IEEE 22th International Conference on Cyberworlds

Sousse, Tunisia – October 3-5 2023

PROGRAM

CYBERWORLDS 2023
3-5 October Sousse International Conference

The IEEE 22th International Conference on Cyberworlds (CW2023)
Sousse, Tunisia, 03-05 October 2023

CYBERWORLDS 2023

3-5 October
Sousse
International Conference

ORGANIZATION COMMITTEE

General Chairs:
Najoua Essoukri Ben Amara
Sousse University, Tunisia

Christophe Rosenberger
Normandie University, France

Program Chairs :
Alexei Sourin
Nanyang Technological University, Singapore

Mohamed Ali Mahjoub
Sousse University, Tunisia

CONTACT

General Co-Chairs:

 Najoua Essourki Ben Amara,

Christophe Rosenberger

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EDSI@u-sousse.tn

Conference web page:

https://cw2023.ieee.tn

CW 2023 SCOPE

Cyberworlds are information spaces and communities that immensely augment the way we interact, participate in business and receive information throughout the world. Cyberworlds seriously impact our lives and the evolution of the world economy by taking such forms as social networking services, 3D shared virtual communities, and massively multiplayer online role-playing games.

The conference is held in **Concorde Green Park Palace hotel.**

TOPICS

1. Track VISUAL AND INTERACTIVE COMPUTING IN CYBERSPACE

1.1. Visual Computing:

Extended reality (XR); Computer graphics; Computer animation; Visualization; Image processing; Computer vision, Deep learning in visual computing, etc.

1.2. Data Science for Immersive Communication:

Immersive visual analytics; Machine and deep learning in visual communication; Collaborative visual analysis, etc.

1.3. Applications:

Digital humans; Education in cyberspace; Shared art and cultural heritage; Health care in cyberspace; Online games and living in shared virtual worlds; Shared digital fabrication, etc.

1.4. Multimodal Interaction and Human Factors:

Man-machine interaction (haptics, olfaction, sonification); Human dynamics; Communication; Collaboration; Entertainment; Digital assistants; Enhanced living; Human augmentation, etc.

2. Track COGNITIVE HUMAN-MACHINE INTERACTION

2.1. Brain-Computer Interfaces (BCI) in Extended Reality (XR):

BCI applications; EEG-based neuroimaging; Mobile and adaptive BCIs; Neurofeedback systems and games; Neurorehabilitation and neuroplasticity; Machine-assisted cognitive enhancement, etc.

2.2. Human Factors in Cyberspace:

Affective computing; Emotion artificial intelligence; Human factors in transportation and industry; Biosignals; Internet of bodies; Machine and deep learning for biosignal-based algorithms; Neuroergonomics; Cognitive multimodal interfaces; Human factors in XR; Cognitive human-robot interaction, etc.

3. Track CYBERSECURITY

3.1. Cybercrime Prevention:

Identity and trust management; Content protection and digital rights management; Information hiding and anonymity; Privacy protocols; Security protocols; Malware detection; Attack detection, etc.

3.2. Biometrics in Cyberspaces:

Behavioral biometrics; Biometric template protection; Emerging biometrics; Multi-biometrics; Presentation attack detection, etc.

3.3. Internet of Things (IoT):

Security of embedded systems; Security protocols; Security in V2X and smart cities; Mobile networks security, IoT & big data, etc.

3.4. Analysis of Digital Traces in Cyberspaces:

Forensics (computer, mobile devices, network, social media); Altered content detection (multimedia, deep fake); Digital data analysis (social media, file carving), etc.

Message from the General Chair

Welcome to the Proceedings of the Cyberworlds Conference held in Sousse, Tunisia from October 3rd to October 5th, 2023. We are delighted to host this esteemed international event for the first time in our country. This marks the 22nd edition of the conference, and it is with great pride that I introduce this compilation of cutting-edge research and innovative ideas from some of the leading experts in the field.

Within this collection, you will find a notable selection of peer-reviewed papers offering valuable insights and solutions to some of the most pressing challenges faced by the cyber community. The contributions of each author have been pivotal in shaping the quality and diversity of this proceedings volume.

On behalf of the CW 2023 committee, I would like to express my heartfelt appreciation to the authors whose dedication to excellence has elevated the quality of this publication and enriched the knowledge base of the entire community.

Furthermore, I would like to extend sincere gratitude to the organizing committee, reviewers and volunteers who have worked diligently behind the scenes to ensure the smooth execution of the conference. Without your collective efforts, this event would not have been possible.

Special thanks are also due to our esteemed keynote speakers for sharing their valuable insights and inspiring visions during the conference. Your wisdom has undoubtedly left a lasting impact on all attendees. Additionally, we are deeply grateful to all the sponsors for their generous support and valuable guidance.

Lastly, I want to express my deepest appreciation to the participants attending the conference and contributing to the engaging discussions, the fruitful collaborations and the memorable experiences.

As we delve into the contents of these proceedings, I am confident that you will find them enlightening and thought-provoking. May this collection serve as a valuable resource and inspire further research and advancements in the rapidly evolving world of Cyberworld.

Once again, I extend my warmest thanks to everyone who has played a role in making CW 2023 a resounding success.

General Chair
Pr. Najoua Essoukri Ben Amara, Sousse University, Tunisia

Message from the Program and Track Chairs

Created intentionally or spontaneously, cyberworlds are information spaces and communities that use computer technologies to augment the way we interact, participate in business and receive information throughout the world. Cyberworlds have ever-growing impact on our lives and the evolution of the world economy. CW2023 is the 22nd conference organized annually since 2002 (http://cyberworldsconferences.org).

Out of the 175 submissions which the conference received this year, we eventually selected for publication 58 full, 12 short and 12 poster papers. Full papers were accepted with the average ranking of 4.0–5.0 (40% acceptance rate) while short and poster papers were considered in the range of 3.0–5.0. The reviewing of papers was double-blind. All the papers were assigned at least 3 reviewers, and discussions among the reviewers were initiated by the program and track chairs in case of conflicting reviews.

The selection criteria for the papers were based on their technical content, language, quality of presentation, use of the allocated page limit (8 pages for full and 4 pages for short and 2 pages for poster papers), and zero tolerance for plagiarism. The accepted papers contributed to the very interesting program with 3 tracks: Visual and Interactive Computing, Cognitive Human-Machine Interaction and Cybersecurity and Biometrics. We take this opportunity to thank the members of the International Program Committee and invited reviewers for their support, reviews, fruitful discussions, and ideas.

Program and Track Chairs
Alexei Sourin, Olga Sourina, Christophe Charier

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CYBERWORLDS 2023 : Sousse October 3-5, 2023

CW 2023 – PROGRAM OVERVIEW

TIME	Tuesday, October 3, 2023		Wednesday, October 4, 2024		Thursday, October 5, 2023	
08:30	Hall A - Main Hall	Hall B - Parallel Hall	Hall A - Main Hall	Hall B - Parallel Hall	Hall A - Main Hall	Hall B - Parallel Hall
09:00	*Welcome & Registration*		Oral 7: Visual and Interactive Computing	Oral 8: Visual and Interactive Computing	**Keynote talk 4 : AI-enhanced Approaches for Cybersecurity and Cybersecurity for AI: Current Landscape and Emerging Challenges By : Pr. Noureddine Tamani**	
09:30	Conference Opening - Opening speeches by General and Program chairs					
10:00 10:30	**Keynote talk 1 : Emotion in Games By : Pr. Kostas Karpouzis**		Poster Session with coffee break		Oral 11: Cybersecurity and Biometrics	Oral 12: Visual and Interactive Computing
11:00	Coffee break		**Keynote talk 2 : Anonymous Communication and Internet Censorship Resistance By : Pr. Francesco Buccafurri**		Coffee break	
11:30	Oral 1: Visual and Interactive Computing	Oral 2: Cybersecurity and Biometrics				
12:00 12:30 13:00			Oral 9: Visual and Interactive Computing	Oral 10 : Cognitive Human-machine Interaction	Oral 13: Visual and Interactive Computing	Oral 14: Cybersecurity and Biometrics
13:30 14:00	Lunch		Lunch		Lunch	
14:30	Oral 3: Visual and Interactive Computing	Oral 4: Cognitive Human-machine Interaction	**Keynote talk 3 (Virtual) : Artificial immune systems and their applications By: Pr. Dipankar Dasgupta**		Oral 15: Cognitive Human-machine Interaction	Doctorial
15:00						
15:30	**Round Table :** The AI Cognitive battle for Cybersecurity **Dr. Lobna karoui - Dr.Hassen Dhrif - Audrey Smith,** Moderated by :**Pr. Khaled Ghdira**		Poster Session with coffee break		Coffee Break	
16:00			Cultural visit			
16:30	Coffee Break				Oral 16: Visual and Interactive Computing	Doctorial
17:00 17:30 18:00	Oral 5: Visual and Interactive Computing	Oral 6: Cybersecurity and Biometrics				
18:30 19:00 19:30					Closing ceremony	
20:00			Gala Dinner			

Detailed Program

Keynote talk 1 : Emotion in Games
by : Dr. Kostas Karpouzis
Introduced by : Pr. Najoua Essoukri Ben Amara

Oral 1 : Visual and Interactive Computing			
Chairs: Pr. Aref Meddeb			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Martin Büßemeyer, Max Reimann, Benito Buchheim, Amir Semmo, Jürgen Döllner and Matthias Trapp	8458 Controlling Geometric Abstraction and Texture for Artistic Images	Full	Onsite
Islem Gammoudi, Raja Ghozi and Mohamed Ali Mahjoub	7481 Residual Convolution Gated Neural Network based on 3DUNet (Res-Gated-3DUNet) for Multi-modal Brain Tumor Segmentation	Full	Online (Germany)
Hèdi Fkih, Abdelaziz Kallel and Zied Chtourou	9693 Super-Resolution of UAVs Thermal Images guided by Visible Images	Full	Onsite
Rimeh Daoudi, **Aymen Mouelhi**, Moez Bouchouicha, Eric Moreau and Mounir Sayadi	6537 Reconstruction-Segmentation Path for Fire and Smoke Detection in Video Surveillance Images	Full	Onsite
Hana Charaabi, Hiba Mzoughi, Ridha Hamdi and Mohamed Njah	5217 EXplainable Artificial Intelligence (XAI) for Magnetic Resonance Imaging (MRI) Brain Tumors Diagnosis: A Survey	Full	Onsite

Detailed Program

Oral 2 : Cybersecurity and Biometrics			
Chairs : Pr. Lilia Cheniti-Belcadhi & Pr. Christophe Rosenberger			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Abdarahmane Wone, Joel Di Manno, Christophe Charrier and Christophe Rosenberger	1952 Capture Biases in Fingerprint Systems	Full	Onsite
Sana Boujnah, Radhia Ferjaoui and Anouar Ben Khalifa	2675 Hybrid Approach for Speaker Recognition based on Formant and Pich Extraction	Full	Onsite
Sawsan D. Mahmood, Fadoua Drira, Yassine Aribi, Hussain Falih Mahdi and Adel M. Alimi	4472 Chaotic Model-Based Blind Watermarking with LSB Technique for Digital Fundus Image Authentication	Full	Online (Tunisia)
Fatma Sbiaa, Sonia Kotel and Mohsen Machhout	1854 A Selective Video Encryption Scheme Based on a Block Cipher Algorithm and a Chaos Generator	Full	Onsite
Siwar Hammami, **Islem Jarraya**, Mohamed Tarek Hamdani and Mohamed Adel Alimi	3387 Contactless Hand Knuckle Modality for Identity Verification using Siamese Network	Full	Onsite
Sana Boujnah, Radhia Ferjaoui and Anouar Ben Khalifa	9343 Person Identification with Voice and Ear-print in Degraded Conditions for Smart Home Access	Full	Onsite

Oral 3 : Visual and Interactive Computing			
Chairs : Pr. Aymen Mouelhi & Pr. Ahmed Ghazi Blaiech			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Najeh Nafti	5592 Hyperparameters Optimization of Deep Learning Models for Unsupervised Lung Cancer Detection	Short	Online (Tunisia)
Sourour Brahimi, Soumaya Ibrahimi and Chokri Ben Amar	5748 An Object Recognition Method Based on Deep BCNN with Reinforced Dense Blocks	Short	Online (Tunisia)
Hana Abdelmoula, Sihem Châabouni, Achraf Makhloufi and Abdelaziz Kallel	9694 Estimation of Olive Tree Properties from Satellite Images using Variational Inversion of an ANN based Emulator of a Radiative Transfer Model	Short	Onsite
Christian Kunert, Tobias Schwandt and Wolfgang Broll	3642 Cube-SSIM: A Metric for Evaluating 360-degree Images as Cube Maps	Short	Onsite

Round Table : The AI Cognitive battle for Cybersecurity
By: Dr. Lobna karoui - Audrey Smith - Dr Hassen Dhrif
Moderated by: Pr. Khaled Ghdira

Oral 4 : Cognitive Human-machine Interaction			
Chairs : Pr. Lilia Cheniti-Belcadhi & Pr. Imed Bannour			
Author	Title	Full/Short	Onsite/ Online
Sofia Ben Jebara	2558 Suspicious Behavior Detection from Speech: A Proof Of Concept	Short	Onsite
Alaeddine Hmidi, Ahmed Ghazi Blaiech and Jihen Malek	9674 A Deep Pair Siamese CNN for Multi-Class Classification of Alzheimer Disease	Short	Online (Tunisia)
Mooad Al-Shalout, Mohamed Elleuch and Ali Douik	6902 Detection Plant Diseases using Deep Learning Algorithms	Short	Onsite
Ghazala Hcini, Imen Jdey and Hela Ltifi	1059 HSV-Net: A Custom CNN for Malaria Detection with Enhanced Color Representation	Short	Onsite

Oral 5 : Visual and Interactive Computing			
Chairs : Pr. Amel Ben Azza & Pr. Mohamed Nazih Omri			
Author	Title	Full/Short	Onsite/ Online
Dorra Dhaou, Saoussen Ben Jabra and Ezzeddine Zagrouba	1644 An Efficient Anaglyph 3D Content based Video Retrieval using Watermarking Technique	Full	Onsite
Radhia Ferjaoui, Sana Boujnah, Nour El Houda Kraiem, Tarek Kraiem and Anouar Ben Khalifa	3991 A Novel Public Database of Lymphoma for Whole Body Diffusion-Weighted MRI	Full	Online(Tunisia)
Yassine Gacha, Mohamed Amine Ben Rhaiem and Takoua Abdellatif	2717 Geospatial Big Data for a Sustainable and Green Smart City	Full	Onsite
Sami Gazzah, **Lamia Rzouga**, Esam Khamis and Najoua Essoukri Ben Amara	2202 Digital image Forgery Detection with Focus on a Copy-move Forgery Detection: A Survey	Full	Onsite

Oral 6 : Cybersecurity and Biometrics			
Chairs: Pr. Christophe Rosenberger & Pr. Raoudha Ben Jemaa			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Olfa Dallel, Souheil Ben Ayed and Jamel Bel Hadj Taher	2826 Smart Blockchain-based Authorization for Social Internet of Things	Full	Onsite
Safa Boumiza and Rafik Braham	7123 In-Vehicle Network Intrusion Detection Using DNN with ReLU Activation Function	Full	Onsite
Ihar Volkau, Sergei Krasovskii, Abdul Mujeeb and Helen Balinsky	9733 Whether 3D Object is Copyright Protected? Controlled Object Identification in Additive Manufacturing	Full	Online (Singapore)
Omar Adel Muhi, Mariem Farhat and Mondher Frikha	4519 Comparative Analysis of Deep Learning Architectures for Masked Face Recognition: A Study of Performance and Robustness	Full	Online (Iraq)

Oral 7 : Visual and Interactive Computing			
Chairs: Pr. Sonia Ayachi Ghannouchi & Pr. Habib Youssef			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Souha Mansour, Saoussen Ben Jabra and Ezzeddine Zagrouba	1871 A Comprehensive Review of Video Watermarking Technique in Deep Learning Environments	Full	Onsite
Sondes Ajili and Abdellatif Mtibaa	3815 A Robust Blind DWT+ DCT+ SVD Based Crypto-Watermarking schema for medical Images Security using AES and Weber's Law	Full	Online (Tunisia)
Hiba Mzoughi, Ines Njeh, Mohamed Benslima, Nouha Farhat and Chokri Mhiri	7186 Deep Transfer Learning (DTL) based-Framework for an Accurate Multi-classification of MRI Brain Tumors	Full	Onsite
Mounira Sassi and Hanen Idoudi	7174 OntDM: An Ontology for Disaster Management and Response Mitigation	Full	Online (Tunisia)

Detailed Program

Oral 8 : Visual and Interactive Computing			
Chairs: Pr. Ali Douik & Pr. Mehrez Abdellaoui			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Tijeni Delleji, Feten Slimeni, Mohsen Lafi and Zied Chtourou	1081 Video Data Analytics Dashboard for Anti-drone System	Full	Onsite
Ghassen Hamdi and Mohamed Nazih Omri	4962 A Personalized Multidimensional Navigation in a Limited Visualization Context	Full	Online(Tunisia)
Christian Kunert, Tobias Schwandt and Wolfgang Broll	1411 Evaluating Light Probe Estimation Techniques for Mobile Augmented Reality	Full	Onsite
Rayen Ben Salah and Mourad Zaied	2636 A Robust Medical Image Watermarking Approach Using Beta Chaotic Map, DWT, and SVD	Full	Online(Tunisia)

Keynote talk 2 : Anonymous Communication and Internet Censorship Resistance
By : Pr. Francesco Buccafurri
Introduced by: Pr. Christophe Rosenberger

Oral 9 : Visual and Interactive Computing			
Chairs : Pr. Achref Telmoudi & Pr. Kostas Karpouzis			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Walid Messaoud, Rim Trabelsi, Adnane Cabani and Fatma Abdelkefi	1163 Multi-Head Self Attention for Enhanced Object Detection in the Maritime Domain	Full	Online (Tunisia)
Houssem Lahiani and Mondher Frikha	4074 The Impact of Artificial Intelligence on Anomaly Detection in Android: A Survey	Full	Online (Tunisia)
Mohammed Altaha, **Islem Jarraya**, Tarek M. Hamdani and Adel M. Alimi	7008 Facial Expression Recognition based on ArcFace Features and TinySiamese Network	Full	Onsite
Mohammed F. Allebawi, **Thameur Dhieb**, Islem Jarraya, Mohamed Neji, Nouha Farhat, Emna Smaoui, Khadija Moalla, Mariem Damak, Tarek M. Hamdani, Chokri Mhiri and Adel M. Alimi	9239 A New Online Arabic Handwriting Dataset for Analyzing Parkinson's Disease	Full	Onsite

Detailed Program

Oral 10 : Cognitive Human-machine Interaction			
Chairs : Pr. Noureddine Tamani & Pr. Takoua Abdellatif			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Sana Fakhfakh and Yousra Ben Jemaa	7199 A Green Isolated Word Sign Language Recognition System based on Geodesic Metric Space	Full	Online (Tunisia)
Matthias Wölfel and Wladimir Hettmann	3553 Identification of Unreliable Data in\\in-VR Surveys using Biosignal Sensors	Full	Onsite
Asma Hadyaoui and Lilia Cheniti-Belcadhi	9769 Intelligent Collaborative Assessment for Cyberspace eLearning Environments	Full	Online (Morocco)
Mejdi Ben Dkhil, Bochra Rabbouch and Foued Saadaoui	7357 Risk Factor Prediction of Heart Disease using Machine Learning Approaches	Full	Online (Tunisia)
Chawki Barhoumi and Yassine Ben Ayed	6615 Improving Speech Emotion Recognition Using Data Augmentation and Balancing Techniques	Full	Online (Tunisia)

Keynote talk 3 (Virtual) : Artificial immune systems and their applications
By: Pr. Dipankar Dasgupta
Introduced by: Pr. Mounir Sayadi

Keynote talk 4 : AI-enhanced Approaches for Cybersecurity and Cybersecurity for AI: Current Landscape and Emerging Challenges
By : Pr. Noureddine Tamani
Introduced by: Pr. Ouajdi Korbaa

Detailed Program

Oral 11: Cybersecurity and Biometrics			
Chairs: Pr. Amine Boufaied & Pr. Christophe Rosenberger			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Mouhamed Ala Eddine Bahri, Farah Jemili and Ouajdi Korbaa	5613 Towards Machine Learning & Blockchain-based Intrusion Detection System	Full	Online(Tunisia)
Ines Jemal, Omar Cheikhrouhou and Haddar Med Amine	9319 IoT DOS and DDOS Attacks Detection Using an Effective Convolutional Neural Network	Full	Online(Tunisia)
Koji Tsuru and Soichiro Yamashita	9786 Easy-to-wear Headworn Electroencephalographs Devices for Brainwave Biometrics	Short	Onsite
Marwa Ben Jabra, Omar Cheikhrouhou, Nesrine Atitallah, Anouar Ben Amor and Habib Hamam	2800 Malware Detection Using Deep Learning and CNN Models	Full	Onsite

Oral 12 : Visual and Interactive Computing			
Chairs : Pr. Lotfi Ben Romdhane & Pr. Fatma Zahra Sayadi			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Hamza Gbada, Karim Kalti and Mohamed Ali Mahjoub	1927 VisualIE: Receipt-Based Information Extraction with a Novel Visual and Textual Approach	Full	Onsite
Yahia Hamdi, Besma Rabhi, **Thameur Dhieb** and Adel M. Alimi	3028 Multi-head Self-attention and BGRU for Online Arabic Grapheme Text Segmentation	Full	Onsite
Manel Mili, Asma Ben Abdallah, Jose Javier Otero, Asma Kerkeni and Mohamed Hedi Bedoui	5467 Revolutionizing Brain Cancer Diagnosis: Automated Prediction of MGMT Methylation Status using Histological Images	Full	Online(Tunisia)
Emna Ben Baoues, Imen Jegham, Safa Ameur and Anouar Ben Khalifa	287 GF2PReID: A Novel Framework for Person Re-IDentification Using Generative Networks	Full	Onsite

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Oral 13 : Visual and Interactive Computing			
Chairs: Pr. Sofia Ben Jebara & Pr. Maha Khemaja			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Adrien Dubettier, **Tanguy Gernot**, Emmanuel Giguet and Christophe Rosenberger	6048 A Comparative Study of Tools for Explicit Content Detection in Images	Full	Onsite
Mathieu Lutfallah, Tamara Gini, Christian Hirt, Kordian Caplazi and Andreas Kunz	6715 Remote Cross-platform Instructions between MR and VR	Short	Online (Lebanon)
Karim Haddada, Mohamed Ibn Khedher and Olfa Jemai	9164 Comparative Study of Deep Learning Architectures for Early Alzheimer Detection	Full	Onsite
Hasan Bikhtiyar and **Amine Boufaied**	9181 Team Formation Optimization Problem Resolution Based On The Knowledge Difference Cost	Full	Online (Iraq)

Oral 14: Cybersecurity and Biometrics			
Chairs: Pr. Anouar Ben Khalifa & Pr. Noureddine Tamani			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Emna Bensaid, Mohamed Neji and Adel M. Alimi	9436 FaceAnonym: Face Anonymization Model via Latent Space Mapping	Short	Online (Tunisia)
Islem Chouchen and Farah Jemili	7789 Intrusion Detection based on Incremental Learning	Full	Online(Tunisia)
Arkan M. Al-Sarray, **Tarek M. Hamdani**, Habib Chabchoub and Adel M. Alimi	8037 Enhancing Security of Color Image Exchange using Authentication and Encryption	Full	Onsite
Arij Ben Amor and Sarra Jebri	5188 Local Learning-based Collaborative Authentication In Edge-Fog Network	Short	Online(Tunisia)

CYBERWORLDS

3-5 October
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International Conference

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Oral 15: Cognitive Human-machine Interaction			
Chairs : Pr. Walid Chainbi & Pr. Ahmed Maalel			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Ines Belhaj Messaoud, Elyes Ben Cheikh, Assaad Chiboub, Karim Loulou, Youssef Ouakrim, **Sofia Ben Jebara** and Neila Mezghani	8513 Machine Learning based Approaches for Cough Detection From Acceleration Signal	Full	Onsite
Onsa Lazzez**, Mohamed Tarak Hamdeni** and Mohamed Adel Alimi	5287 FASCOLL: A new Framework for Agile Smart City Open Living Lab	Full	Online (Tunisia)
Chien-Tung Lin and R.P.C. Janaka Rajapakse	1977 Development of a Chakra Meditation Application of Virtual and Vibrational Realities Based on Behavioral Biometric	Full	Onsite
Joanne Tan, Wei Lun Lim, Ruilin Li, **Meng-Hsueh Hsieh**, Olga Sourina and Chun-Hsien Chen	1426 Heart Rate based Cross-subject Stress Recognition	Short	Online (Singapore)
Simon Cardoso, Hugo Jean, Martin Cherrier, Adrien Dubettier, Tanguy Gernot, Emmanuel Giguet and Christophe Rosenberger	6897 Towards an Open-source Digital Investigation Platform	Full	Onsite

Oral 16 : Visual and Interactive Computing			
Chairs: Pr. Rafik Brahem & Pr. Khaled Ben khalifa			
Author	**Title**	**Full/Short**	**Onsite/ Online**
Hangqin Wang and Alexei Sourin	6947 Deep Learning-based Visualization of Music Mood	Full	Online (Singapore)
Mohamed Rissal Hedna, Younes Djemmal and **Khaleel Mershad**	861 A Model for the Automatic Mixing of Multiple Audio and Video Clips	Full	Online (Lebanon)
Khawla Ben Salah, Mohamed Othmani, Salma Saida and Monji Kherallah	3626 Improved approach for Semantic Segmentation of MBRSC Aerial Imagery based on Transfer Learning and Modified UNet	Full	Online (Tunisia)
Mikołaj Maik, Jakub Flotyński and Krzysztof Walczak	9176 Knowledge-based Adaptation of 3D User interfaces in XR Financial Exchange Systems	Full	Online (Poland)
Kyrin Sethel Chong and Alexei Sourin	4316 New Approach to Timbre Visualization	Full	Online (Singapore)

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Poster Session		
Author	**Title**	**Onsite/ Online**
Attia Dhouha, Ghazi Abid and **Benazza Amel**	9618 Classification of Vocal Fold Disorders in High Speed Videos by Deep Learning	Onsite
Hela Hammami and Sadok Elasmi	719 Spatial Mapping of Extreme Precipitation Events Using Artificial Neural Networks	Onsite
Tamaki Akaike and **Michio Shiraishi**	2132 Method to Visualize Passes in a Soccer Match by Clustering Players and Positions	Online (Japan)
Rabaa Youssef, Sofiene Chaabouni and Amel Benazza-Benyahya	3615 Water Turbidity Monitoring Application Combining IoT and Computer Vision Tools	Onsite
Hedi Jabnouni, Imen Arfaoui, Mohamed Ali Cherni, Moez Bouchouicha and Mounir Sayadi	9069 YOLOv6 for Fire Images Detection	Onsite
Roua Jaafar, Hedi Yazid and Najoua Essoukri Ben Amara	4840 CBIR-Based Approach for Histological Image Analysis on Large Scale Datasets	Onsite
Asma Kharrat, Fadoua Drira, Franck Lebourgeois and Christophe Garcia	437 Exploring Continual Learning and Self-learning for Historical Digit Recognition	Online(France)
Kaouther Selmi, Mohamed BOUALLEGUE, Kais BOUALLEGUE	8128 Simulator Of EEG Using Neural Networks with Neuron Contains Multi Dendrites	Onsite
Elena Kriklenko and Anastasia Kovaleva	1882 The Analysis Skin Conductance using Value Categorization	Online(Russia)
Ibtissem Hadj Ali and Mohamed Ali Mahjoub	5412 Siamese Networks with attention for User-Independent Offline Handwritten Signature Verification	Onsite
Nourchen Moumni, Faten Chaabane and Fadoua Drira	1079 Privacy-preserving Anomaly Detection in Smart Meter Data via Federated Learning	Online(Tunisia)

Keynotes

Keynote 1

Kostas Karpouzis

Assistant Professor, Panteion University of Social and Political Sciences in Athens, Greece

Kostas Karpouzis is an assistant professor at the Department of Communication, Media and Culture, Panteion University of Social and Political Sciences in Athens, Greece. Since 1998, he has participated in more than twenty research projects funded by Greek and European bodies; most notably the Humaine Network of Excellence, within which he completed his post-doc in the field of mapping signals to signs of emotion, leading research efforts in emotion modelling and recognition, the FP6 IP CALLAS project, where I served as Area Leader of Affective applications, the FP7 TeL Siren project (Technical Manager), which was voted Best Learning Game in Europe for 2013 by the Games and Learning Alliance Network of Excellence, and the H2020 iRead project, which produced Navigo, the winner of the GALA Serious Games competition for 2018. Kostas is currently serving as a member of the IEEE Explainable AI Working Group, which aims to produce a Standard for XAI – eXplainable Artificial Intelligence – for Achieving Clarity and Interoperability of AI Systems Design. Kostas is also the Student Activities and Computer Chapter Chair for IEEE Greece and a Member of the National Bioethics and Technoethics committee and the Ethics Advisory Board for ICCS-NTUA.

Keynote 2

Dipankar Dasgupta

IEEE Fellow, NAI Fellow, Professor of Computer Science & Director of Center for Information Assurance, University of Memphis, USA

Dr. Dipankar Dasgupta, joined the University of Memphis as an Assistant Professor in 1997 and rose to the rank of Full Professor in 2004. Dr. Dasgupta's pioneering research spans across computational intelligence, including AI and machine learning, with a focus on intelligent solutions. Notably, he is recognized as one of the founding fathers of artificial immune systems, making significant contributions to digital immunity and survivable systems. With a substantial publication of +300 record and over 20,500 citations on Google Scholar, Dr. Dasgupta's influence within the research community is undeniable. His remarkable achievements include receiving the prestigious 2011-2012 Willard R. Sparks Eminent Faculty Award, the highest honor conferred on a faculty member by the University of Memphis. Currently, Dr. Dasgupta holds the esteemed William Hill Professorship at the University of Memphis, and received Lifetime research achievement award in 2022. He is an IEEE Fellow, NAI Fellow and the recipient of the 2014 ACM SIGEVO Impact Award. Dr. Dasgupta served as an ACM Distinguished Speaker (2015-2020) and currently serving as an IEEE Distinguished Lecture. Beyond his research, he has played a vital role in Information Assurance education and training at the University of Memphis, serving as the founding Director of the Center for Information Assurance, a nationally designated Center for Academic Excellence in Information Assurance Education and Research.

Keynotes

Keynote 3

Nouredine Tamani

Associate Professor in Cybersecurity and AI at ISEP Paris Ph.D., Eng. in Computer Science, France

Nouredine TAMANI has a double profile of Engineer and Ph.D. in Computer Science. He received his Ph.D. degree in computer science from the University of Rennes 1 (France) in 2012. After post-doc positions at INRIA/LIRMM Montpellier University and L3I of La Rochelle University, he is an associate professor in cybersecurity and AI at Institut Supérieur d'Electronique de Paris – ISEP and affiliated to LISITE research lab associated with Sorbonne University, since 2020. His research activities encompass the following main topics: knowledge representation (DL, DataLog+-, ontologies), inconsistency handling, user preferences and flexible querying, fuzzy sets, fuzzy logic, and decision support systems. The main areas of application are digital trust, AI-enhanced approaches for cybersecurity, anomaly detection in IoT-based environments, user data protection, user privacy preservation, and reasoning under uncertainty for context and result explanation.

Keynote 4

Francesco Buccafurri

Full Professor of computer science at the University Mediterranea of Reggio Calabria, Italy

Francesco Buccafurri is a full professor of computer science at the University Mediterranea of Reggio Calabria, Italy. In 1995 he took the PhD degree in CS at the University of Calabria. In 1996 he was visiting researcher at Vienna University of Technology. His research interests include cybersecurity, privacy, social networks, e-government, and P2P systems. He has published more than 180 papers in top-level journals
and conference proceedings. He serves as a referee for international journals and he is a member of several conference PCs. He is Associate Editor of Information Sciences (Elsevier) and IEEE Transactions on Industrial Informatics and played the role of PC chair and PC member in many international conferences. He is member of the IEEE computer society.

ROUND TABLE

"The AI Cognitive battle for Cybersecurity"

Summary : Artificial intelligence is an exponential technology that is solving major issues in multiple sectors and verticals. In this round table, our speakers will discuss the AI added values and use cases from various business areas and make a focus on cybersecurity threats and risks for companies and customers.

Moderator and speaker 1:

Dr. Lobna Karoui is AI Strategist for Fortune 500 & President of AI Exponential Thinker – USA. She is a Google recognized Expert about "Disruption, Empathy and Trust" and one of the 1000 AI experts in the world who signed "Autonomous Weapons: an Open Letter" with Stephen Hawking and Elon Musk. Dr. Karoui graduated from CentraleSupelec and Yale. As a digital transformer and Tech philanthropist, she is invited as a contributor at Forbes, MIT, Women Forum Economic & society and as a speaker at Harvard University, Stanford, Amazon, Bloomberg. Dr. Lobna Karoui is the President of AI Exponential Thinker with the mission to educate and empower 1 Million young people, horizon 2030, about TRUST Technologies, Artificial Intelligence Opportunities and the needed skills for the Future. As a Futurist, researcher and podcast producer, she invites Exponential Thinkers from various organizations such as Google, Amazon, Nvidia, WEF, Harvard to share their visions about the Future of Work and Education in this time of Exponential Technologies.

Speaker 2:

Audrey Smith is Chief Operating Officer at MLtwist in San Francisco USA, a platform that generates automated AI Data Pipelines at the click of a button. She has led AI data operations for the past 8 years at companies like Google, Amazon and Labelbox. Audrey has deployed hundreds of solutions across text, image, audio, and video across a dozen verticals. She also co-launched the Data Ops for AI community with over 100 professionals, and mentors within the AI data operations industry.

Speaker 3:

Dr. Hassen Dhrif is Principal Scientist and Senior Manager at Amazon, Seattle, where he leads groundbreaking NLP research and development projects, focusing on creating a private ChatGPT using AWS BedRock Foundational Large Language Model and proprietary data for millions of companies. Before Amazon, Hassen made significant contributions in the medical field as a Research Associate at Weill Cornell Medicine working on various projects like detecting Alzheimer's disease-related genes using machine learning and swarm intelligence, fraud detection in healthcare and more.

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