

2024 47th ICT and Electronics Convention (MIPRO)

Artificial Intelligence Systems

Argument-Based Regression Trees T. Gale, M. Guid	1
Evaluating Harmony: Neural Network Explanation Metrics and Human Perception D. Vukadin, M. Silic, G. Delac, K. Vladimir	7
Dynamics of Bipartite Logical Networks G.A. Oparin, V.G. Bogdanova, A.A. Pashinin	13
Solving Influence Maximization Problem under Deterministic Linear Threshold Model Using Metaheuristic Optimization A. Andreev, K. Chukharev, S. Kochemazov, A. Semenov	19
Towards Better SAT Encodings for Hash Function Inversion Problems S. Kochemazov, O. Zaikin	25
Intrinsically Interpretable Models for Credit Risk Assessment M. Duvnjak, A. Mercep, Z. Kostanjcar	31
YOLOv8 Unleashed on Orthopantomograms: Deep Learning Approach for Mandibular Cyst Diagnosis M. Tropcic, M. Rasic, M. Subasic	37
Multilevel Image Thresholding Based on Otsu's Method and Multi-Swarm Particle Swarm Optimization Algorithm E. Turajlic	43
Selecting Symbols for Object Marking in Computer Vision Tasks S. Delalic, Z. Kadric, E. Selmanovic, E. Mulaimovic, E. Kadusic	48
Neural Network Impact on Marker Performance in Computer Vision Tasks E. Selmanovic, E. Mulaimovic, S. Delalic, Z. Kadric, Z. Sabanac	54
Forest Segmentation with U-Net in Satellite Images I. Klabucar, I. Pilas, M. Subasic	60
A Review on Neuro-Symbolic AI Improvements to Natural Language Processing M. Keber, I. Grubisic, A. Baresic, A. Jovic	66
Different Approaches for Reading Comprehension of Abstract Meaning C.M. Mihai, C.M. Mocan, C.I. Nandra, E.S. Chifu	73

Different Approach for Induction of Unsupervised Lexical Semantic Framesq M. Sandor, C.M. Mocan, C.I. Nandra, E.S. Chifu	79
A Recurrent Neural Network Approach to the Answering Machine Detection Problem K. Altwlkany, S. Delalic, E. Selmanovic, A. Alihodzic, I. Lovric	85
Application of Audio Fingerprinting Techniques for Real-Time Scalable Speech Retrieval and Speech Clusterization K. Altwlkany, S. Delalic, A. Alihodzic, E. Selmanovic, D. Hasic	91
Application of Evolutionary Optimization in Task Mapping and Scheduling for Heterogeneous Mobile-Edge Computing N. Frid, M. Djurasevic	97
Enhancing Cognitive Digital Twin Interaction Using an LLM Agent J. Sturm, P. Zajec, M. Skrjanc, D. Mladenic, M. Grobelnik	103
Enhancing NLP-Based Educational Assessment: A Node-Based Graph Approach for Analyzing Freeform Student Texts D. Fischer, G. Hagel	108
Processing Medical Diagnostic Reports Using Machine Learning M. Krajci, M. Napravnik, I. Stajduhar	114
Implementing Literature-Based Discovery (LBD) with ChatGPT A. Nedbaylo, D. Hristovski	120
Generating Speech Material for Auditory Training Exercises Using ChatGPT Chatbot A. Andrijasevic, B. Vukelic	126
Machine Learning Algorithms for Data Mining and Predictive Analytics in Precision Agriculture D. Kinaneva, G. Hristov, G. Georgiev, P. Zahariev	132
Predicting Wine Properties Based on Weather Conditions Using Machine Learning Techniques S. Miovska, C. Martinovska Bande, N. Stojkovik	140
Product Demand Forecasting for Shelf Space Allocation in Retail via Machine Learning M. Klepo, B. Novoselnik	146
Spectral Band Selection Methodology for Future Sensor Development A. Perez-Garcia, A. Martin Lorenzo, J.F. Lopez	152
Personal Physical Fitness Modeling through Real-Time Predictive Models I. Znika, A. Radovan	157

Building Ensemble Models for Enhanced Credit Scoring: A Case Study from a Bosnian MicroFinancial Institution	163
J. Nalic, Z. Masetic, I. Djedovic	
Evaluation of Classical and Deep Learning Approaches for Human Activity Recognition	169
Z. Loncarevic, M. Lustrek, A. Gams	
Identification of HIV Inhibitors Using Graph Neural Networks	175
D. Georgiev, M. Toshevska, S. Gievska	
Probabilistic Deep Learning Approach to Credit Card Fraud Detection	181
L. Mrcela, Z. Kostanjcar	
Detecting Water Surface Borders on Satellite Images	187
S. Dumencic, I. Lucin, M. Alvir, J. Lerga, L. Kranjcevic	

Business Intelligence Systems and Big Data Processing

Automated SQL Query Evaluations in Massive Database Courses	193
L. Brkic, I. Mekterovic, M. Fertalj	
Data Enrichment Pipeline Model for Web Classification Based on Web Scraping and Machine Learning	199
E. Samsonova, Z. Moric, G. Gvozden, T. Hlupic	
On Improving the Qualitative Features of the User Interface of Mobile Applications Using Machine Learning Methods	205
A. Terovic, I. Mekterovic	
Business Intelligence Tools in the Interpretation of the Ranking of Smart Cities	211
A. Babic, A. Zron	
Interactive Programming Tutorials in Automated Programming Assessment System Edgar	218
I. Mekterovic, L. Brkic, M. Fertalj, M. Fabijanic	
Revolutionizing Software Development: Autonomous Software Evolution	224
D. Mlinaric, J. Donecovic, M. Brcic, I. Boticki	
Competitive Arousal, Temporal Clustering, and Overbidding Dynamics in an Auction Platform	229
N. Caporusso, A. Campan, A. Khanal, G. Upreti, M. Doan	
Connect, Understand and Learn: Dynamic Knowledge Graph Transforms Learning	235
M. Morgen, L. Begic Fazlic, G. Dartmann	

Automated Real Estate Chatbot A. Tanovic, A. Cerimagic Hasibovic	241
Graph Databases: An Alternative to Relational Databases in an Interconnected Big Data Environment R. Pavlis	247
A Domain-Specific Language Implementation Framework for C++ Based on S-expressions A. Stojanovic, S. Plehati, Z. Kovacevic	253
Process Mining: Application in Practice V. Bosilj Vuksic, L. Ivancic, D. Susa Vugec	259

Computers in Education

Attitudes of Croatian Students on the Use of Cryptocurrencies and Non-Fungible Tokens (NFTs) in Some Higher Education Institutions M. Ruzic, S. Kadum, I. Dobraca	265
The EPLAN Education eLearning Framework as an Example of an International Learning Model for Sustainable CAE Training D. Lukac, I. Lukac	273
Information Technology as a Tool for Teaching History with a Focus on Artificial Intelligence and Audiovisual Material J. Mottl, M. Musilek	278
Formation of Motivation in Learning the Python Programming Language Using a Differentiated Approach N. Dehtiarova, S. Petrenko, K. Parfylo, O. Shovkoplias, O. Viunenko	283
Study of Factors Supporting Students' Motivation in the Formation of Information Hygiene Y. Rudenko, N. Dehtiarova, I. Bekh, K. Zhurba, S. Oleksii, R. Pasichnyi	288
Engaging the Z-Generation with Memes Shared Through Social Media for STEM Education T. Sidekerskiene, R. Damasevicius	293
Problems of Assessing Students' Knowledge during the Integration of Non-Formal Education into Formal Education N. Dehtiarova, O. Zhmud, M. Medvedeva, V. Colmakova, V. Makarova, R. Markov	299
Narrowing Industry-Academia Gap with a Virtual Laboratory S. Jantunen, T. Hynninen	304

Learner Personas in Technology-Enhanced Learning I. Tudor, M. Holenko Dlab, G. Djurovic	311
Computer Visualization of Geometry Educational Material in Developing Students' Research Skills A. Rozumenko, A. Rozumenko, I. Stotskyi, S. Loboda, O. Semenikhina	317
The Impact of Team Competitions on the Development of Soft Skills in Youth A. Yurchenko, M. Drushlyak, Y. Khvorostina, M. Ostroha, V. Ponomarenko, O. Semenikhina	323
Interactive Boards as Digital Tools in the Modern Educational Process Y. Rudenko, K. Ahadzhanov-Honsales, S. Ahadzhanova, A. Batalova, Y. Diemientiev, O. Semenikhina	329
Using ChatGPT for the Development of Critical Thinking in Youth: Example of Inequality Proof M. Drushlyak, T. Lukashova, Y. Sabadosh, I. Melnikov, O. Semenikhina	334
Electrical Circuit Analysis in CAD Software Tool T. Alajbeg, D. Dus, M. Sokele, K. Osman	340
The Use of Digital Technologies during the Study of Mathematical Analysis as a Basis for the Development of Students' Emotional Intelligence in New Crisis Conditions I. Shyshenko, Y. Chkana, O. Martynenko, O. Udovychenko, I. Udovychenko, O. Semenikhina	346
Gamification in Support of Decision Making in Military Higher Education T. Ivanjko, D. Lucic, Z. Trzun	352
Misinformation as a Security Threat: Recognition of Misinformation in Student Population Z. Trzun, D. Lucic, T. Ivanjko	358
Analysis of the Applicability of VR in the Education of Children with Disabilities S. Stoev, K. Rasheva-Yordanova, M. Bankovska, I. Getova	364
Detection of Existing Practices and Forecasting of Future Research in the Field of Cloud Technologies in Education A. Yurchenko, V. Shamonia, R. Burtovy, S. Bohoslavskyi, O. Semenikhina	369
VXLAN and SDN for Smart Agriculture in Online Learning: Case Study at Higher Institute of Rural Development, Mbäiki, University of Bangui E. Ndassimba, E.B.S. Zabolo, Y.P.K.-S. Dodoagnen	375
Challenges in Authenticity Check of Student Papers at the Study of Digital Economy M. Sokele, D. Kuvacic, S. Moric	381

Potential Efficiency of Digital Technology in Teaching and Learning Latin M. Stojcevski, A. Nikolic, S. Kisicek	386
Exploring the Impact of AI on Teaching in Higher Education: An Exploratory Study R. Vrana	391
Reinventing Mobile-Assisted Language Learning Using Natural Language Processing N. Vlahovic, M. Kosanski, L. Milanovic Glavan	398
Gamification in Higher Education Database Courses T. Kescec, M. Kolaric, I. Pancirov, M. Fabijanic	404
Education of Kinesiology Students in a New Environment M. Galic, D. Zoretic, P. Barbaros Tudor	410
Research on the Impact of Multimedia Content and Internet Sites on Ethics and Sustainable Development among High School Students M. Bednjanec, D. Bednjanec, T. Galovic	416
The Role of Smartphones in Biology Lessons: Insights from Slovenian Schools V. Lang, M. Melansek, A. Sorgo	420
Digital Public Health Tools: An Attempt at Classification within Ukrainian Practices D. Surin, A. Zaikina, O. Shukatka, N. Oliinyk, O. Semenikhina	425
Development of Information and Media Literacy in the System "Students-Parents-Teachers": Ukrainian Practice M. Yachmenyk, I. Kharchenko, O. Semenog, M. Ostroha, S. Petrenko, V. Dubinsky, O. Semenikhina	430
Flipped Classroom, Gamification and Game-Based Learning in the Traditional Classroom and in Non-Formal Education D. Atanasova, V. Molnar	436
Introducing Digital System Design to High School Students I. Kastelan, T. Novkovic	441
Exploring the Impact of Video Tutorials on AutoCAD Learning: A Comprehensive Analysis of Learning Tasks, Goals, and Outcomes K. Kopse Kaljun	445
Enhancing Creativity in Sustainable Product Design: The Impact of Generative AI Tools at the Conceptual Stage K. Kopse Kaljun, J. Kaljun	451

Empowering Primary and Secondary Students in STEAM through Robotics and Coding	457
L. Marincic, N. Pantela, E. Xerou, A. Sovic Krzic	
E-Learning in Regenerative and Sustainable Farming - A Scoping Review	462
T. Hynninen	
Attitudes of Slovenian Upper Secondary School Students towards Online Education	468
A. Sorgo, M. Merdaus	
AI-Based Education Tools for Enabling Inclusive Education: Challenges and Benefits	472
B. Sumak, D. Lopez-de-Ipina, O. Dziabenko, S. Duarte Correia, L. M. Serrano de Carvalho, S. Lopes, I. Simsek, T. Can, D. Ivanusa Kline, M. Pusnik	
Identification of Factors that Impact e-Inclusion in HEI	478
B. Sumak, S. Duarte Correia, A. Cunha, T. Can, I. Simsek, K. Kous, M. Pusnik	
Evaluation of Student's Teaching Skills in Computer Science Education	484
A. Ponrac Pavlina, K. Pavlina	
Micro:bit for STEAM Education	490
P. Vostinar	
The Effects of AI Services to the Educational Processes - Survey Analysis	496
M. Krasna, S. Gartner	
The Role of Game-Based Learning in Teaching English in Higher Education	502
M. Vuksic, V. Kabalin Borenic, A.-M. Stjepic	
Student Evaluations of Teaching: Using Big Data Visualization to Explore Challenges and Opportunities	508
W. Alger, M. Doan, N. Caporusso	
Comparative Analysis of Generative AI Tools in Enhancing Educational Engagement	514
F. Borovic, K. Aleksic-Maslac, P. Vranesic	
The Effectiveness of Hedy and Python Tutor in Helping Students Learning Programming	520
M. Ayub, O. Karnalim	
The Influence of IT Education on the Performance and IT Usage of Startups in Croatia	526
S. Vukmirovic, M. Grcic Fabic	
Possibilities of Algorithmic Thinking Development for Students of Economics	532
M. Vejacka, D. Palova, J. Stofa	

Importance of Integration the Topic of Comprehending and Utilizing Data in Higher Education in the Economic Field of Study	538
D. Palova, J. Stofa, M. Vejacka	
Exploring the Usage of Mobile Phones in the Assessment Process: A Case Study	544
Z. Kovacevic, B. Bubnic, T. Kosar	
Developing an Open-Source Software Stack for On-Premise GPU Resource Management for Teaching in Artificial Intelligence and Deep Neural Networks	550
T. Aaltonen, A. Postari	
Connecting Dots... The Significance of the LMS-SMS Connection in Virtual Learning Environment	556
Z. Martinovic, A. Novosel, S. Kucina Softic, O. Orel	
The Role of Social Media Platforms Instagram and Tinder in the Sentimental Relationships of the Students	561
J. Komazec, E. Vranjkovic, T. Babic	
Can We Make Teaching Great Again?	566
J. Henno, H. Jaakkola, J. Makela	
Gender Gap in STEM Courses at Faculty of Economics Technical University of Kosice	571
D. Palova, J. Stofa, M. Vejacka	
Facilitating Programming Proficiency in Young Children: Strategies and Expert Insights	577
M. Novak, D. Drabic	
Programming STEAM Applications in Informatics Education and Their Use in Biology Education	583
J. Gunis, L. Snajder, A. Misianikova, D. Kotlarova, K. Brinzikova, A. Leskova	
STEAM Teaching Evolution by Collaborating Biology and Informatics	589
A. Misianikova, A. Leskova, J. Gunis, L. Snajder, D. Kotlarova, K. Brinzikova	
Practical Aspects of Integrating Virtual and Augmented Reality Technologies in Higher Education	595
N. Venelinova, B. Ivanova, K. Shoylekova, R. Rusev	
Student Perception of Using Generative AI Tools in Relation to Academic Integrity and Their Advantages and Disadvantages	601
A. Milinkovic, D. Vuleta, T. Babic	
Informatics Education in Slovak Secondary Schools in Connection with Higher Education and Practice Requirements	607
L. Reveszova	

Analysis of e-Learning System Usage before and after the COVID-19 Pandemic F. Skopljanac-Macina, I. Zakarija, B. Blaskovic	613
Students Evaluation of Creative Art Learning Based on Online Art Resources J. Pahel, S. Stipic, T. Babic	619
Demonstrating the Potential of Visualization in Education with the Manim Python Library: Examples from Algorithms and Data Structures M. Markovic, I. Kastelan	625
Control Lab Experiments Investigating Wireless Sensor Connectivity P. Pitschek, W. Werth, C. Ungermanns	630
Challenges in the Implementation of Students' Professional Practicum in a Virtual Environment R. Jukic, S. Zizanovic	636
Improving Students' Engagement and Learning Outcomes in a Primer Course on Object Oriented Programming in Java K. Aerts	642
Cross-Curricular Learning of Programming Using the Mema Method in Lower Grades of Primary School S. Babic, M. Cicin-Sain, B. Denys	648
The Importance of Algorithmic Thinking Development in Primary Education M. Dumancic, N. Rogulja, K. Tomljenovic	653
Innovative Technologies in Computer Education: Integration VR, CAD/CAM and 3D Modeling with Gamification S. Maricic, A. Kovac, M. Peric	659
HPC Training Initiatives in the First Year of EuroCC 2 in Slovenia P. Tomsic, D. Harish, I. Vasileska	663
High-Speed Video Analysis of Subharmonic Oscillations for Physics Education R. Repnik, M. Suvajac	669
Teaching Robotics Concepts with Besiege: A Game-Based Approach for Developing Design and Problem-Solving Skills I. Kunovic, I. Filipovic, A. Sovic Krzic	672
Exploring the Landscape of Online Coding Education in Africa: A Literature Review J. Arigye	678
Discovering Differential Equations from Data: A Didactic Approach with Regression Analysis C. Ungermanns, G. Poeppel, W. Werth	684

Assessing Digital Literacy Skills in Secondary and Higher Education: A Comprehensive Literature Survey of Validated Instruments	688
X. Jashari, B. Fetaji, C. Guetl	
Importance of Using Videogames in Primary School Education	693
A. Milak, M. Konecki, M. Konecki	
Increasing Elementary School Students' Motivation for Computer Science through the RobotDay Project Activities	698
J. Zufic, T. Zajgar, A. Debeljuh	
Problems with the Translation of IT Content on the Example of ANDOR Verses	703
M. Cicin-Sain, A. Cicin-Sain, B. Denys, K. Garbacik, O.F. Metin, S. Babic	
Teaching Generic Skills with/or against Chat GPT	707
V. Buselic, I. Rajkovic	
Design and Development of Educational Game Using ARCS Model	713
N. Koceska, S. Koceski, E. Tashkova	
Augmented Reality Application for Improving Writing and Motoric Skills in Children with Disabilities	718
B. Kotevski, N. Koceska, S. Koceski	
Globalization and Education	724
H. Jaakkola, J. Henno, J. Makela	
Comparison and Quantification of GAI Tools Use among Different Academic Population Segments	730
E. Djeric, D. Frank, M. Malenica	

Telecommunications & Information

Maximizing Throughput with Routing Interference Avoidance in RIS-Assisted Relay Mesh Networks	736
C.V. Phung, A. Drummond, A. Jukan	
A Framework for 5G Network Slicing Optimization with Path Protection	742
I. Begic, A.S. Kurdić, J. Matusko	
VeFog - Efficient Message Dissemination in VANETs Based on Edge, Fog and Cloud Computing	748
B. Jelic, M. Gluhakovic, D. Mijic, T. Ivesic, J. Balen	
ML-Supported Spectrum Sensing for Underlay Vehicular D2D Communications in Urban Environments	754
Z. Limani Fazliu, J. Dobruna, F. Bruqi	

Intelligent Solution for Monitoring Free Parking Places for Trucks in the Slovak Republic	760
P. Kudela, J. Tothova, M. Jakubec, E. Lieskovska, B. Luhova	
Development of a L-Band Digital Aeronautical Communications System (LDACS) Framework	766
S. Orasch, H. Fluehr, C. Rihacek, B. Haindl	
Augmented Reality Modeling Support Using a Digital Twin	771
Z. Basic, V. Cackovic, T. Marusic, R. Radovic, P. Gusic, T. Zitnik	
On the Adaptive THz System for Mobile VR Users in Smart Factories	779
C.V. Phung, Z. Ennaceur, A. Drummond, A. Jukan	
Multilevel Thresholding for Image Segmentation Using Particle Swarm Optimization with Chaotic Inertia Weight	785
E. Turajlic	
Adaptive Routing in Disrupted Environments: A Study on OSPFv3's Recovery Time in Ad Hoc Wireless Networks	790
S. Papic, K. Josic	
Empirical Analysis of IPv4 and IPv6 Protocol Performance in End-User Environment	795
N. Kasunic, O. Mitrovic, V. Tadic	
Towards the Best Choice of Quasigroups for Error Detection with an Error-Detecting Code	800
N. Ilievska	
GNSS Signal Classification Based on Machine Learning Methods	806
K. Rados, M. Brkic, D. Begusic	
Vulnerability of Smartphones on GNSS Simplistic Spoofing Attack	812
K. Rados, M. Brkic, D. Begusic	
Trade-Off between Data Rate and EMF Exposure Level for 5G Non-Standalone Networks in Urban Areas	818
H. Maloku, M. Ibrani, D. Berisha, V. Laniku	
In-Situ Measurement of 5G Electromagnetic Exposure Levels in Urban Environments	822
M. Ibrani, H. Maloku, A. Kastrati, K. Mustafa	
Tool Chain for Anomaly Detection in Telecommunications	826
I. Plazibat, S. Desic	
Challenges of Implementing Interoperability Frameworks and Secure Data Exchange	830
M. Hajnic, N. Modrusan, B. Grsic	

Leveraging Petabytes of Data / Have We Reached Limits of Conventional Backup?	836
J. Redzepagic, D. Regvart, Z. Moric, V. Dakic	
Backing Up Object Storages - Challenges and Solutions	841
J. Redzepagic, V. Dakic, L. Zgrablic, M. Basic	
 Distributed Computing and Cyber-Physical Systems	
An Overview of the State-of-the-Art Machine Learning Methods for Traveling Salesman Problem	844
S. Pozgaj, A.S. Kurija, M. Silic, G. Delac, K. Vladimir	
Fairness in Graph-Based Recommendation: Methods Overview	850
L. Cutura, K. Vladimir, G. Delac, M. Silic	
Architecture of a Distributed Infrastructureless System	856
D. Mileski, M. Gusev	
Metadata-Driven Cloud-Agnostic Data Integration Framework	862
B. Besimi, J. Ajdari, X. Zenuni	
Container vs. Function as a Service: Impact on Cloud Deployment for Real-World Applications	869
T. Petrovski, M. Gusev	
Optimal Scalable Real-Time ECG Monitoring of Thousands of Concurrent Patients	875
K. Bajalcaliev, D. Mileski, P. Gushev, M. Gusev, B. Jakimovski	
Towards Improving Public Outdoor Sports Facilities by Gamification for Well-Being	881
J. Gronman, P. Rantanen, P. Sillberg, T. Pohjola, T. Jonkkari	
Digital Twin Coffee Room Application – Kahvibotti	887
P. Sillberg, J. Gronman, M. Saari, M. Nurminen, T. Jonkkari, P. Rantanen, P. Abrahamsson	
Data Logistics Service in eFlows4HPC	892
J. Rybicki, C. Boettcher	
Optimizing HPL Performance on big.LITTLE Architectures: A Case Study with Odroid-MC1 Using ATLAS and OpenBLAS	898
Z. Krpic, L. Loina, F. Susac	
An Approach to System Effectiveness Determination	904
M. Davidovic, B. Vojnovic	

Salp Swarm Algorithm Application in Simultaneous Parameter Selection of Generators' Excitation Controllers for Power System Rotor Angle Stability Enhancement – WSCC Case Study	909
T. Spoljaric, A. Sesok, I. Pavic, B. Vuletic Komljen	

Brief Introduction to Active Noise Control in Cars	915
D. Miljkovic	

Digital Economy and Digital Society

What Is Preventing the Wider Use of Digital Currencies?	921
A. Matak, D. Ogrizovic, O. Rafajac	

Framework for Planning the Implementation of Innovations in Seaport Operations: Case Study of the Seaport of Rijeka	927
G. Mudronja, D. Aksentijevic	

Marketing 4.0: Opportunities and Challenges of Extended Reality Marketing	933
R. Dimitrova, K. Rasheva-Yordanova, I. Iliev	

The Role of Visual Communication in Consumer Decision-Making in a Digital Environment	939
P. Buljat, L. Zekanovic-Korona, J. Grzunov	

Business Analysis of the Netflix Platform in the Post-COVID-19 Time	945
J. Lozic, G. Vojkovic, K. Fotova Cikovic	

The Digital Runway: Exploring Consumer Perceptions of NFTs in Fashion	951
N. Draskovic, P.-J. Tomic	

The Need for Transforming Business Models in Insurance Using AI - Case Study	957
A. Cerimagic Hasibovic, M. Hasic	

Measuring the Efficiency of Innovative Logistics Projects' Resilience: ePIcenter Project Experience	962
M. Jovic, S. Aksentijevic, E. Tijan, N. Kapidani	

Gaming Economics: Unlocking the Relevance of Microtransactions on Player Engagement in CS:GO	968
M. Alic, I. Dumancic	

Digital Infrastructure Business Model: Innovation Ecosystem Framework	973
O. Omelianenko, V. Omelyanenko, O. Kudrina, S. Lytvynenko, V. Voronenko, N. Rudenko	

An Overview of UAS Regulations in the European Union and the Balkan Region	977
V. Rushiti, A. Kulakov, B. Risteska Stojkoska	

Analysis of the Perception of Managers of Small and Medium-Sized Enterprises on the Advantages and Disadvantages of Electronic Business Contracts and Smart Contracts	983
V. Vinsalek Stipic, Z. Cesic, M. Vicic	
Patent Analysis - Systematic Literature Review on Methodology and Technological Fields	988
J. Pivar, D. Susa Vugec	
E-Commerce Solutions Using Distributed Web Systems with Microservices-Based Architecture for High-Performance Online Stores	994
M. Ileana, M.I. Oproiu, C.V. Marian	
Artificial Intelligence in the Digital Economy: Intellectual Property Protection Challenges	1000
P. Karanikic	
The Role of Open Data and Simulation in Building Smart Cities	1006
N. Zajdela Hrustek, N. Persi, J. Dumencic	
Towards Business Idea Maturity Measuring: Literature Review	1013
T. Jagacic, N. Begicevic Redjep, N. Kadoic	
Digital Transformation of Croatian Pension Insurance Institute	1019
A. Skendzic, L. Ljubicic, B. Kovacic, M. Sretenovic	
Importance of Communication in Sustainable Development of Local Self-Government	1025
J. Glavas, B. Mandic, M. Hornis Dmitrovic	
Conceptual Design of IT Solution for Multimodality and Traffic Flow Optimization in Catchment Area of the Airport: Case Study of Zagreb Airport	1030
S. Vojvodic, K. Vidovic, D. Leljak, A. Najev	
On Word-Processing Literacy in Publicly Available Documents	1035
V. Stanisavljevic, A. Bernik	
Blockchain in Football Fandom: Understanding the Shifts in Awareness, Adoption, and Investment Willingness in Fan Tokens and NFTs among Croatian Fans	1041
P. Gajica, H. Sarajlic, M. Jularic	
What Social Networks Say about Social Entrepreneurship in Croatia?	1047
I. Konecki	
Understanding Users' Intention to Use Mobile Apps in Tourism Industry	1053
M. Matic Sosic, I. Pavlic, B. Puh	

From Data to Decision: Machine Learning in Football Team Management	1059
A. Nikic, A. Topalovic, M. Pejic Bach	
Mapping Start-up Research Trends: A Literature Review from 2004 to 2023	1065
M. Pejic Bach, A. Ivec, B. Jakovic	
Blockchain for Secure and Transparent Maritime Supply Chains	1071
M. Filipovic, E. Tijan, S. Aksentijevic, M. Filipovic	
Energy Efficiency Improvement of Wireless Sensor Networks in the Digital Age	1076
M. Boban, V. Uros	

Data Science and Biomedical Engineering

Exploring Linguistic Entropy: Correlating Entropy Values and Language Resources in the European Union	1081
L. Prpic, P. Bago	
Classification of Companies Using Graph Neural Networks	1087
J. Manchev, M. Mirchev, I. Mishkovski	
Quantitative Analysis of Ovicaprid Bone Tools from Early Neolithic Europe Using Dental CBCT Imaging	1093
N. Malivuk, V. Strbac, S. Stefanovic, L. Milic, M. Djocos, L. Adamov, B. Petrovic	
Anomaly Detection in Time-Series Employee Absence Data: A Case Study	1099
P. Zupancic, P. Panov	
Hate Speech on Social Platforms through the Application of ML and NLP Methods	1105
S. Paunkoska, G. Mirceva	
Predictive Analysis of Sarajevo's AQI Using Machine Learning Models for Varied Data Granularity and Prediction Windows	1109
E. Zolota, V. Hasic, A. Mevic, A. Delic, S. Krivic	
Unveiling Performance Insights and Portability Achievements between CUDA and SYCL for Particle-in-Cell Codes on Different GPU Architectures	1115
I. Vasileska, P. Tomsic, L. Kos, L. Bogdanovic	
Cultural Heritage on HPC - Creating High Resolution 3D Models Using Photogrammetry	1121
B. Kolarek, L. Gamulin, D. Davidovic	
A Survey of Graph Neural Network Architectures in Ligand Binding Affinity Prediction Models	1128
F. Fetaji, S. Gievska, K. Trivodaliev	

Using a Limited Number of Sensors in MEG or the Feasibility of Partial Head Coverage OPM MEG	1134
U. Marhl, T. Sander, V. Jazbinsek	
Impact of EEG Signal Preprocessing Methods on Machine Learning Models for Affective Disorders	1139
E. Jovicic, A. Jovic, M. Cifrek	
Seizure Detection Based on EEG Signals and Deep Learning	1145
A. Serifovic Trbalic, A. Hasic, E. Skejic, N. Demirovic	
Enhancing the Self-Other Voice Discrimination Procedure for Clinical Applications	1151
L. Jelic, M. Cifrek, V. Lesic, P. Orepic	
Automated Processing of Pipelines Managing Now- and Forecasting of Infectious Diseases	1157
S. Memon, J.F. Jadebeck, M. Osthege, A. Wendler, D. Kerkmann, H. Zunker, W. Wiechert, K. Noeh, J.H. Goebbert, B. Hagemeier, M. Riedel, M. Kuehn	
The Use of AI in Human Pose Estimation Applications in Kinesiology: Taxonomy of Algorithms, Models, and Evaluation Methods	1163
D. Katovic, T. Bronzin, M. Horvat, B. Prole, A. Stipic, N. Jelaca, I. Pavlovic, K. Pap	
Microfluidic CD Fabrication for Electrochemical Analysis of pH-varied Sweat	1167
I. Putnik, N. Petrovic, K. Joseph, A. Thiha, M. Vejin, S. Kojic, G. Stojanovic	
Comparative Analysis of Nanopore-Based Unsupervised Learning Methods in Epitranscriptomics	1173
I. Vujaklija, S. Bidjin, M. Sikic	
Respiratory Rate Estimation from a Single Lead ECG Obtained during Dental Surgery	1177
I. Tomasic, A. Prkic, A. Lesin, D. Kalibovic Govorko, I. Medvedec Mikic	
A Study on Appropriate Segment Length for Generalized Cuff-less Blood Pressure Estimation from ECG Features	1181
I. Kuzmanov, E. Zdravevski, P. Lamenski, B. Stojkoska, A. Madevska Bogdanova	
Classification of Hemoglobin A1c from Long and Extra-Long Term Heart Rate Variability	1187
A. Angelevska, M. Gusev, S. Gjorgjieva	
Leveraging Dataframe-Based Operations for Calculation of Heart Rate Variability	1193
G. Temelkov, M. Gusev	
Atrial Fibrillation Detection Using the Stars 2D Convolutional Neural Network	1199
N. Petrovski, M. Gusev, A. Kulakov	

Engineering Education

'Gitting' Their Feet Wet - A Classroom Intervention Exploring Students' Learning Experience When Maintaining an Unknown Codebase T.H. Spangsberg, D.O. Brendstrup	1205
Cultivating Interdisciplinary Futures: Integrating Robotics in Agricultural STEM Education P. Bernad, E. Rihter, J. Rakun	1211
A Web-Based Method for Quality Control of Capstone Projects H. Marais	1216
Optimization of Online Teaching through Data Analytics and Direct Participant Observation I.A. Martinez, S. Warisawa, S. Hachisuka	1222
Transforming Engineering Pedagogy for the Fifth Industrial Revolution A. Kovari	1228
Research on an Open and Shared Maker Space and Curriculum System Z. Li, H. Qi, Z. Sun, C. Shi, D. Zhu	1234
Conception, Approval and First Evaluation of a New Master's Program Engineering Technology: Software Systems (Informatics) in Belgium K. Aerts, K. Luyten, R. Thoelen, D. Vanacken	1238
Employing the Message Paradigm to Ease Learning Object-Oriented Concepts and Programming R. Flatscher, T. Winkler	1244
Concepts that Allow Learning the Programming Language Rexx Much Faster than Other Languages R. Flatscher, T. Winkler	1250
A Qualitative Review of Educational Robots for STEM: Technical Features and Impacts S.K. Manna, M A H.B. Azhar, A. Greace	1255
LLM Generative AI and Students' Exam Code Evaluation: Qualitative and Quantitative Analysis E. Smolic, M. Pavelic, B. Boras, I. Mekterovic, T. Jagust	1261
AI in Computer Science Education: Tool, Subdomain, and Wildcard J. Smith	1267
Initial Look at Life-Long Learning Assessment in Engineering Education B. Pejcinovic	1272

Engineering Better Communicators via Authentic Integration and Communicative Self-Efficacy	1277
A. Hutchison	
LVC Concept of the Military Simulation Systems in Support of the Education and Training of the Armed Forces	1283
M. Colic	
P4: Principles, Patterns, Practices, and Projects for Effective Software Engineering Education	1289
S. Sungmin Cho, N. Caporusso, M. Doyle	
Empowering Tomorrow's Automotive Workforce: Cutting-Edge Electric Vehicles Certificate and Battery Center	1295
Y. Liu, R. Leonard, N. VandeVeegaete, K. O'Connor, W. Koepf	
Engaging Undergraduate Engineering Students in a Research and Design Experience	1300
R. Habash	
Exploring the Utilization of Drone Technology to Promote Food Security	1306
E. Serrano, J. Distler, N. Iakimov, D. Bairaktarova	
Trends and Challenges in Implementing IoT Green Transformation Concepts in Engineering Curricula	1312
J. Dobruna, V. Rexhebeqaj Hamiti	
Online Course Development for eVehicle Motor Control	1317
P.J. van Duijsen, D.C. Zuidervliet	
Bachelor Course Development on Electrical Energy Transition	1323
P.J. van Duijsen, D.C. Zuidervliet	
Inferring the Overall Difficulty of Isomorphic Questions	1329
B. O'Callahan, X. Ye, S. Manoharan	
Teaching Electrical Engineering Fundamentals Using the GeoGebra Platform	1333
V. Zuppa Baksa, A. Bednjanec	
Generative Artificial Intelligence in Teaching and Learning of ICT Engineering Education: A Literature Review and Illustrative Scenarios	1338
P. Santos, K. Urgel, V. Moreno	

Human-Computer Interaction

Navigating Ethical Oversight in Computing Research: A Case for Umbrella Protocols	1344
J.S. Valacich, J.L. Jenkins, D. Wilson, P.A. Weisgarber, D. Kim, M. Kumar	

Examining the Effect of Personalized PII Exposure Alerts on Individuals' Privacy Protection Motivation	1350
F. Lin, L. Brandimarte, S. Brown, H. Chen	
Order Effects in Multidimensional Rating Systems	1356
S. Demir, C. Schneider, M. Weinmann	
Exploring the Impact of Gestalt Laws of Human Perception in Business Information Visualization Context: An Eye-Tracking Study	1361
D. Bacic	
Understanding the Adoption of Generative Artificial Intelligence within Communities of Practice: A Cross-Practice, Machine Learning-Based Lexical Study	1367
C. Gilstrap, D. Bacic, C. Gilstrap	
Using Human-Computer Interaction (HCI) and Artificial Intelligence (AI) in Education to Improve the Literacy of Deaf and Hearing-Impaired Children	1375
E. Rakovac Bekes, V. Galzina, E. Berbic Kolar	
A Blink Detection Algorithm for Eye-Tracking Applications Based on Facial Geometry	1381
T. Egloff, E. Hall, N. Caporusso, B. Thaman	
Analyzing the Potential User Adoption of Video Podcasts for Scholarly Research Dissemination	1387
M. Doan, A. Tran, N. Le, N. Caporusso, G. Sanders	
Patient and Therapist Adoption Criteria for Mental Health Applications	1393
O. Kennedy, N. Caporusso	
Tactile Network Topologies: Inclusive Learning for Visually Impaired Students in Computer Networking Education	1399
N. Caporusso, Q. Roa, B. Thomas, M. Tilley	
Banner Features That Attract Visual Attention: An Eye-Tracking Study of Email Signatures	1405
M. Juric, N. Pesa Pavlovic, P. Valerjev, F. Pehar	
Up in the Clouds: Explaining Gamer Resistance to Cloud Gaming	1411
F. Wintmoelle, M. Meier, P. Platis, C. Maier	
Intelligent Approach to Reduce Overstimulation for Multi-Screen Computing Systems	1420
A.A. Periola, A.A. Alonge, K.A. Ogudo	
Driving Habits and the Need for Fatigue and Attention Monitoring Devices: Insights from Croatian Drivers	1427
T. Orefovacki, G. Oreski, R. Sajina	

Comparative Quality Assessment of Cammeo and Uber Taxi Services in Urban Transportation	1433
I. Cabraja, D. Vuk, T. Orehovacki	
Graphical User Interfaces as a Method to Encourage Beginners in Learning Programming	1439
M. Koren	
 Information and Communication Technology Law	
Collecting (Personal) Passenger Data in Public Transport or Do Carriers Really Need Our (Personal) Data? - An Overview of the Situation in the Republic of Croatia	1445
A. Ignjatic, G. Vojkovic	
Regulation of AI Technology Implementation in Public Administration	1450
M. Klaric	
AI, Data Mining and Copyright Law: Remarks about Lawfulness and Efficient Choices	1457
G.M. Riccio	
Legal Relationship between Smart Airport and Smart City	1464
G. Vojkovic, M. Milenkovic	
Influencers and the Privacy of Minors: Respondents' Views on the Impact on the Personal Data Protection	1469
A. Brechelmacher	
Artificial Intelligence as a Challenge for European Patent Law	1476
I. Kunda	
Artificial Intelligence in Health Care: Various Applications	1483
N. Protrka, B. Abazi	
Service Providers' Compliance with European Production Orders for Electronic Evidence	1490
V. Stupka, P. Loutocky	
European Union Directives, National Regulations, and Zero Trust Network Architecture	1496
M. Smoljic	
Obligations of Audiovisual Media Service Providers in Funding Independent Production in Croatia	1502
H. Lisicar	

Cyber and Information Security

Assessing Information Security Awareness among Secondary School Teachers K. Klasan, I. Dundjer, S. Seljan	1508
Forensic Analysis of the NIST Hacking Case: Integrating Autopsy Tools and Artificial Intelligence in Teaching Digital Forensics D. Delija, G. Sirovatka, M. Zagar	1514
Review of ISO 9001:2015 and ISO 27001:2013 Implementation in Financial Institution - Case Study A. Cerimagic Hasibovic, A. Tanovic	1520
Securing the Foundations of 6G: Innovative Intelligent Controls at the Physical Layer for Trustworthiness and Resilience E. Leka, L. Lamani, E. Hoxha	1526
Comparative Study on Online Security Awareness and Behavior among Healthcare Professionals in Croatia K. Solic, T. Velki, D. Matijasic-Bodalec, I. Fosic	1532
Enhancing Security of Intermediate Devices in the Connection between IoT Devices and Cloud Service D. Regvart, M. Mikuc, L. Zgrablic, Z. Moric	1537
Analysis of Third-Party Data Leaks on Finnish Mental Health Websites S. Rauti, E. Vuorinen, P. Puhtila, R. Carlsson	1543
PiSecurityCheck: Server Security Check in a Hand P. Treglia	1549
Enhancing Digital Image Forensics with Error Level Analysis (ELA) R. Idlbek, M. Pesic, K. Solic	1555

Microelectronics, Electronics and Electronic Technology

Optimization of the Metal Deposition Process for the Accurate Estimation of Low Metal Graphene Contact-Resistance D. Capista, R. Lukose, F. Majnoon, M. Lisker, C. Wenger, M. Lukosius	1561
Investigation of CMOS Single Process Steps on 4H-SiC a-Plane Wafers for Quantum Applications J. Schwarberg, R. Karhu, B. Kallinger, M. Rommel, R. Schmidt, J. Schulze	1566
Ab Initio Calculations to Determine Tunneling Parameters for 4H-SiC Tunneling Field-Effect Transistor Simulations M. Ley, J.F. Dick, J. Schulze	1573

Influence of Interface Exchange Coupling in Multilayered Spintronic Structures	1579
M. Bendra, R.L. de Orio, S. Selberherr, W. Goes, V. Sverdlov	
Field-Free Perpendicular Magnetization Switching of SOT-MRAM Devices by Magnetic Spin Hall Effect	1584
B. Pruckner, N. Jorstad, T. Hadamek, W. Goes, S. Selberherr, V. Sverdlov	
Impact of Buffer Al-Content on 2DEG Mobility and Scattering Mechanisms in Double-Heterostructure GaN HEMTs	1590
D. Novakovic, I. Berdalovic, T. Suligoj	
Validity of the Ballistic Top-of-the-Barrier Model for FETs Based on 2D Material Nanoribbons	1596
M. Matic, M. Poljak	
Investigation of the One-Dimensional Semiconductor I4Si2 as a FET Channel Material	1602
T. Vukadin, M. Matic, M. Poljak	
Impact of Vacancies on the Transport Properties of Monolayer Germanium-Sulfide Nanoribbons	1608
J. Jaram, M. Matic, M. Poljak	
Graphene for Photonic Applications	1614
M. Lukosius, R. Lukose, P.K. Dubey, A. Raju, D. Capista, M. Lisker, A. Mai, C. Wenger	
Temperature-Dependent Noise Performance of Single-Photon Avalanche Diodes and Active Quenching Circuits in 180-nm HV CMOS	1619
B. Pozar, I. Berdalovic, P. Bartulovic, M. Jugovic, T. Suligoj	
Quantum-Transport Exploration of Design Space for Majorana Zero Modes in Finite Kitaev Chains	1625
M. Poljak	
Automated Optimal Resistance Measurement Method for Precision Resistor Stress Response Analysis	1631
A. Zamboki, L. Gocan, J. Mikulic, G. Schatzberger, J. Fellner, T. Markovic, A. Baric	
Analysis of Wheatstone Bridge Sensitivity for Applications in Integrated Piezoresistive Stress Sensors	1637
L. Gocan, A. Zamboki, J. Mikulic, G. Schatzberger, J. Fellner, T. Markovic, A. Baric	
Investigation of Wearable SENSIPLUS Chip for Bioimpedance Measurements	1643
L. Giannini, R. Asquini, M. Vitelli, E. Piuzzi	

VOC Detection: Hope or Hype? A Preliminary Study to Overcome Many Challenges	1649
S. Casalinuovo, D. Caschera, A. Buzzin, S. Quaranta, F. Federici, L. Zortea, A. Brotzu, V. Genova, S. Natali, D. Puglisi, G. de Cesare, D. Caputo	
Optimization of Transmission Distance in Symmetric Wireless Power Transfer Topology	1654
D. Vinko, M. Srnovic, D. Bilandzija, L. Filipovic	
Flexible Nafion Sensor for Ionizing Radiation Based on a Microwave Resonating System	1660
V. Mulloni, G. Marchi, B. di Ruzza, M. Donelli, A. Quaranta	
Two Port Scattering Parameters Measurements and De-Embedding in Cryostat from 300 K down to 20 K	1665
F. Bogdanovic, A. Tabakovic, Z. Osrecki, J. Zilak, M. Koricic, T. Suligoj	
Photomixing Techniques for mm-Wave Carrier Generation	1671
N. Vokic, D. Milovancev	
UWB Pulse Shaping Filters Forming Flat-Spectrum Gaussian Pulses	1677
A. Milos, G. Molnar, M. Vucic	
Design and Verification Challenges in SoC Integration of PicoRV32 RISC-V with Sigma-Delta ADC	1683
M. Krizan, I. Budanovic, M. Coti, J. Kundrata, V. Ceperic, T. Mandic, T. Markovic, A. Baric	
Analyzing Standardized Inverse Time-Current Curve Types of Overcurrent Relays for Efficient Overcurrent Protection in Distribution Networks	1688
M. Rojnic, R. Prenc, M. Dubravac, Z. Simic	

Optoelectronics and Photonics

Optimized Algorithm for Quasi-Quadrature Interferometric Signal Processing in Totally Implantable Hearing Aids	1694
M. Tomic, R. Pavelka, G. Sprinzl, H. Traxler, Z. Djinovic	
Translating and Optimising Computational Microscopy Algorithms with Large Language Models	1700
F. Guzzi, G. Kourousias, R. Pugliese, A. Gianoncelli, F. Bille	
Development of a Through-Glass Programmable Optical Interferometer Made of Liquid Crystal Tilted Gratings	1706
N. Hanine, A. Mannetta, A. Buzzin, V. Ferrara, R. Asquini	
Enhanced Scattering Induced Fluorescence through Gold Nanoarrays and Zinc Oxide Thin Films	1712
A. Mannetta, N. Hanine, A. Buzzin, V. Ferrara, R. Asquini	

Sub-ppm Evanescent Waveguide Sensor for Heavy Metal Detection in Water	1716
A. Alaeddini, A. Buzzin, R. Asquini, D. Caputo, G. de Cesare	
Optical Ground Station Proposal for Croatian Quantum Communication Infrastructure	1721
M. Jagnjic, J. Vukovic, B. Skendrovic, J. Loncar, M. Loncaric, D. Babic	
Monolithically Integrated Ultra-Low Noise Balanced Receiver for CV-QKD	1727
D. Milovancev, N. Vokic	
Near Infrared Devices and Protocols for Short Distance Quantum Key Distribution via Telecom Fibers	1733
S. Spoljar, A. Cerovic, M. Stipcevic	
Enabling Unique Photonic Markers for Visible Light Sensing	1739
A.P. Weiss, G.J. Mohr, A. Kroepfl, Z. Salem	
Correlating Electricity Consumption and Public Illumination from Low Earth Orbit	1744
V. Cegledi, D. Babic	
Optical Filter Selection for the Detection of Light Pollution from Low Earth Orbit	1749
D. Babic, J. Tutavac, J. Loncar, J. Vukovic	
A Fiber-Optic Technique for the Wall Thickness Measurement of the Industrial Tubes under Harsh Environment	1754
Z. Djinovic, A. Gavrilovic-Wohlmuther, M. Tomic	
Advancements and Challenges in Underwater Wireless Optical Communication in the Marine Environment	1760
D. Palaic, N. Lopac, I. Jurdana, D. Brdar	
 Project Management	
Artificial Intelligence in Project Management: Insights from Croatia	1766
B. Veger, T. Mijac	
Implications of ESRSS Implementations in Sustainability Consulting Practice	1772
M. Bajica, A. Pavlovic	
Analysis of Interactions and Effectiveness in Managing ESI Projects in Croatian Higher Education: Insights from Empirical Research	1777
F. Urem, N. Pintaric, D. Jurekovic	
Implementation of Service Desk Solutions on the Example of a Company for the Production and Distribution of Electricity Energy Using the Principles of the ITIL Framework	1782
A. Tanovic, A. Cerimagic Hasibovic	

Robotics Technologies and Applications

Integrated Path Tracking, and Control of a Fixed Wing UAV Based on Dual Quaternion Parameterized Dynamics S. Kimathi, B. Lantos	1788
Comparison of Linear and Nonlinear Model Predictive Control for Vehicle Path Following V. Diklic, B. Novoselnik	1794
Application of a Time-Varying Linear Quadratic Controller for Trajectory Tracking of a Four-Wheel Mobile Robot with Independent Steering and Drive B. Caran, N. Skific, V. Milic, M. Svaco	1800
An Integrated Approach to Robotic Joint Interpolation: Kinematic Modeling and Constraints for Smooth Trajectories L.A. Orbegoso Moreno, E.D. Valverde Ramirez, J.L. Ruiz Rodriguez, I.D. Minano Corro	1808
Comparison of Linear and Nonlinear Controllers on a Mechatronic System L. Patrlj, B. Novoselnik, M. Baotic	1814
Performance Evaluation of a MEMS Compact Electrostatic Microgripper Equipped with Rotary Comb Drives and Curved Flexure Hinges L. Giannini, A. Buzzin, G. Bocchetta, R. Asquini, A. Scorza, G. de Cesare, N.P. Belfiore	1820
Comparative Analysis of Topology Optimization Platforms for Additively Manufactured 6 DOF Robot Arms L. Mestric, P. Curkovic	1825
LiDAR-Based SLAM in a 2D Simulated Environment J. Maltar, D. Severdija	1831

Smart Industries and Digital Ecosystems

Recommendation on Cybersecurity and Safety in the Hydrogen Economy R. Alfafos, M. Ullah, J. Sillman, P. Nardelli, R. Soukka	1837
The Future of Digital Forensic Investigations: Keeping the Pace with Technological Advancements N. Nelufule, M. Masango, T. Singano	1843
Digital Forensics in Industry 4.0 and Industry 5.0: Major Challenges and Opportunities N. Nelufule, M. Masango, T. Singano	1849

Anomaly Detection for HVAC System Maintenance Using Autoencoder Neural Network	1855
D. Boric, T. Hadjina, L. Luttenberger Maric	
Unified Framework to Select an IoT Platform for PtX Cogeneration Plants	1859
M. Ullah, D. Gutierrez Rojas, G. Almeida, T. Tynjala	
State-of-the-Art Machine Learning Frameworks for Training or Inference on Business Process Dataset	1865
M. Kaniski, S. Krizanic	
The Influence of Choosing Sensor Locations inside Closed Facilities on the Reliability, Adaptability, and Energy Efficiency of IoT Systems	1871
M. Begovic, A. Midzic	
Consumer Energy Interface Use and User Behavior Analysis during a Price Hike: A Qualitative Study	1877
M. Qureshi, A. Knutas, A. Wolff	
Strategic Aspects of Application of Smart City Concept for Recovery of Ukrainian Industry	1883
V. Omelyanenko, I. Pidorycheva, O. Omelianenko, M. Biloshkurskyi, N. Biloshkurska, V. Samoday	
A Supervised Learning Method for Anomaly Classification in Cable Networks Based on SNR Patterns	1888
J. Dobruna, Z. Limani Fazliu, B. Grajcevci	
Extending the Business Modeling Motivation Model for Achieving Business Agility through Enhanced Business - IT Alignment	1894
G. Markovic	
Concept for Sharing Drone Data in Agricultural Data Ecosystem	1900
P. Linna, A. Halla, J. Suomalainen	
The Power of ICT Infrastructure in Fostering Innovation Development	1905
M. Milic, J. Borocki, A. Vekic	
Generative AI in E-Maintenance: Myth or Reality?	1911
J. Celic, T. Bronzin, M. Horvat, A. Jovic, A. Stipic, B. Prole, M. Maricevic, I. Pavlovic, K. Pap, M. Mikota, N. Jelaca	
Conventional Approach versus State-of-Charge Feedback for Lithium Titanate Battery Cell Charging - A Comparative Simulation Study	1920
D. Pavkovic, K. Kvaternik, Z. Kljaic, M. Cipek	
Collaborative Data Collection in Agriculture - Case Sub-Irrigation On-Farm Experiment	1926
A. Halla, S. Jaakkola, R. Tupi, P. Linna	

Estimating Household's Physical Parameters Using Neural Ordinary Differential Equations	1931
D. Topalovic, D. Gabrijelcic	
Digital Twin Models with ESG Methodology as a Tool for the Transformation of Cities in the Area of Transport and Energy	1937
Z. Kljaic, M. Grdic, T.J. Mlinaric, M. Niksic, D. Pavkovic, M. Cipek	
Integration of Smart Waste Management Solutions: A Case Study of QR Code-Based Recyclable Waste Monitoring System	1943
S. Stankovic, N. Milutinovic, M. Ivanovic, M. Milenkovic	

Software and Systems Engineering

Automation on Cloud Migrations	1949
P. Faria, T. Simoes, Y. Qianmin	
Benefits of ITIL Incident Management Process Implementation in one Public Institution in Bosnia and Herzegovina	1954
A. Tanovic, A. Cerimagic Hasibovic	
Comparative Analysis of Container Build Methods: A Performance Evaluation	1960
B. Erdenebat, T. Kozsik	
Research Instrument for Analyzing User Interactions and Accessibility of Holographic Technology in Educational Games for Environmental Awareness	1967
M. Kristic, A. Keselj Dilberovic, Z. Car, K. Zubrinic	
Parallelizing Dynamic Time Warping Algorithm for Hotel Occupancy Time Series Similarity Measurement	1974
A.M. Atanasovska, V. Zdraveski, D. Spasov	
A Language and Its Compiler for Programming Serverless Applications	1979
A. Revesz, N. Pataki	
Visual Programming Concept for Infineon XMC Series Microcontrollers	1986
L. Vulic, L. Kaucic, I. Aleksi, T. Matic	
Measuring and Analysing Erlang's Energy Usage	1993
Y. Gharbi, M. Toth, I. Bozo	
Analysis of Methodologies and Tools for Software Development in Different Architectures	1999
M. Nikitashin, M. Kaluza, B. Werber	

Congestion Control Performance Analysis of CoAP Multicast Group Communication in 6LoWPAN Network	2008
D. Fonovic, M. Kusek	
Developing Smarter Software Engineering Tools by Utilizing AI Assistance	2013
E. Syrila, J. Kasurinen	
Improving Museum Experience Using the Durostorum Application for the Digital Restoration of Artifacts	2019
B. Ivanova, G. Hristov, K. Shoylekova, R. Rusev, T. Vassilev	
Covariance Analysis in Selected OOP Languages	2025
Z. Sirotic, S. Sovilj, M. Orsulic, K. Pripuzic	
Current Trends, Challenges and Techniques in XAI Field; A Tertiary Study of XAI Research	2032
S. Brdnik, B. Sumak	

MIPRO Junior - Student Papers

Android Application for Measuring 5G Mobile Network Radio Parameters	2039
I. Crnjak, M. Sokele, S. Moric	
Assessing the Efficiency of Java Virtual Threads in Database-Driven Server Applications	2045
L. Lasic, D. Beronic, B. Mihaljevic, A. Radovan	
Enhancing Programming Education with Open-Source Generative AI Chatbots	2051
A. Sarcevic, I. Tomicic, A. Merlin, M. Horvat	
Learning Algorithms Concepts in a Virtual Reality Escape Room	2057
E. Haramina, M. Paladin, Z. Petricusic, F. Posaric, A. Drobnjak, I. Boticki	
Application of Artificial Intelligence in the Creation of Web Content	2063
M. Jovanic, M. Carapina	
Analysis of Predictors as a Basis for the Development of an Information System for Predicting Failure in Stem Courses	2069
V. Cotic Poturic, I. Drazic, S. Candrllic	
Optimizing Machine Learning Training: A Comparative Study of Storage Types for Efficient Large Dataset Processing	2074
L. Lasic, A. Radovan, B. Mihaljevic	
Preliminary Study on Detection of Breasts	2079
M. Pristavnik Vresnjak, A. Perusic, Z. Emersic, P. Peer, B. Batagelj	

Hallucinations in LLMs: Understanding and Addressing Challenges	2084
G. Perkovic, A. Drobnjak, I. Boticki	
A Deep Learning Approach for Predicting Air Pollutants on the Construction Site	2089
M. Mastromatteo, A. Amelio	
Developing a Hybrid Deployment Model for Highly Available Manufacturing Execution Systems	2095
L. Furmanek, S. Lins, M. Blume, A. Sunyaev	
Study of the Safety in Operation of Electric Vehicles and Their Accompanying Infrastructure	2101
I.-E. Polinchev, G. Yankov, K. Zlatev, A. Aristotelov, S. Hossni	
Decarbonization of the Transport Sector in the Green Energy Transition	2107
F. Cupan, L. Klaric, V. Kirincic, F. Mitrovic	
Fabrication and Characterization of a Resistor Made of Carbon Film	2115
M. Vejin, M. Djocos, S. Bucko, J. Katona, S. Kojic, G. Stojanovic	
Preliminary Study on Effects of Object-Relational Mapping on the Efficiency of Monolithic and Distributed Relational Database Systems	2121
E. Staric, N. Tankovic	