIRONMENT DURING
SEA TRANSPORTATION OF HYDROCARBONS..... 277

Petrov L.M., Kishianus I.V., Borysenko T.M., Mohylianets T.M., Malynovskyi O.A., Shelukhin S.V., Nikishyn V.A.
STUDY OF THE DESIGN OF THE CAR CHASSIS
WITH AN ENERGY CONVERTER BETWEEN THE DRIVE AXLES..... 282

Fomenko H.R.
BICYCLE TRANSPORT AND ITS DEVELOPMENT IN URBAN CENTERS..... 288

Khitrov I.O.
APPLICATION OF ELECTRIC BUSES FOR PASSENGER TRANSPORTATION..... 293

ELECTRONICS

Obukhova T.Yu., Zinchenko A.Yu., Barbash V.A., Dusheiko M.G.
ELECTROPHYSICAL PROPERTIES OF MELANIN-NANOCELLULOSE STRUCTURES..... 299

CURRENT ISSUES OF TECHNICAL SCIENCES

Mandryk Ya.S.
CONDUCTING AERIAL SEARCH AND RESCUE USING UNMANNED AIRCRAFT..... 304

INFORMATION ABOUT AUTHORS..... 309