



Critical Infrastructures in the Digital World

**IWCI 2024 PROCEEDINGS OF THE
INTERNATIONAL WORKSHOP**

**March 14 – 20, 2024
Bolshoe Goloustnoe**

CONTENT

Baimakov Aleksander, Ivanyo Yaroslav, Fedurina Nina	ELECTRONIC INFORMATION AND EDUCATIONAL ENVIRONMENT IN MONITORING UNIVERSITY PERFORMANCE INDICATORS	2
Barsukova Margarita, Ivanyo Yaroslav, Petrova Sofia, Tsyrenzhapova Valentina	MODELING OF AGRICULTURAL PRODUCTS DURING ADVERSE EVENTS	3
Danilov Gleb, Voskoboinikov Mikhail	TESTBED-BASED APPROACH TO TESTING A LIBRARY FOR EVALUATING NETWORK RELIABILITY ALGORITHMS	4
Erzhenin Roman	WAYS TO INCREASE PRODUCTIVITY IN THE DEVELOPMENT OF COMPLEX INFORMATION SYSTEMS	6
Galagan Konstantin	EVALUATION OF THE EFFECTIVENESS OF MEASURES TO CREATE A COMFORTABLE URBAN ENVIRONMENT BASED ON NEURAL NETWORK MODELS	8
Galperova Elena, Vorozhtsova Tatiana	THE USE OF THE SEMANTIC APPROACH TO AID CONCEPTUAL REPRESENTATION OF MATHEMATICAL MODELS	11
Gornov Alexander, Zarodnyuk Tatiana, Anikin Anton, Tyatyushkin Aleksandr	APPROXIMATION TECHNOLOGY OF MULTIDIMENSIONAL TIME SERIES USING NONLINEAR DYNAMIC MODELS ON THE PLANE	13
Ivanyo Yaroslav, Bendik Nadezhda, Zamaraev Aleksey	MONITORING DATA ABOUT AGRICULTURAL PRODUCTION FOR SIMULATION OF MANAGEMENT DECISIONS	14
Karimov Nikolai, Mikheev Aleksei	APPROACHES TO ANALYSING THE FLOWS OF SCIENCE AND TECHNOLOGY KNOWLEDGE AND THEIR APPLICATIONS IN ENERGY	15
Kazakov Alexander, Nguyen Duc Minh	CONSTRUCTION OF COVERINGS OF SURFACES OF REVOLUTION WITH GEODESIC CIRCLES	16
Kazakov Alexander, Vu Giang, Zharkov Maxim	MEGALOPOLIS PASSENGER TRANSPORT HUB MODEL IN THE FORM OF A QUEUING NETWORK	17
Kolosok Irina, Korkina Elena	APPLYING THE PRINCIPLES OF TAXONOMY TO THE SPECIFICATION OF CYBER ATTACKS AND THEIR IMPACT ON SMART GRID MANAGEMENT SYSTEMS	18
Kozlov Maksim, Mikheev Aleksei	DYNAMIC COGNITIVE MODELLING AS A TOOL FOR ANALYSING DEVELOPMENT FACTORS IN ENERGY	20
Kudryavtsev Artem, Zatsepina Violetta	DC-BASED SMART GRIDS	21
Kuz'menko Vladimir, Gornov Alexander, Anikin Anton	RISK MANAGEMENT DURING RESEARCH IN A MEDICAL LABORATORY	25
Kuzmin Vladimir	INFORMATION AND COMPUTATIONAL SYSTEM WICS: CURRENT STATE AND DEVELOPMENT PLANS	27
Lempert Anna, Tran Viet	COLLISION-FREE PATH PLANNING IN DYNAMIC ENVIRONMENTS USING THE OPTICAL-GEOMETRIC APPROACH	28
Lezin Aleksandr, Massel Liudmila	KNOWLEDGE MAPS AS A COMPONENT OF THE KNOWLEDGE ECOSYSTEM	29

Massel Liudmila	KNOWLEDGE ECOSYSTEM AS A NEW APPROACH TO KNOWLEDGE MANAGEMENT	30
Mikheev Aleksei	AN APPLICATIONS OF ARTIFICIAL INTELLIGENCE TECHNIQUES IN ENERGY: SCIENTOMETRIC REVIEW	32
Pavlov Ivan, Zatsepina Violetta	OPTIMISING ENERGY CONSUMPTION IN INDUSTRY: A REVIEW OF METHODS FOR FORECASTING ELECTRICITY CONSUMPTION IN INDUSTRIAL ENTERPRISES	33
Polkovskaya Marina, Ivanyo Yaroslav, Petrova Sofia, Sinitsyn Maxim	MULTILEVEL MODELING IN AGRICULTURAL PRODUCTION PLANNING	36
Shchukin Nikita, Massel Liudmila, Massel Aleksei	METHODS OF BUILDING DIGITAL TWINS OF RENEWABLE ENERGY SOURCES BASED ON ONTOLOGY ENGINEERING	37
<u>Skripkin Sergei</u>	DEVELOPMENT OF KNOWLEDGE FILTERING TECHNOLOGIES AND TOOLS FOR PROCESSING KNOWLEDGE AND META-KNOWLEDGE	38
Sorokovikov Pavel	HYBRID ALGORITHMS FOR NONLOCAL OPTIMIZATION BASED ON HARMONY SEARCH, FIREFLY SWARM, FLOWER POLLINATION AND L-BFGS METHODS	39
Tsybikov Aleksei	APPLYING AN AGENT-SERVICE APPROACH IN THE DEVELOPMENT OF A DIGITAL TWIN	40
Vashukevich Evgenii, Ivanyo Yaroslav	ABOUT OBJECT RECOGNITION ALGORITHMS IN SOLVING SOME PROBLEMS IN ANIMAL HUSBANDRY	41

Proceeding of International Workshop:

"Critical Infrastructures in the Digital World"

(IWCi-2024)