2022 International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2022)

Split, Croatia
22-24 September 2022

IEEE Catalog Number: CFP2287A-POD
ISBN: 978-1-6654-7018-6

Copyright © 2022, University of Split, FESB
All Rights Reserved

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number: CFP2287A-POD
ISBN (Print-On-Demand): 978-1-6654-7018-6
ISBN (Online): 978-953-290-117-7

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CONTENTS

TECHNICAL PROGRAM: GENERAL CONFERENCE

S1/I: MACHINE LEARNING APPLICATIONS I

ATMAS: Airplane Trajectory Missing Alarm System based on Deep Learning ***1***
Qiaoqiao Zhu (Ocean University of China, China); Zexin Wu (Qingdao Air Traffic Management Station of Civil Aviation of China, China); Jie Nie (Ocean University of China, China)

Classification Algorithms for Analyzing Parkinson's Disease Patient ***5***
Osiris Escamilla-Luna, Miguel A. Wister and José Hernández Torruco (Universidad Juarez Autonoma de Tabasco, Mexico)

Siamese Network for Content-Based Image Retrieval: Detection of Alzheimer's Disease from Neuroimaging Data ***11***
Ivana Marin (University of Split, Croatia); Tea Marasović (FESB, Split, Croatia); Sven Gotovac (University of Split & FESB, Croatia)

Performance comparison of generic and quantized fully connected and convolutional neural networks for real-time signal/background classification ***17***
Arijana Mišura, Josip Music, Julije Ozegovic and Damir Lelas (University of Split, Croatia)

Individual Olive Tree Detection in RGB Images ***23***
Ivana Marin (University of Split, Croatia); Sven Gotovac (University of Split & FESB, Croatia); Vladan Papic (University of Split, Croatia)

Identifying low-resource languages in speech recordings through deep learning ***29***
Kleona Binjaku and Joan Janku (Polytechnic University of Tirana, Albania); Elinda Kajo Mece (Polytecnic University of Tirana, Albania)

S1/II: MACHINE LEARNING APPLICATIONS II

Analyses of Recent Advances on Machine Learning-based Trust Management for Mobile IoT Applications ***35***
Hiba Souissi, Michael Mahamat, Ghada Jaber, Hicham Lakhlef, and Abdelmadjid Bouabdallah (Universite de Technologie - Compiegne, France)

Comparison of Machine Learning Models for Predicting Indoor Materials from Channel Impulse Response ***41***
Teodora Kocevska (Jožef Stefan International Postgraduate School & Jožef Stefan Institute, Slovenia); Tomaz Javornik and Ales Svigelj (Jozef Stefan Institute, Slovenia); Ke Guan (Beijing Jiaotong University, China); Aleksandra Rashkovska (Jozef Stefan Institute, Slovenia); Andrej Hrovat (Jožef Stefan Institute, Slovenia)

Generative Recurrent Network For Design SARS-CoV-2 Main Protease Inhibitor ***47***
Adham Khaled Hassan and Zeinab Taha (October University for Modern Sciences and Arts, Egypt)

Machine Learning-based Model for Defining Circuit-level Parameters of VCSEL ***53***
Ihtesham Khan, Lorenzo Tunesi and Muhammad Umar Masood (Politecnico di Torino, Italy); Enrico Ghillino (Synopsys, Inc, USA); Vittorio Curri, Andrea Carena and Paolo Bardella (Politecnico di Torino, Italy)

ML-based Video Streaming QoE modeling with E2E and Link Metrics ***59***
Lei Wang, Adam Durning, and Declan Delaney (University College Dublin, Ireland)

Improving Classification Results in Network Data Analysis using Interpretability Methods ***67***
Domagoj Begušić (Neos Ltd., Croatia); Luke F Walker and Sanja Krznaric (University of Zagreb, Croatia); Damir Pintar (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia)

Selecting an Optimal Cluster Head using PSO Algorithm in WSNs ***73***
Dheyab Ibrahim (University of Babylon, Iraq); Saad Talib Hasson (University of Babylon & College of Information Technology, Iraq); Princy Johnson (Liverpool John Moores University, United Kingdom (Great Britain))

S2: SIGNAL PROCESSING

Fast and Accurate Song Recognition: An Approach based on Multi-Index Hashing ***77***
Salvatore Serrano and Marco Scarpa (University of Messina, Italy)

Blind Channels Responses Estimation by Constrained Clustering ***83***
Michel Terré, Luc Féty and Thierry Horsin (CNAM, France)

All-to-All Personalized Communication on Fat-Trees Using Latin Squares ***89***
Daniele Izzi (University "La Sapienza", Italy); Annalisa Massini (Sapienza University of Rome, Italy)

Estimating the block-diagonal idiosyncratic covariance in high-dimensional factor models ***95***
Lucija Žignić (Department for Strategy and Operations, PricewaterhouseCoopers, Croatia);
Stjepan Begušić and Zvonko Kostanjčar (University of Zagreb, Croatia)

S3: 5G&B5G TECHNOLOGIES

Performance Evaluation for End-toEnd Slice Management in 5G/B5G Cellular Networks ***101***
Noor Abdalkarem Mohammedali and Triantafyllos Kanakis (University of Northampton, United Kingdom (Great Britain));
Ali Al-Sherbaz (The University of Gloucestershire & School of Computing and Engineering, United Kingdom (Great Britain));
Michael Opoku Agyeman (University of Northampton, United Kingdom (Great Britain))

NetApps Approach for Accelerating Vertical Adoption of 5G Networks: A UAV Case ***107***
Ignacio Martinez-Alpiste and Gelayol Golcarenarenji (University of the West of Scotland, United Kingdom (Great Britain));
Dimitrios Klonidis (UBITECH, Greece); Jose Maria Alcaraz Calero (University of the West of Scotland & School of Engineering and Computing, United Kingdom (Great Britain)); Qi Wang (University of the West of Scotland, United Kingdom (Great Britain))

Ethernet communication over IP transport for industrial and private cellular network ***113***
Vikramajeet Khatri (Nokia Bell Labs, Finland); Mehrnoosh Monshizadeh (Nokia Bell Labs, France);
Kari Tiirikainen (Cloud Network Services, Nokia, Finland)

Experimental demonstration of hybrid photonics-based ARoF system for 5G and B5G networks ***119***
Armands Ostrovskis (Riga Technical University, Latvia); Toms Salgals (RTU, Latvia); Kristaps Rubuls (Riga Technical University, Latvia); Laura Skladova (RTU, Latvia); Vjaceslavs Bobrovs and Sandis Spolitis (Riga Technical University, Latvia)

Impact of Multi-Layer Recurrent Neural Networks in the Congestion Analysis of TeraHertz B5G/6G MAC Mechanism ***124***
Djamila Talbi and Zoltan Gal (University of Debrecen, Hungary)

Performance Assessments For SDN Control Plane Into Distinct Network Topologies ***130***
Pantelimon-Teodor Tivig (University Politehnica of Bucharest & Luxoft Romania, Romania); Eugen Borcoci (University Politehnica of Bucharest, Romania)

Distance Based Server Selection in 5G Networks ***136***
Åke Arvidsson (Kristianstad University, Sweden)

S4: WIRELESS COMMUNICATIONS

Design of Pattern-Reconfigurable SixElements Dipole Array for 5G Compact Base Station ***142***
Saber Dakhli (IETR Laboratory, INSA Rennes & Innov'Com Laboratory, SUPCOM, University of Carthage Tunis, France);
Mohamed Khammeri (Land Army Ministry of Defense, Tunisia); JeanMarie Floc'h (INSA of Rennes, France);
Feten Slimeni (Tunisia Polytechnic School, Tunisia)

A Comparative Study of Vegetation Attenuation at Millimeter Waves Bandwidth ***148***
Maciej Nikiforuk and Krzysztof Cichoń (Poznan University of Technology, Poland)

Indoor Positioning: Comparing Different Techniques and Choosing the Best One for a User Authentication Real Scenario ***154***
Joaquín Perez Balbela (Universidad Internacional de La Rioja - UNIR, Spain); Aruna Prem Bianzino (Funditec, Spain)

Determining the ABEP under the Influence of K-μ Fading and CCI with SC combining at L-branch Receiver Using Moment Generating Function ***160***
Dragana Krstić (University of Niš, Serbia); Suad Suljovic (Academy of Technical Professional Studies Belgrade, Serbia);
Nenad Petrovic (University of Nis, Faculty of Electronic Engineering, Serbia); Sinisa Minić (Teachers College in Prizren - Leposavic, Serbia); Zoran Popovic (Technical College of Vocational Studies, Zvecan, Serbia)

Analytical Traffic Model for a Multidomain IMS/NGN Network Including Service and Transport Stratum ***165***
Sylwester Kaczmarek (Gdansk University of Technology & Faculty ETI, Poland); Maciej Sac (Gdansk University of Technology, Poland); Michał Cieśliński (Comarch S.A., Poland)

S5: OPTICAL COMMUNICATIONS

IEEE 802.1X Virtual Network Function Development for NG-PON Architecture ***171***
Igor Araújo and Solange Rito Lima (Centro Algoritmi, University of Minho, Portugal); Andre Brizido (Altice Labs, Portugal)

Network Sanity Checks Through Graphs ***177***
Gian Paolo Jesi and Andrea Odorizzi (Lepida ScpA, Italy); Gianluca Mazzini (LepidaSpA & UniFe, Italy)

Networking Analysis of Photonics Integrated Multiband WSS Based ROADM Architecture ***183***
Muhammad Umar Masood, Ihtesham Khan, Lorenzo Tunesi, Bruno Correia and Rasoul Sadeghi (Politecnico di Torino, Italy); Enrico Ghillino (Synopsys, Inc, USA); Paolo Bardella, Andrea Carena and Vittorio Curri (Politecnico di Torino, Italy)

QoS Resource Reservation Mechanisms for Switched Optical Networks ***189***
Sylwester Kaczmarek (Gdansk University of Technology & Faculty ETI, Poland); Magdalena Młynarczuk (Gdańsk University of Technology & Faculty ETI, Poland); Arkadiusz Dumin (ADVA Optical Networking, Poland)

Adaptive Weights-based Dynamic Resource Provisioning in Space Division Multiplexed-Elastic Optical Networks (SDM-EONs) ***195***
Anjali Sharma and Baljinder Singh Heera (Indian Institute of Technology Kanpur, India); Varsha Lohani (IIT Kanpur, India); Yatindra Nath Singh (Indian Institute of Technology Kanpur, India)

S6: SOFTWARE DEVELOPMENT

Design and Implementation of a Software Vulnerabilities and Application Research Tool ***201***
Elisa Benetti (LepidaScpA, Italy); Andrea Zucchelli (Lepida ScpA, Italy); Gianluca Mazzini (LepidaSpA & UniFe, Italy)

Performance comparison of technological solutions for Spark applications in AWS ***206***
Riccardo Lancellotti and Stefano Rossi (University of Modena and Reggio Emilia, Italy); Giuseppe Calogero Miano and Fabio Miselli (Doxee, Italy)

Empirically Derived Use Cases for Software Analytics ***212***
Thiago Rique, Emanuel Dantas and Mirko Perkusich (VIRTUS, Brazil); Kyller Costa Gorgônio, Hyggo Almeida and Angelo Perkusich (Federal University of Campina Grande, Brazil)

Microservice performance in Container- and Function-as-aService architectures ***218***
Claudia Canali, Riccardo Lancellotti and Pietro Pedroni (University of Modena and Reggio Emilia, Italy)

Empirical Assessment on Interactive Detection of Code Smells ***224***
Danyllo Wagner Albuquerque (UFCG & Intelligent Software Engineering Group, Brazil); Everton Guimaraes (Penn State University, USA); Mirko Perkusich (VIRTUS, Brazil); Hyggo Almeida and Angelo Perkusich (Federal University of Campina Grande, Brazil)

Autonomy for Ships: System Thinking and Engineering ***230***
Kjeld Dittmann (Technical University of Denmark (DTU), Denmark)

S7: VEHICULAR COMMUNICATIONS

The Solution for Creating a 2D TopView Map of the Pedestrian Positions Around the Vehicle ***236***
Nemanja Avramović (TTTech Auto CEE, Croatia); Mario Vranjes (University of Osijek, Faculty of Electrical Engineering, Computer Science and Information Technology, Croatia); Željko Lukač (University of Novi Sad, Croatia); Jelena Kovacevic (University of Novi Sad, Serbia)

Vehicle Distance Estimation Based on Stereo Camera System with Implementation on a Real ADAS Board ***242***
Marko Miljković (TTTech Auto CEE, Croatia); Mario Vranjes (University of Osijek, Faculty of Electrical Engineering, Computer Science and Information Technology, Croatia); David Mijić (TTTech Auto CEE, Croatia); Miodrag Đukić (University of Novi Sad, Serbia)

SWAP: Secure Warning Messages Authentication and Propagation in Internet of Vehicles ***248***
Alessandro Brighente, Mauro Conti and Harsha Vasudev (University of Padova, Italy)

Sector-Beam Antenna Array for 77 GHz Automotive RADAR Systems ***254***
Saber Dakhli (IETR Laboratory, INSA Rennes & Innov'Com Laboratory, SUPCOM, University of Carthage Tunis, France); Sourour Abdellaoui (Land Army, Ministry of Defense, France); Jean-Marie Floc'h (INSA of Rennes, France); Mimoun Hamdi (Land Army Ministry of Defense, Tunisia)

Design and evaluation of a cross-layer MPTCP path manager for vehicular networks ***259***
Vadym Hapanchak (University of Minho, Portugal); Antonio D. Costa (Universidade do Minho & Centro ALGORITMI, Portugal)

User Experience and Multimodal Usability of Navigation Systems – Evaluation of Effectiveness and Efficiency ***265***
Lumbardha Hasimi and Aneta Poniszewska-Maranda (Lodz University of Technology, Poland)

S8: IOT SYSTEMS AND SERVICES

LoRa-based System for IoT Applications via HAPS in Remote Areas ***271***
Giovanni Giambene (University of Siena, Italy); Karthik Korre (CNIT - University of Siena, Italy)

Cloud-based Spectrum Access Control System for Dense IoT Networks ***277***
Cezary Adamczyk, Adam Samorzewski, Mateusz Grzyb and Adrian Kliks (Poznan University of Technology, Poland)

Twin Delayed DDPG based Dynamic Power Allocation for Intenet of Robotic Things ***283***
Homayun Kabir (Universiti Tunku Abdul Rahman & Chittagong University of Engineering and Technology, Malaysia); Tham Mau Luen (UTAR, Malaysia); Yoong Choon Chang (Universiti Tunku Abdul Rahman, Malaysia)

Review of Recent Intrusion Detection Systems and Intrusion Prevention Systems in IoT Networks ***289***
Zouhair Chiba (FSAC, Hassan II University of Casablanca, Morocco); Noreddine Abghour, Khalid Moussaid and Oumaima Lifandali (FSAC, Hassan II University of Casablanca); Rachid Kinta (FSAC, Hassan II University of Casablanca, Morocco)

An Assessment Platform of Cybersecurity Attacks against the MQTT Protocol using SIEM ***295***
Mohamed Hadded (IRT SYSTEMX, France); Gaspard Lauras, Jerome Letailleur, Yohann Petiot and Anouk Dubois (IRT SystemX, France)

Securing IoT services based on security requirement categories ***302***
Karlo Slovenec (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia); Marin Vukovic (University of Zagreb Faculty of Electrical Engineering and Computing, Croatia); Denis Salopek (University of Zagreb, Croatia); Miljenko Mikuc (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia)

S9: NATURAL LANGUAGE PROCESSING

Analysis of the Textual Information Extracted from News Portals ***308***
Linda Vickovic, Petra Lovrić and Hrvoje Karna (University of Split, Croatia)

A Hybrid Deep Learning Technique for Sentiment Analysis in E-Learning Platform with Natural Language Processing ***314***
Jay Krishna and Anupam Das (Royal Global University, India); Joanna Rosak-Szyrocka (Czestochowa University of Technology, India)

Employing a Seq2Seq Model for Spelling Correction in Albanian Language ***321***
Evis Trandafili, Alba Haveriku and Anea Bendo Polytechnic University of Tirana, Albania)

Data Structures Analysis for Text Processing in the Framework of NLP Classification in Polish ***326***
Urszula Krzeszewska and Aneta Poniszewska-Maranda (Lodz University of Technology, Poland)

PAS1: POSTERS / ABSTRACTS SESSION

Radio Environment Map and Deep QLearning for 5G Dynamic Point Blanking ***332***
Marcin Dominik Hoffmann and Pawel Kryszkiewicz (Poznan University of Technology, Poland)

Use of Facial Expressions to Improve the Social Acceptance of Level 4 and 5 Automated Driving System Equipped Vehicles ***335***
Antonio C Marceddu, Jacopo Sini, Bartolomeo Montrucchio and Massimo Violante (Politecnico di Torino, Italy)

Performance analysis for next generation CD and CDC based technology optical networks ***338***
Stanislaw Kozdrowski (Warsaw University of Technology & Computer Science Institute, Poland);
Maria Konieczka and Alicja Poturala (Warsaw University of Technology, Poland);
Sławomir Sujecki (Wroclaw University of Science and Technology, Poland)

Machine Learning Application to Transmission Quality Assessment in Optical Networks ***341***
Stanislaw Kozdrowski (Warsaw University of Technology & Computer Science Institute, Poland);
Pawel Cichosz (Warsaw University of Technology, Poland);
Sławomir Sujecki (Wroclaw University of Science and Technology, Poland)

Quality of Service Evaluation over a 496 km Quantum Key Distribution Network ***344***
Miryeong Park (KT corp. & Institute of Convergence Technology, Korea (South)); Kyungwoon Lee, Kanghee Seol and Minsoo Lee (KT corp., Korea (South)); HyungSoo Kim (Korea Telecom, Korea (South))

AI Application in Next Generation Programmable Networks ***347***
Mateusz Rasmus (Orange Labs Polska, Poland); Stanislaw Kozdrowski (Warsaw University of Technology & Computer Science Institute, Poland); Zbigniew Kopertowski (Orange Polska, Poland)

TECHNICAL PROGRAM: SPECIAL SESSIONS

SS1: SPECIAL SESSION ON QoS IN WIRED AND WIRELESS NETWORKS

Subjective Assessment of the Quality of Video Sequences by the Young Viewers ***350***
Stefan Brachmanski and Janusz Henryk Klink (Wroclaw University of Science and Technology, Poland)

Determination of Video Service Quality in an IP Environment with the Use of Different Software Tools: A Comparison Study ***356***
Tadeus Uhl (Maritime University of Szczecin/Poland, Poland); Christian Hoppe (Nextragen Solutions GmbH, Germany); Janusz Henryk Klink (Wroclaw University of Science and Technology, Poland)

Method of 5G TDD midhaul multiplexing gain estimation based on system-level traffic measurements ***362***
Dominik Dulas (Nokia Siemens Networks & Wroclaw University of Science and Technology, Poland); Katarzyna Maraj Zygmat and Krzysztof Walkowiak (Wroclaw University of Science and Technology, Poland)

Adaptive Multi-Connectivity Activation for Throughput Enhancement in 5G and Beyond Non-Terrestrial Networks ***367***
Mikko Majamaa (Magister Solutions Ltd, Finland); Henrik M J Martikainen (Magister Solutions Ltd. & Nokia, Finland); Lauri Sormunen (Magister Solutions Ltd, Finland); Jani Puttonen (Magister Solutions Ltd., Finland)

On Queueing Models for the Performance Analysis of a Vehicular Ad Hoc Network ***372***
Irene Lidia Keramidi (University of Peloponnese, Greece); Dimitrios Uzunidis (University of West Attica, Greece); Ioannis Moscholios (University of Peloponnese, Greece); Panagiotis Sarigiannidis (University of Western Macedonia, Greece); Michael D. Logothetis (University of Patras, Greece)

An impact of the encoding bitrate on the quality of streamed video presented on screens of different resolutions ***378***
Janusz Henryk Klink and Stefan Brachmanski (Wrocław University of Science and Technology, Poland)

SS2: SPECIAL SESSION ON AD HOC&SENSOR NETWORKS AND INTERNET OF THINGS

Performance of a wireless OCDMA network for baby bed monitoring in a nursery context ***384***
Amina Boussebt (University of Limoges & XLIM CNRS 7252, France); Stéphanie Sahuguède (XLIM UMR CNRS 7252 - University of Limoges, France); Anne Julien-Vergonjanne (University of Limoges & XLIM CNRS 7252, France); Sébastien Reynaud (High Frequency Systems Department, France & CISTEME, France)

Detection of Tennis Strokes using Wearable Sensor ***390***
Omar Hazem and Ahmed Farouk (October University for Modern Sciences and Arts (MSA), Egypt)

Cost Effective Smart Parking System on Campus ***396***
Andrew Jung, Daniel Baqaeen, Rachel Liang and Magdalene Piotrowski (University of Hartford, USA)

LogStack: A smart Logging Stack Approach for IoT devices based NDN (IoT-NDN) ***402***
Mohamed Ahmed Mohamed Hail, Leon Christopher Dietrich and Stefan Fischer (University of Lübeck, Germany)

SS3: SPECIAL SESSION ON SECURITY AND DIGITAL FORENSICS

An efficient Federated Identity Management Protocol for Heterogeneous Fog computing Architecture ***408***
Imine Youcef (Univ Polytechnique HautsDe-France LAMIH CNRS, France); Antoine Gallais (Univ Polytechnique Hauts-DeFrance LAMIH CNRS & INSA Hauts-DeFrance, France); Yacine Challal (University of Doha for Science and Technology & Heudiasyc lab. UMR CNRS, Qatar)

Telecom Fraud Detection with Machine Learning on Imbalanced Dataset ***414***
Ivan Krasić (Trg Žrtava Domovinskog Rata 9, Bosnia and Herzegovina); Stipe Celar (University of Split & FESB, Croatia)

Base systems for Docker containers - security analysis ***420***
Arkadiusz Maruszczak, Michał Walkowski and Sławomir Sujecki (Wroclaw University of Science and Technology, Poland)

Predicting vulnerabilities in web applications based on website security model ***425***
Ivan Kovačević, Mihael Marović and Stjepan Gros (University of Zagreb, Croatia); Marin Vukovic (University of Zagreb Faculty of Electrical Engineering and Computing, Croatia)

Blockchain Redaction in Self-Sovereign Identity ***431***
Šeila Bećirović (University of Sarajevo, Bosnia and Herzegovina); Špela Čučko (University of Maribor, Slovenia); Muhamed Turkanović (University of Maribor, Faculty of Electrical Engineering and Computer Science, Slovenia); Haris Supic and Sasa Mrdovic (University of Sarajevo, Bosnia and Herzegovina)

Let's Read: Analysing S/MIME certificate vendors' Efficiency and Privacy ***437***
Tobias Mueller (Uni Hamburg, Germany); Max E. Hartenstein (Universität Hamburg, Germany)

Long-term Parameters Monitoring of the IDQ Clavis 3 QKD System ***443***
Ondrej Klicnik, Adrian Tomasov, Petr Munster, Tomas Horvath and Jan Hajný (Brno University of Technology, Czech Republic)

SS4: SPECIAL SESSION ON GREEN NETWORKING AND COMPUTING

Energy Efficient and Context-aware Trajectory Planning for Mobile Data Collection in IoT using Deep Reinforcement Learning ***447***
Sana Benhamaid (University of Technology of Compiegne & Heudiasyc Laboratory, France); Hicham Lakhlef (Université de Technologie de Compiègne, France); Abdelmadjid Bouabdallah (Universite de Technologie - Compiegne, France)

An Approach based on vSDN to Optimize Power Consumption ***453***
Euclides Neto (University of New Brunswick, Canada); Gustavo Callou (Federal Rural University of Pernambuco & UFRPE, Brazil)

Cooling power dependency simulation for real-world data center data ***459***
Jana Backhus (Hitachi America Ltd., USA); Yasutaka Kono (Hitachi Ltd., Japan)

PWU: Pre-Wakeup for CPU Idle to Reduce Latency and Power Consumption ***465***
Kei Fujimoto, Hikaru Harasawa and Ko Natori (NTT Corporation, Japan); Ikuo Otani (NTT, Japan); Shogo Saito and Akinori Shiraga (NTT Corporation, Japan)

SS5: SPECIAL SESSION ON ENVIRONMENTAL ELECTROMAGNETIC COMPATIBILITY (EEMC)

Analysis of SAR in a Simplified Body Model due to a Short Dipole Antenna Radiation ***471***
Anna Šušnjara (University of Split & FESB, Croatia); Dragan Poljak and Ivan Matić (University of Split, FESB, Croatia)

Septum Feed Design for Right and Left Circular Polarisation ***476***
Maja Škiljo and Zoran Blažević (University of Split, Croatia); Dragan Poljak (University of Split, FESB, Croatia)

Stochastic-Deterministic Electromagnetic Modeling of Human Head Exposure to Microsoft HoloLens ***482***
Ante Lojić Kapetanović (University of Split, Croatia); Anna Šušnjara (University of Split & FESB, Croatia); Dragan Poljak and Mladen Russo (University of Split, Croatia)

On 5G Radiated Field Measurement/Calculation Procedures and Exposure Compliance Limits ***487***
Marin Galić (Centar za Mjerenja u Okolisu, Croatia); Miroslav Crnolatec (Environmental Measurement Center, Croatia); Dragan Poljak (University of Split, Croatia)

Review of Least Action Principle in Electromagnetics Part I: Derivation of Continuity Equation and Lorentz Force ***493***
Dragan Poljak (University of Split, Croatia)

Review of Least Action Principle in Electromagnetics Part II: Derivation of Maxwell's Equations ***499***
Dragan Poljak (University of Split, Croatia)

Review of Least Action Principle in Electromagnetics Part III: Applications ***504***
Dragan Poljak (University of Split, Croatia)

SS6: SPECIAL SESSION ON ROBOTICS AND ICT ASSISTED WELLBEING

Topology optimization of an assembled 3D printed robot ***510***
Ivan Chavdarov (Institut of Robitics, Bulgarian Academy of Sciences & Sofia University "St. Kliment Ohridski", FMI, Bulgaria); Bozhidar Naydenov (Dassault Systemes & Institut of Robitics, Bulgarian Academy of Sciences, Bulgaria); Kaloyan M Yovchev and Lyubomira Miteva (Sofia University, Bulgaria)

Behavior Exploration of Humanoid Robot NAO and Comparative Interaction Study of Autistic Children with the Robot and Human ***516***
Mirajul Mohin, Sourav Deb and Saifuddin Md. Tareeq (University of Dhaka, Bangladesh)

Neural Network-based End-effector Force Estimation for Mobile Manipulator on Simulated Uneven Surfaces ***521***
Stanko Kruzic, Josip Music, Ivo Stancic and Vladan Papic (University of Split, Croatia)

Variable Selection for the Prediction of TSS, pH and TA of Intact Berries of Thompson Seedless Grapes from their NIS Reflection ***527***
Chrysanthi Chariskou (International Hellenic University, Greece); Christos Bazinas (International Hellenic University (IHU), Greece); Andries Daniels (University of Stellenbosch, South Africa); Umezuruike Opara Stellenbosch University, South Africa); Hélène Nieuwoudt (University of Stellenbosch, South Africa); Vassilis G. Kaburlasos (International Hellenic University (IHU) & HUman-MAchines INteraction (HUMAIN) Lab, Greece)

Augmented reality based sensor data visualization for plant growth monitoring ***532***
Ela Drutter (Croatia); Mario Miličević (University of Split, Croatia); Ana Kuzmanić Skelin (Faculty of Electrical Engineering, Croatia); Mirjana Bonkovic (University of Split, Croatia)

SS7: SPECIAL SESSION ON ADVANCED EDUCATIONAL TECHNOLOGIES

Predicting Students' Final Exam Grades Based on Learning Material Usage extracted from Moodle Logs ***539***
Suzana Marija Dunatov, Kristian Kasalo, Anamaria Lovrinčević, Jelena Maljković and Antonela Prnjak (University of Split, Croatia)

Using Moodle Test Scores to Predict Success in an Online Course ***545***
Dorotea Bertović, Marina Mravak, Kristina Nikolov and Nikolina Vidović (University of Split, Croatia)

Teaching & Learning Analytics for Data-Based Optimization of Teaching and Learning Processes in Courses with Blended Learning ***552***
Birgit Pohn (University of Applied Sciences Technikum Wien); Lars Mehnen (Technikum Wien, Austria); Matthias Blaickner and Isabel Dregely (University of Applied Sciences Technikum Wien, Austria); Thomas Mandl (FH Technikum Wien, Austria)

VR Training for Laboratory Environments ***557***
Birgit Pohn (University of Applied Sciences Technikum Wien); Josef Wermann (University of Applied Sciences Technikum Wien, Austria)

Application of e-learning in theoretical part of the subject Informatics ***563***
Boško Lišnić (University of Split, Croatia); Saša Mladenović (University of Split & Faculty of Science, Croatia); Ani Grubisic (University of Split, Croatia)

Modelling assessment rubrics through Bayesian networks: a pragmatic approach ***569***
Francesca Mangili (DTI, SUPSI & IDSIA - USI, SUPSI, Switzerland); Giorgia Adorni (IDSIA & USI - SUPSI, Switzerland); Alberto Piatti (SUPSI DFA, Switzerland); Claudio Bonesana and Alessandro Antonucci (IDSIA SUPSI, Switzerland)

Predicting programming success: How intermittent knowledge assessments, individual psychometrics, and restingstate EEG predict Python programming and debugging skills ***575***
Chu-Hsuan Kuo, Malayka Mottarella, Theodros Haile and Chantel Prat (University of Washington, USA)

REVIEWERS LIST ***581***

AUTHORS INDEX ***583***