



Organized by:
- Department of Electrical and
Computer Engineering, University
of Western Macedonia
- Department of Informatics and
Telecommunications, University
of Ioannina
- Department of Accounting and
Finance, University of Ioannina

SEEDA-CECNSM
CONFERENCE 2021



IEEE
Computational
Intelligence
Society

6th SEEDA-CECNSM

24 – 26 Sep 2021

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The 6th South-East Europe Design Automation, Computer Engineering, Computer Networks and Social Media Conference

Conference Program

SEEDA – CECNSM 2021

Day 1		Friday 24/9/2021
09:30-09:45		SMART4ALL – Opening the event
09:45-10:45		SMART4ALL - Keynote speech - <i>Advancing Innovation through digital transformation acceleration and promotion of digital skills</i> Nikolaos Lambrogeorgos , Senior Account Manager of the Public Sector, Greece & Cyprus, Cisco Hellas S.A.
10:45-11:00		Coffee break
11:00-12:15		Special Session SMART4ALL - funded Focused Technology Transfer Experiments
12:15-13:30		Special Session SMART4ALL - funded Cross-Border Technology Transfer Experiments
13:30-15:00		Lunch break
15:00-16:30		SMART4ALL - Pitching event – online via Webex
14:00-15:30	Keynote 1 - Health Data Tools Combating Covid-19, Pantelis Angelidis <i>Professor, Dept. of Electrical and Computer Engineering, Univ. of Western Macedonia</i> Room: Nicopolis – https://zoom.us/my/uowm.ece7	
	Session A: e-Health Technologies and Applications	Session B: Smart Environments
15:30-17:30	A1: Health Information Systems and Bioinformatics Room: Nicopolis – https://zoom.us/my/uowm.ece7 Chair: Pantelis Angelidis , Univ. of Western Macedonia, GR	B1: Smart & Sociable Ecosystems Room: Kassopi – https://zoom.us/my/uowm.ece8 Chair: Elena Christopoulou , Ionian University, GR
17:30-18:00	Coffee break	
18:00-19:30	A2: AI in Biomedical Applications Room: Nicopolis – https://zoom.us/my/uowm.ece7 Chair: Markos Tsipouras , Univ. of Western Macedonia, GR	B2: Accessibility for All in Smart Cities Room: Kassopi – https://zoom.us/my/uowm.ece8 Chair: Charisios Achilles , International Hellenic University, GR
19:30-20:00	Opening Ceremony Room: Nicopolis – https://zoom.us/my/uowm.ece7	
20:00	Cocktail party	



Day 2		Saturday 25/9/2021	
09:00-10:00	Keynote 2 - Scalable and Distributed Data Structures for Big Data (knowledge extraction and Mining) Spyros Sioutas <i>Professor, Polytechnic School, Dept. of Computer Engineering and Informatics, Univ. of Patras</i> <i>Room: Nicopolis – https://zoom.us/my/uowm.ece7</i>		
10:00-10:30	Coffee break		
	Session C: <u>Computer Engineering, Data and Design Automation</u>	Session A: <u>e-Health Technologies and Applications</u>	
10:30-12:00	C1: Computer Engineering and Design automation <i>Room: Nicopolis – https://zoom.us/my/uowm.ece7</i> Chair: Michael Dossis, Univ. of Western Macedonia, GR	A3: Human Computer Interaction in Healthcare <i>Room: Kassopi – https://zoom.us/my/uowm.ece8</i> Chair: Nikolaos Giannakeas, Univ. of Ioannina, GR	
12:00-12:30	Break		
12:30-14:00	C2: New Trends on Data Analytics <i>Room: Nicopolis – https://zoom.us/my/uowm.ece7</i> Chair: Aristidis Anagnostakis, Univ. of Ioannina, GR	A4: Novel approaches in Bioinformatics and Epidemiology <i>Room: Kassopi – https://zoom.us/my/uowm.ece8</i> Chair: Alexandros Tzallas, Univ. of Ioannina, GR	
14:00-15:30	Lunch break		
	Session D: <u>Computer Networks and Communications</u>	Session E: <u>Technology, Social Media and Law</u>	
15:30-17:00	D1: Computer Networks and Mobile Communications <i>Room: Nicopolis – https://zoom.us/my/uowm.ece7</i> Chair: Malamati Louta, Univ. of Western Macedonia	E1: Social Media and e-technologies <i>Room: Kassopi – https://zoom.us/my/uowm.ece8</i> Chair: Nikolaos Katertsidis, Univ. of Ioannina, GR	
17:00-17:30	Coffee break		
17:30-19:00	D2: Internet of Things and Smart Cities <i>Room: Nicopolis – https://zoom.us/my/uowm.ece7</i> Chair: Georgios Tsoumanis, Univ. of Ioannina, GR	E2: Law and Ethics in the Digital Ecosystem <i>Room: Kassopi – https://zoom.us/my/uowm.ece8</i> Chair: Paraskevi Pappa, Univ. of Ioannina, GR	
20:00	Dinner		



Day 3		Sunday 26/9/2021	
09:00-10:00	Keynote 3 - Continuous authorization and data usage control for Cloud and IoT. Theo Dimitrakos <i>Research Director, German Research Center of Huawei</i> <i>Room: Nicopolis – https://zoom.us/my/uowm.ece7</i>		
10:00-10:30	Coffee break		
10:30-12:00	Session G: Security, Privacy, Dynamicity, Adaptation and Continuity of Access in Internet of Things <i>Room: Nicopolis – https://zoom.us/my/uowm.ece7</i> Chair: Athanasios Rizos, <i>German Research Center of Huawei</i>	Session F: Information and Communication Technologies	
		F1: The Challenges for Skillful Training in the Industry 4.0 Era <i>Room: Kassopi – https://zoom.us/my/uowm.ece8</i> Chair: Chrysostomos Stylios, Univ. of Ioannina, GR	
12:00-13:30	Workshop: 3rd International Workshop on Security and Reliability of IoT Systems (SecRIoT 2021)	F2: Technologies essentials in Education <i>Room: Kassopi – https://zoom.us/my/uowm.ece8</i> Chair: Theodoros Karvounidis, Univ. of Piraeus, GR Spyridon Doukakis, Ionian University, GR	
	<i>Room: Nicopolis – https://zoom.us/my/uowm.ece7</i> Chair: Athanasios Kakarountas, Univ. of Thessaly, GR		
14:00-15:30	Conference Closing		

Session A: e-Health Technologies and Applications	
Session A1: Health Information Systems	Friday 24/9, 15:30 – 17:30
Smart Beds and Bedding Surfaces for Personalized Patient Care: A Review , <i>Evangelos Karvounis, Sofia Polymeni, Markos Tsipouras, Kyriakos Koritsoglou and Dimitrios Tzovaras</i>	
Design of a clinical decision support system powered by mhealth for the management of Parkinson's disease , <i>Dimitris Gatsios, George Rigas and Spyridon Konitsiotis</i>	
A Hospital Healthcare Monitoring System Using Internet of Things Technologies , <i>Evangelos Karvounis, Maria Vavva, Nikolaos Giannakeas, Alexandros Tzallas, Markos Tsipouras and Ioannis Smanis</i>	
A web platform to monitor patients with sleep apnea , <i>Christos Bellos, Georgios Stergios, Konstantinos Stefanou, Aleksandros Fyraridis, Apostolis Nikolopoulos, Konstantinos Exarchos and Athanasios Konstantinidis</i>	
Low-Power Electroencephalographic Data Encoding System for Implantable Brain Stimulation Systems , <i>Aikaterini Fragkou, Athanasios Kakarountas and Vasileios Kokkinos</i>	

Session A2: AI and Biomedical Applications	Friday 24/9, 18:00 – 20:00
Automatic Parkinson's tremor assessment with data analysis from daily activities , <i>Vasiliki Fiska, Vasiliki Gakilazou, Nikolaos Katertsidis, Alexandros T. Tzallas, Nikolaos Giannakeas and Markos G. Tsipouras</i>	
Neural Network-Based approach for Hemiplegia Detection via Accelerometer Signals , <i>Vasileios Christou, Alexandros Arjmand, Dimitrios Dimopoulos, Dimitrios Varvarousis, Alexandros Tzallas, Christos Gogos, Markos Tsipouras, Avraam Ploumis and Nikolaos Giannakeas</i>	
Automated Quantification of Pancreatic Steatosis in Biopsy Images using a Classification Based System , <i>Alexandros Arjmand, Marios Pappas, Odysseas Tsakai, Alexandros Tzallas, Markos Tsipouras, Roberta Forlano, Pinelopi Manousou, Robert Goldin and Nikolaos Giannakeas</i>	
An approach for Personalized Continuous Glucose Prediction with Regression Trees , <i>Sotiris Alexiou, Elias Dritsas, Otilia Kocsis, Konstantinos Moustakas and Nikos Fakotakis</i>	

Session A3: Human Computer Interaction in Healthcare	Saturday 25/9, 10:30 – 12:00
A Smart Assistant Nightstand for Hospitals , <i>Maria Kalafati and Athanasios Kakarountas</i>	
Prototype Haptic Feedback Device for Robot-Assisted Minimally Invasive Surgery , <i>Sofia Zagori and Athanasios Kakarountas</i>	
Virtual coaching system for remote rehabilitation using Virtual Reality , <i>Charalabos Georgiadis, Evaggelos Karvounis, Kyriakos Koritsoglou, Konstantinos Votis, Dimitrios Tzovaras, Dimitrios Dimopoulos, Dimitrios Varvarousis and Avraam Ploumis</i>	
Active touch classification using EEG signals , <i>Vasileios Aspiotis, Dimitrios Peschos, Katerina D. Tzimourta, Markos G. Tsipouras, Sami Abo Saleh Al Hussein, Evangelos Antoniou, Nikolaos Giannakeas, and Alexandros Tzallas</i>	

Session A4: Novel approaches in Bioinformatics and Epidemiology	Saturday 25/9, 12:30 – 14:00
An intelligent genetic platform diagnosing DNA sequencing pathogens by using NGS , <i>Christos Bellos, Georgios Stergios, Aleksandros Fyraridis and Konstantinos Stefanou</i>	
Prediction of melanoma incidence based on combination of genetic variants , <i>Georgios Ntritsos and Evangelos Evangelou</i>	
A genetic platform for studying the creation of structural abnormalities of chromosomes that cause micro-deletion and micro-duplication (MMS) syndromes , <i>Christos Bellos, Paris Ladias, Charilaos Kostoulas, Prodromos Sakaloglou, Aleksandros Fyraridis, Georgios Stergios, Sofia Markoula and Ioannis Georgiou</i>	
LIDS - An easy to use and lightweight, infectious disease simulator , <i>Theodoros Siklaidis and Vasileios Vlachos</i>	

Session B: Smart Environments	
Session B1: Smart & Sociable Ecosystems	Friday 24/9, 15:30 – 17:30
Comparative evaluation of computer vision technologies, targeting object identification and localization scenarios , <i>Spyridon Mavrikis, Christos Antonopoulos, Georgios Keramidas and Nikolaos Voros</i>	
Creative Narration as an Ideation Technique , <i>Dimosthenis Manias and Irene Mavrommati</i>	
Using IoT Data-Driven Analysis of Water Consumption to support Design for Sustainable Behaviour during the COVID-19 Pandemic , <i>Marco Zecchini, Alessandra Anna Griesi, Ioannis Chatzigiannakis, Irene Mavrommati, Dimitrios Amaxilatis and Orestis Akrivopoulos</i>	
A Mobile Application for a Smart Home Ecosystem , <i>Vasileios Argyros, Eleni Christopoulou, Christos Panagiotou, Konstantinos Antonopoulos, Christos Antonopoulos and Nikolaos Voros</i>	

Characterization of WiFi Modules Using an Open-Source Network Simulator , <i>Konstantinos Antonopoulos, Christos Panagiwtou, Christos Antonopoulos, Nikolaos Voros and Georgios Keramidas</i>
A Proposed Multi-Head Clustering Algorithm for VANET Environments , <i>Spiridon Vergis, Georgios Tsoumanis and Konstantinos Oikonomou</i>

Session B2: Accessibility for All in Smart Cities	Friday 24/9, 18:00 – 19:30
A data model for pedestrian routes , <i>Paraskevas Tsantarliotis, Stamatias Dimitriadis, Alexandros Koritsoglou, Kyriakos Koritsoglou and Ioannis Fudos</i>	
Revisiting shortest path algorithms for navigation systems , <i>Petros Laskas, Georgios Tsoumanis, Ioannis Fudos and Kyriakos Koritsoglou</i>	
A comparative evaluation of RDBMS and GDBMS for shortest path operations on pedestrian navigation data , <i>Vaios Patras, Petros Laskas, Evaggelos Karvounis, Ioannis Fudos and Kyriakos Koritsoglou</i>	
Assessment of measures to improve the accessibility of people with disabilities in urban areas , <i>Dimitris Aidonis, Charisios Achillas, Naoum Tsolakis and Anna Mani-Papadimitriou</i>	

Session C: Computer Engineering, Data and Design Automation	
Session C1: Computer Engineering and Design automation	Saturday 25/9, 10:30 – 12:00
An Optimization-Based Approach for Analog Circuit Technology Migration, Konstantinos Touloupas and Paul Peter Sotiriadis	
Variations on a Connectivity-based Legalizer for Standard Cell Design, Antonios Dadaliaris, George Kranas, Panagiotis Oikonomou and Michael Dossis	
Redesign, Extensibility & Evaluation of a Placement Utilities Toolset, George Kranas, Antonios Dadaliaris, Panagiotis Oikonomou, George Floros and Michael Dossis	
Converging Formal Verification in a High-level Synthesis Environment, Michael Dossis	
Workflow on CNN utilization and inference in FPGA for embedded applications , Georgios Flamis, Stavros Kalapothas and Paris Kitsos	
Multi-Objective Design Optimization of Piezoelectric Energy Harvesting System for Unmanned Aerial Vehicles, Georgia Foutsitzi, Christos Gogos, Aris Magklaras and Nikolaos Antoniadis	

Session C2: New Trends on Data Analytics	Saturday 25/9, 12:30 – 14:00
Some insights about the Uncapacitated Examination Timetabling Problem , <i>Christos Gogos, Angelos Dimitsas, Vasileios Nastos and Christos Valouxis</i>	
Towards a Masked Face Recognition Algorithm: A Novel Rule Based Hybrid Algorithm , <i>Michail Alexiou, Iosif Papadakis Ktistakis and Garrett Goodman</i>	
A Fuzzy Logic Controller for Double Inverted Pendulum on a Cart , <i>George Maraslidis, Theodore Kottas, Markos Tsipouras and George Fragulis</i>	
Towards personalised public service co-creation using core vocabularies , <i>Alexandros Gerontas, Dimitris Zeginis, Efthimios Tambouris and Konstantinos Tarabanis</i>	
An algorithmic method for detecting bunching in the value distribution of related variables , <i>Ioannis Katsaros, Kostas Karamanis and Georgios Kolias</i>	
Investigation and Simulation of Hardware Errors in Kernel Logs of Linux-based Server Systems , <i>Nikolaos Georgouloupoulos, Alkis Hatzopoulos, Konstantinos Karamitsios, Irene Maria Tabakis, Konstantinos Kotrotsios and Alexandros I. Metsai</i>	

Session D: Computer Networks and Communications	
Session D1: Computer Networks and Mobile Communications	Saturday 25/9, 15:30 – 17:00
Performance Evaluation of Software-Defined Networking Implemented on Various Network Topologies , <i>Nikolaos Oikonomou, Spiridoula Margariti, Eleftherios Stergiou and Dimitrios Liarokapis</i>	
A Review on Cloud Computing services, concerns, and security risk awareness in the context of Digital Transformation , <i>Georgios Lambropoulos, Sarandis Mitropoulos and Christos Douligeris</i>	
A Traffic Load-based Algorithm for Extending the Lifetime of Wireless Sensor Networks , <i>Georgios Tsoumanis, Nikolaos Giannakeas, Alexandros Tzallas, Evripidis Glavas, Kyriakos Koritsoglou, Evaggelos Karvounis and Constantinos Angelis</i>	
Performance evaluation of Cloud Radio Access Networks by jointly considering communicational and computational network resources , <i>Ekaterina Mpantola, John Vardakas and Malamati Louta</i>	
Resource utilization improvement in LTE networks; with a case study , <i>Abdullah Havolli, Lorik Fetahu and Arianit Maraj</i>	

Session D2: Internet of Things and Smart Cities	Saturday 25/9, 17:30 – 19:00
System dynamics modelling to study the impact of digital technologies on regional development , <i>Anastasios Andronikidis, Elpida Samara, Ioannis Bakouras, Nicos Komninos and Efthimios Katsoras</i>	

Waste collection vehicle navigation in modern cities , Nikolaos Baras, Dimitris Ziouzos, Minas Dasygenis and Constantinos Tsanaksidis
AUGEIAS: Intelligent IoT management platform for treated wastewater reuse in precision agriculture , Malamati Louta, Thomas Kyriakidis, Alexandros-Apostolos A. Boulogeorgos, Konstantina Banti, Ioanna Karampelia, Sokratis Lappos, Evangelia Mpagkavou, Ioanna Gkanatsa, Vasileios Lazaridis and Thomas Dimakis
The advantage of the 5G network for enhancing the Internet of Things , George Gkagkas, Dimitrios J. Vergados and Angelos Michalas

Session E: Technology, Social Media and Law	
Session E1: Social media and e-technologies	Saturday 25/9, 15:30 – 17:00
Delurking and Influence Maximization in Online Social Networks , Maria Anastasia Katikaridi, Aphrodite Tsalgatidou and Eleni Koutrouli	
Investigating Parody from Social Media Accounts , Muhammad Abu Talha Ramzan and Adeel Zafar	
Predicting Fake News using GloVe and BERT Embeddings , Azka Kiahwar and Adeel Zafar	
A Methodology for Stock Movement Prediction Using Sentiment Analysis on Twitter and StockTwits Data , Christina Nousi and Christos Tjortjis	
STEAM in VET – An ArcGIS StoryMap Approach , Nicol Vrysouli, Dimitrios Kotsifakos, Michael Dossis and Christos Douligeris	

Session E2: Law and Ethics in the Digital Ecosystem	Saturday 25/9, 17:30 – 19:00
Remote biometric identification systems and ethical challenges: The case of facial recognition , Maria Milossi	
Cloud computing as a strategic asset , Panagiotis Kitsos	

Session F: Information and Communication Technologies	
Session F1: The Challenges for Skillful Training in the Industry 4.0 Era	Sunday 26/9, 10:30-12:00
Building system diagnostics through collaborative network of smart local sensors , Khurshid Aliev, Dario Antonelli, Giulia Bruno, Paolo Piantanida and Valentina Villa	
Optimality of Modular Design of Assembly Process Networks in Terms of Mass Customization , Zuzana Soltysova and Vladimír Modrák	
Virtual Reality Escape Rooms for STEM Education in Industry 4.0: Greek Teachers Perspectives , Stylianos Mystakidis, George Papantzikos and Chrysostomos Stylios	
Learning 4.0: Innovation Directions driven by Employers Perspective , Maja Pivec and Anika Kronberger	
A Model Describing the Required Digital and Green Competencies of VET Educators for Practical Use , Boriss Misnevs, Igor Kabashkin and Kristine Uzule	
Designing and Evaluating Cultural Augmentative Reality Application for learning , Giannis Botilias, Jeries Besharat, George Papantzikos, Athanasios Christopoulos and Chrysostomos Stylios	



Session F2: Technologies essentials in Education	Sunday 26/9, 12:00-13:30
Management of sensors in robotic constructions provided by primary school children , <i>Epaminondas Papigiotis, Theodoros Karvounidis, Anastasios Ladias and Christos Douligeris</i>	
Motivating students in distance programming learning using games , <i>Eleni Seralidou and Christos Douligeris</i>	
An Emotional Intelligent Robot for primary education: The software development , <i>Dimitris Ziouzos, Antonios Chatzisavvas, Nikolaos Baras, Georgios Kapris and Minas Dasygenis</i>	
Robotics in Primary and Secondary Education - The Lego Mindstorms EV3 implementation , <i>Elpida Samara, Pantelis Aggelidis, Aspasia Kotsiari, Pavlos Kilintzis and Giorgos Avlogiaris</i>	
Exploring the role of educational neuroscience in learning through the perspectives of adult vocational education students of computer science in the field of online learning. A case study. <i>Elen Malliou, Spyridon Doukakis, Sarah Vlachou and Evangelia Filippakopoulou</i>	

Session G: Security, Privacy, Dynamicity, Adaptation and Continuity of Access in Internet of Things	Sunday 26/9, 10:30-12:00
DataPAL: Data Protection and Authorization Lifecycle framework , <i>Theo Dimitrakos, Yair Diaz, Ali Hariri, Subhajit Bandopadhyay, Tezcan Dilshener, Antonio La Marra and Alessandro Rosetti</i>	
A Quality and disease control system for beekeeping , <i>Christos Bellos, Konstantinos Stefanou, Georgios Stergios, Aleksandros Fyraridis and Sotirios Kontogiannis</i>	
Blockchainification in the 4IR Gig Entrepreneurship , <i>Aristidis Anagnostakis, Paraskevi Pappa and Efstratios Kypriotelis</i>	
Re-identification risk in anonymized data sets with parent-child information , <i>Revekka Kalli and Miltiades Anagnostou</i>	

Workshop: 3rd International Workshop on Security and Reliability of IoT Systems (SecRIoT 2021)	
Session W1: Security and Reliability of IoT Systems	Sunday 26/9, 12:00-13:30
Blockchain technology in food supply chain: A state of the art , <i>Georgios Spathoulas, Athanasios Kakarountas, Anargyros Gkogkidis, Vasileios Tsoukas and Aikaterini Kampa</i>	
Rapid Blockchain Scaling with Efficient Transaction Assignment , <i>Panagiotis Drakatos, Eleni Koutrouli and Aphrodite Tsalgaidou</i>	
Digital Twins and Cyber Security – solution or challenge? , <i>David Holmes, Maria Papathanasaki, Leandros Maglaras, Mohamed Amine Ferrag, Surya Nepal and Helge Janicke</i>	
Secure aggregation of users' privacy preferences in shared IoT environments , <i>Georgios Spathoulas, Sofia Tsagiopoulou and Athanasios Kakarountas</i>	
Game-Based Learning for Engineering Education , <i>Chrysoula Velaora and Athanasios Kakarountas</i>	