

# THE 2<sup>nd</sup> INTERNATIONAL CONFERENCE ON CONNECTED OBJECTS AND ARTIFICIAL INTELLIGENCE



## Conference PROGRAM

May 8-9-10 2024  
Casablanca, Morocco



# Second International Conference on Connected Objects and Artificial Intelligence

May 08-09-10, 2024

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## COMMITTEES

### Honorary Committee

Prof. Houssine AZEDDOUG, Président of UH2C University, Morocco

Prof. Rachid ESSAMOUD, Director of ESTC UH2C University, Morocco

Mr. Youssef MEJDOUB, Président of AMaCTIA Association

Mr. Driss ALAOUI, Président of GTS Association

AMaCTIA: Moroccan Association of Researchers in Technology and Artificial Intelligence

GTS-IA: Association Technical group specialized in artificial intelligence

### General Chairs

Prof. Youssef MEJDOUB

ESTC, UH2C, Casablanca, Morocco

Prof. Abdelkebir ELAMRI

ESTC, UH2C, Casablanca, Morocco

### Steering Committee

Mohammed HAMRAOUI

ESTC UH2C, Morocco

Abderaouf ABOUDOU

ESTC UH2C, Morocco

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ESTC UH2C, Morocco

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ESTS UM5, Morocco

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ENSA UCA, Morocco

Jawad LAMTERKATI

ESTC UH2C, Morocco

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## TOPICS & SESSIONS COCIA'2024

Session 1 : COCIA_1	Artificial Intelligence and its Application
Session 2 : COCIA_2	Connected objects and Systems
Session 3 : COCIA_3	Telecommunications
Session 4 : COCIA_4	Artificial Intelligence and its Application
Session 5 : COCIA_5	Connected objects and Systems
Session 6 : W3EIS_1	Electrical & Electronic Engineering
Session 7 : COCIA_6	Artificial Intelligence and its Application
Session 8 : COCIA_7	Connected objects and Telecommunications
Session 9 : W3EIS_2	Electrical Engineering & Energy
Session 10 : COCIA_8	Artificial Intelligence and its Application
Session 11 : COCIA_9	Connected objects and Industry 4.0
Session 12 : W3EIS_3	Electrical & Electronic Engineering
Session 13 : COCIA_10	Artificial Intelligence and its Application
Session 14 : W3EIS_4	Electrical Engineering and Systems
Session 15 : COCIA_11	Artificial Intelligence and Intelligent Systems
Session 16 : COCIA_12	Artificial Intelligence and its Application



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# Workshop 3EIS

*The First International Workshop On Electrical, Electronics,  
Energy and Intelligent Systems*

*(3EIS'2024)*

THE SECOND EDITION OF THE INTERNATIONAL CONFERENCE ON CONNECTED OBJECTS AND ARTIFICIAL INTELLIGENCE  
(COCTIA'2024)

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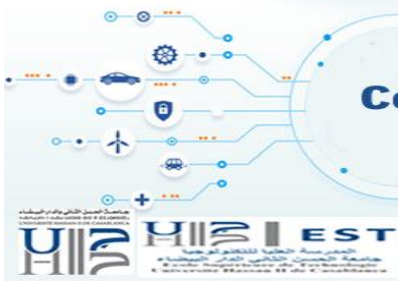
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## PRESENTATION GUIDELINES

- All presentations are in English.
- Each presentation is eight **(8-10) minutes** long with five (5) minutes for Q/As.
- Arrive 10 minutes before the session start time to upload your power point presentation. Please, start and end your presentation on time and keep the time schedule.
- For poster presentations, the posters should be displayed one hour before the beginning of the poster session and any explanation required should be provided to session chairs and visitors.

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## Main Program of the COCIA'2024 Conference

Wednesday May 8, 2024			
8:00 – 9:00	Registration and Welcome of Participants		
9:00 – 9:45	Prof. Houssine AZEDDOUG Prof. Rachid ESSAMOUD Prof. Abdelkebir ELAMRI	<b>Official Opening of the Conference</b> President of UH2C University, Casablanca, Morocco Director of EST, UH2C University, Casablanca, Morocco COCIA'24 Chair, UH2C University, Casablanca, Morocco	
9:45 – 10:45	Keynote Speaker 1 : <b>Pr Nasreddine BOUHAI</b> , Paris 8 University, France Title: "Digital Convergence and Technocentrism in the Connected Era"		
10:45 – 11:30	Coffee Break & Poster Session		
11:30 – 12:30	Keynote Speaker 2 : <b>Mr Abdeslam JAKJOUR</b> , Jakjoud labs, Morocco Title: "Towards an integrated manufacturing environment for industry 4.0"		
13:00 – 14:00	Lunch Break		
14:45 – 15:45	Keynote Speaker 3 : <b>Pr Moulay AKHLOUFI</b> , Moncton University, Canada Title: "Advancing Healthcare Through Deep Learning: Innovations in Medical Imaging and Future Perspectives"		
15:45 – 17:00	Oral Session 1 : COCIA_1	Oral Session 2 : COCIA_2	Oral Session 3 : COCIA_3
17:00 – 17:30	Coffee Break & Poster Session		
17:30 – 18:30	Oral Session 4 : COCIA_4	Oral Session 5 : COCIA_5	Oral Session 6 : W3EIS_1
Thursday May 9, 2024			
8:30 – 9:00	Registration		
09:00 –10:00	Keynote Speaker 4 : <b>Pr Elmahdi DRIOUCH</b> , Quebec Montreal University, Canada Title: "Future Wireless Networks: A Vision to the Landscape of 6G Connectivity"		
10:00 – 10:30	Coffee Break & Poster Session		
10:45 –11:45	Oral Session 7 : COCIA_6	Oral Session 8 : COCIA_7	Oral Session 9 : W3EIS_2
11:45 –12:45	Oral Session 10 : COCIA_8	Oral Session 11 :COCIA_9	Oral Session 12 : W3EIS_3
12:45 –14:15	Lunch Break		
14:30 – 15:30	Keynote Speaker 5 : <b>Dr. Charif Mahmoudi</b> , Siemens Technology USA Title: "Intelligent Security Functions for Industrial Internet of Things "		
15:30 –16:00	Coffee Break		
16:00 –17:30	Oral Session 13 : COCIA_10	Oral Session 14 :W3EIS_4	
17:30 – 18:00	Clôture Officielle		
Friday May 10, 2024			
09:00 –10:15	Session Orale 15 : COCIA_12	Session Orale 16 : COCIA_13	
10:15 –10:45	Coffee Break		
10:45 –11:45	Table ronde		
11 :45 – 12:45	COCIA'24 Committee Meeting / AMaCTIA Association meeting - Collaboration and exchanges		



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## Detailed Program of the COCIA'2024 Conference

Wednesday, May 08, 2024	
8:00 – 9:15	Welcome and Registration of participants Installation of posters
<b>Official Opening of the Conference</b>	
9:15 – 9:45	<p>Prof. Houssine AZEDDOUG      President of UH2C University, Morocco</p> <p>Prof. Rachid ESSAMOUD      Director of EST, UH2C University, Morocco</p> <p>Prof. Abdelkebir ELAMRI      COCIA'24 Chair</p>
9:45 – 10:45	<p><b>Keynote Speaker 1 :</b> Pr Nasreddine BOUHAÏ, Paris 8 University, France Title: “Digital Convergence and Technocentrism in the Connected Era”</p> <p><b>Moderator:</b> <b>Prof. Ahmed LAGUIDI (ESTS,UM5 University, Morocco)</b></p> <p><b>Room: Conference Room</b></p>
10:45 – 11:30	Coffee Break & <b>Poster Session</b>
11:30 – 12:30	<p><b>Keynote Speaker 2 :</b> Mr Abdeslam JAKJOUND, Jakjoud labs, Morocco Title: “Towards an integrated manufacturing environment for industry 4.0”</p> <p><b>Moderator:</b> <b>Prof. Mohammed HAMRAOUI (ESTC,UH2C University, Morocco)</b></p> <p><b>Room: Conference Room</b></p>
12:30– 14:15	break Lunch
14:45 – 15:45	<p><b>Keynote Speaker 3 :</b> Pr Moulay AKHLOUFI, Moncton University, Canada Title: “Advancing Healthcare Through Deep Learning: Innovations in Medical Imaging and Future Perspectives”</p> <p><b>Moderator:</b> <b>Prof. Othmane EL MESLOUHI (ENSA, UCA University, Morocco)</b></p> <p><b>Room: Conference Room</b></p>

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## Session 1 (COCTIA\_1): Artificial Intelligence and its Application

**Moderators:**

**Prof. Mustapha KARDOUCHI (University of Moncton Canada)**

**Prof. Othman EL MESLOUHI (ENSA Safi, UCA University, Morocco)**

**Room: Conference Room**

15:45 – 16:45

ID_518715	<b>Boujamza abdeltif</b> , Boufakri zouhair, Lissane Elhaq saad, Loukili ahmed; "Long-Term Vessel Arrival Forecasting at Port with Long Short-Term Memory: A Case Study"
ID_522645	<b>Ait Mansour nassima</b> , Sbai hanae, Baïna karim; "Towards decomposing monolithic applications into microservices: Dynamic Analysis"
ID_518701	<b>Boufakri zouhair</b> , Abdeltif abdeltif, Lissane El Haq saad, Loukili ahmed; "Forecasting delivered ship waste to petroleum ports using RNN models"
ID_522941	<b>Laaroua imane</b> , Ouzzif mohamed, Bouragba khalid; "A Comprehensive Review of Machine Learning and Edge Computing Integration in the IoT Environments"

## Session 2 : Connected objects and Systems

**Moderators:**

**Prof. Mounaim AQIL (EST Beni mellal, USMS University, Morocco)**

**Prof. Abdelati Reha (EMSI Marrakech, Morocco)**

**Room: Room 1**

15:45 – 16:45

ID_518619	<b>Ait Ben Braim abdelghani</b> , Raoufi mustapha, Skouri mohammed, Lahrouni khadija, Elgourari abdelali, Ezzini mustapha; "Using IoT and Programming Technologies to Save Time on Administrative Management Tasks"
ID_522860	<b>Hamza natek</b> , Srail aziz, Guerouate fatima; "Integrating Model Driven Architecture (MDA) with AI in IoT: Enhancing NoSQL Database Solutions for Smart Connected Environments"
ID_518709	<b>Boubekri zineb</b> , Berrami hind, Jallal manar, Serhier zineb, Bennani Othmani mohammed; "Physicians' familiarity and attitudes towards the use of mHealth technology"
ID_539439	<b>Karra rachid</b> , Lasfar abdelali; "Tree Species Inventory through Forest Segmentation and Deep Learning Techniques"

## Session 3 : Telecommunications

**Moderators:**

**Prof. Abdelillah GHAMMAZ (FST Marrakech UCA University, Morocco)**

**Prof. Youssef MEJDOUB (EST Casablanca UH2C University, Morocco)**

**Room: Room 2**

15:45 – 16:45

ID_538186	<b>Ourahou omar</b> , Belahrach hassan, Ghammaz abdelilah; "Novel hexagonal-shaped compact antenna for vehicular Communication"
ID_518560	<b>Siraj younes</b> , Foshi jaouad; "Enhancement of a THz Patch Antenna Performance using Metamaterials for Biomedical Applications"



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	ID_527857	<i>El Hardouzi faycal, Lahsaini mohammed</i> ; "Design of a [2-3] GHz Broadband LNA with Distributed Filters for Various Wireless Applications"
	ID_523118	<i>Bhajj azize, Haddad abderrahim, Aoutoul mohssin, Sabri khalid, El Moukhtafil fadwa, Jouali redouane</i> ; "Design of Dual UWB Patch Antenna with Notched Band for Wireless Communication and Medical Imaging Applications"
16:45 – 17:15	Coffee break + <b>Session Poster</b>	
17:15 – 18:15	<b>Session 4 : Artificial Intelligence and its Application</b> <b>Moderators:</b> <b>Prof. Ahmed LAGUIDI (EST Sale, UM5 University, Morocco)</b> <b>Prof. Otman ABDOUN (FS Tetouan, UAE University, Morocco)</b> <b>Room: Conference Room</b>	
	ID_522989	<i>El Khalfaoui yasmına, Alibouch brahim, El Ouafdi ahmed Fouad</i> ; "Gastro-CNN-VIT: Vision Transformer and Deep CNNs for detecting GI diseases in WCE images"
	ID_523108	<i>Nokairi wafia, Bouayad Amine nabil, Elamine soukaina</i> ; "Application of machine Learning tools in bankruptcy prediction: A comparative study between extra trees classifier and logistic regression"
	ID_531697	<i>Elamrani Abouelassad dauha, Elamrani Abou El Assad zouhair, El Meslouhi othmane, Ameksa mohammed, Kardouchi mustapha, Akhloufi moulay</i> ; "Deep learning prediction of vehicle lane departure during night-times: A synthetic over-sampling framework with enhanced dimensionality reduction"
	ID_522939	<i>Tamtam samiya, Laguidi ahmed, Elkalay abderafiaa</i> ; "Patent analysis of artificial intelligence: A Comprehensive Study (2013-2022)"
17:15 – 18:15	<b>Session 5 : Connected objects and Systems</b> <b>Moderators:</b> <b>Prof. Abdessalam EL YASSINI (EST Casablanca UH2C University, Morocco)</b> <b>Prof. Mohammed ali JALLAL (CEA, France)</b> <b>Room: Room 1</b>	
	ID_518712	<i>Dargaoui souhayla, Azrour mourade, El Allaoui ahmed, Guezzaz azidine, Benkirane said, Alabdulatif abdulatif, Amounas fatima</i> ; "IoT-Driven Smart Agriculture: Security Issues & Authentication Schemes Classification"
	ID_527928	<i>Zila amine, Ouchatti abderrahmane, Mouzouna youssef</i> ; "Fairness Evaluation in Wireless Sensor Networks: A Comprehensive Simulation-Based Study"
	ID_528127	<i>Kamal Idrissi zineb, Lachgar mohamed, Hrimech hamid</i> ; "Exploring Blockchain Architectures for Traceability and Convergence Towards a New Framework"

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	ID_540451	<i>Souidi sara, Belkasmı mohammed Ghaouth, Saber mohammed;</i> "Systematic Mapping Study of planning and managing deadlines in case of global software development"
<b>17:15 – 18:15</b>	<b>Session 6 : W3EIS_1: Electrical &amp; Electronic Engineering</b>	
	<b>Moderators:</b>	
	<b>Prof. Said ZIANI (ENSAM Rabat, UM5 University, Morocco)</b>	
	<b>Prof. Maha AYACHE (EST Casablanca, UH2C University, Morocco)</b>	
	<b>Room: Room 2</b>	
	ID_522547	<i>Laabab imad, Ziani said, Benami abdellah;</i> "Investigation of Buildings' Energy Efficiency"
	ID_523137	<i>Atillah mohamed Amine, Stitou hicham, Boudaoud abdelghani, Aqil mounaim;</i> "Power Flow Management for Off-Grid Photovoltaic-Battery System using ANN-FL Controller MPPT"
	ID_536209	<i>Ben Achour hafid, Ziani said;</i> "Numerical algorithm and backstepping control of Permanent Magnet Synchronous Motor (PMSM)"
	ID_539800	<i>Boukioud yasser, Senhaji Rhazi kaoutar, Mejdoub Youssef;</i> "A new combination of insulation materials in the Atlantic, Continental, and Mediterranean climates"
<b>Thursday, May 09, 2024</b>		
<b>8:30 – 9:00</b>	<b>Accueil - Installation des posters, démos et stands</b>	
<b>09:15 –10:15</b>	<b>Keynote Speaker 4 : Pr Elmahdi DRIOUCH, Quebec Montreal University, Canada</b> <b>Title: "Future Wireless Networks: A Vision to the Landscape of 6G Connectivity"</b> <b>Moderator:</b> <b>Prof. Abdelkebir ELAMRI (EST Casablanca UH2C University, Morocco)</b> <b>Room: Conference Room</b>	
<b>10:15 – 10:45</b>	<b>Coffee Break &amp; Poster Session</b>	
<b>10:45 –11:45</b>	<b>Session 7 : Artificial Intelligence and its Application</b>	
	<b>Moderators:</b> <b>Prof. Abderrahim Maizate (EST Casablanca, UH2C University, Morocco)</b> <b>Prof. Mohammed ELKAMILI (EST Casablanca, UH2C University, Morocco)</b> <b>Room: Conference Room</b>	
	ID_527735	<i>Mziguel nohaila, Choukri ali, Amnai mohamed;</i> "Formal verification and model checking"

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	ID_525264	<b>Bhii mouad</b> , Elamrani Abou El Assad zouhair, El Boustani abdelhakim, El Meslouhi othmane; "Smart Data Simplification: A Comprehensive Feature Selection Framework for High-Dimensional Datasets"
	ID_539796	<b>Mohamed Amine Nebri</b> , Abdellatif Moussaid, Belaid Bouikhalene; "Fertilizer Management with Machine Learning: A Farmer's Guide to Improved Yield"
	ID_528200	<b>Elboujddaini farida</b> , Laguidi ahmed, Mejdoub Youssef; "A Survey on Text-to-SQL Parsing: From Rule-Based Foundations to Large Language Models"
10:45 –11:45	<b>Session 8 : Connected objects and Telecommunications</b>	
	<b>Moderators:</b>	
	<b>Prof. Youssef MEJDOUB (EST Casablanca, UH2C University, Morocco)</b>	
	<b>Prof. Mohamed SAIH (FST Benimellal, USMS University, Morocco)</b>	
	<b>Room: Room 1</b>	
ID_529121	<b>Kabil sanaa</b> , Achki samira, Aziz layla, Ait Ouahman abdelah; "Interference Mitigation and improvement of Energy Efficient in HetNet"	
ID_538928	<b>Laabadli abdel-Ali</b> , Mejdoub yousef, El Amri abdelkebir, Tarbouch mohamed; "A miniaturized patch antenna for IOT, WLAN and WIMAX applications"	
ID_523153	<b>El Mahjoub jaber</b> , Aouayej haitam, Abdellaoui abderrahim; "Cybersecurity Challenges in the Global Aviation Network"	
ID_552451	<b>Meziane Hind</b> ; "Modeling Internet of Things based Wireless Body Area Network (WBAN) in HealthCare Application using IoTsec"	
10:45 –11:45	<b>Session 9 : W3EIS_2: Electrical Engineering &amp; Energy</b>	
	<b>Moderators:</b>	
	<b>Prof. Kaoutar SENHAJI RHAZII (EST Casablanca, UH2C University, Morocco)</b>	
	<b>Prof. Jawad LAMTERKATI (EST Casablanca, UH2C University, Morocco)</b>	
	<b>Room: Room 2</b>	
ID_541819	<b>Ziani said</b> , Achmad rizal, Ziani lokmane; "Refining Fetal Electrocardiogram Classification: A Hybrid Approach with Multimodal Data Fusion and Advanced Deep Learning."	
ID_518191	<b>Mssassi souhail</b> , Abou Elkalam anas, Jabrane younes; "On FPGA Security and Bitstream Reverse Engineering"	
ID_541821	<b>Ziani said</b> , Manikandan suchetha; "Using Time-Scale Image Analysis to Detect Fetal Electrocardiograms"	
ID_526693	<b>Ali Ait Salih</b> , M'barki zakaria, Mejdoub Youssef, Senhaji Rhazi Kaoutar; "Electromagnetic Modeling in 'Black Box' Mode of a DC-DC Power Converter (BUCK)"	
11:45	<b>Session 10 : Artificial Intelligence and its Application</b>	
	<b>Moderators:</b>	



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**Prof. Abderrafiaa EL KALAY (EST Casablanca, UH2C University, Morocco)**

**Prof. Ghizlane MOUKHLISS (ENS Casablanca UH2C University, Morocco)**

**Room: Conference Room**

ID_518402	<i>Aloui hamza, Zennou hmad, Baslam mohamed, Ouha mohamed;</i> "Sentiment Detection on Social Media Using Deep Learning"
ID_528123	<i>Elmejjari chaima, Nadir younes, Qbadou mohamme;</i> "Applications of neural networks in brain tumors detection and classification: a review"
ID_523161	<i>Adbi said, Mouncif hicham;</i> "A Multi-Agent System-Based Parallel Model for Particle Swarm Meta-Heuristic Optimization Methods"
ID_503178	<i>Mellouli hala, Meddaoui anwar, Zaki abdelhamid;</i> "Enhanced industrial decision-making: leveraging artificial intelligence for an optimized decision model"

**Session 11 : Connected objects and Industry 4.0**

**Moderators:**

**Prof. Mohammed HAMRAOUI (EST Casablanca UH2C University, Morocco)**

**Prof. Mohammed BENALI (EST Casablanca UH2C University, Morocco)**

**Room: Room 1**

11:45 –12:45

ID_523093	<i>Karroumi bilal, Dakhli imane, Sedqui abdefettah;</i> "The contribution of frugal innovation to the deployment of Industry 4.0 and the challenges involved in its application"
ID_528126	<i>Sassi abdellah, Ben Ali mohamed, Oullada oumaïma, Ifassiouen hassan, Adri ahmed, Elkazini rajae, Rifai said;</i> "Model for assessing the impact of Internet of Things on Supply Chain 4.0: Moroccan case"
ID_528102	<i>Sif-Eddine mouna, Maizate abderrahim, Aouad siham;</i> " Safeguarding Sensitive Healthcare Data in Cloud-Integrated IoT Systems: A comprehensive review"
ID_547685	<i>Harmach Fatimazahraa, Wahbi Azeddine, Fakhri Youssef;</i> "Recent Trends in Internet of Things and Cloud Computing : A Detailed comprehensive Review"

**Session 12 : W3EIS\_3: Electrical & Electronic Engineering**

**Moderators:**

**Prof. Said ZIANI (ENSAM Rabat, UM5 University, Morocco)**

**Prof. Aicha WAHABI (EST Casablanca, UH2C University, Morocco)**

**Room: Room 2**

11:45 –12:45

ID_519347	<i>Soundouss halima, Msaaf mohammed, Belmajdoub fouad;</i> "Vehicle trajectory control using neural networks: Overview of the latest work"
ID_543099	<i>El Ghammat Ahmed, Youssef Mejdoub, Senhaji Rhazi Kaoutar;</i> "Biogas production potential at a wastewater treatment plant, the case of the Tamuda-Bay WWTP"

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	ID_537965	<i>Fathi zineb, Wahabi aicha, Lalouli abderrezzak</i> ; "Review and comparative study of classical, innovate MPPT techniques and state feedback controller for photovoltaic system"
	ID_526695	<i>M'barki zakaria, Ali Ait Salih, Mejdoub Youssef, Senhaji Rhazi Kaoutar</i> ; "Assessing the Effectiveness of ANN-Based MPPT in Enhancing Energy Efficiency in Floating Photovoltaic Pumping Systems"
12:45 –14:15	<i>break Lunch</i>	
14:30 – 15:30	<p><b>Keynote Speaker 5 : Dr. Charif Mahmoudi, Siemens Technology USA</b>  <b>Title: "Intelligent Security Functions for Industrial Internet of Things "</b>  <b>Moderator: Prof. Abderrahim Maizate (ESTC, UH2C University, Morocco)</b>  <b>Room: Conference Room</b></p>	
15:30 –16:00	<b>Coffee Break</b>	
16:00 –17:15	<p><b>Session 13 : Artificial Intelligence and its Application</b>  <b>Moderators:</b>  <b>Pof. Abderrafiaa EL KALAY (EST Casablanca, UH2C University, Morocco)</b>  <b>Pof. Ahmed LAGUIDI (FSJES Casablanca, UH2C University, Morocco)</b>  <b>Room: Conference Room</b></p>	
	ID_518600	Ghizlane moukhliiss, Khalid lahyani, Diab ghizlane; "Revolutionizing Academic Inquiry: Artificial Intelligence's Influence on Higher Education in Morocco"
	ID_541647	Mohammed el Kaim Billah, Ahmed abatal, Abdelfettah mabrouk; "Comparative study between Deep Learning and Rein-forcement learning in Multiple Interactions and large"
	ID_552664	Asmae hasnaoui, Ettaoufik Abdelaziz , Maizate Abderrahim; "SDN-based edge computing security: State of the art and challenges"
	ID_551525	EL ASLANI Malika, OMARI Lhaj El Hachemi and EL MESLOUHI Othmane; "Brain Tumor Detection Using Deep Learning (CNNs)"
16:00 –17:15	<p><b>Session 14 : W3EIS_4: Electrical Engineering and Systems</b>  <b>Moderators:</b>  <b>Pof. Abderraouf ABOUDOU (EST Casablanca UH2C University, Morocco)</b>  <b>Pro. Adil BARRA (FS Casablanca UH2C University, Morocco)</b>  <b>Room: Room 1</b></p>	
	ID_540735	<i>Ayache maha, Hamraoui Mohamed</i> ; "Delamination Detection by Thermal contact resistance identification"
	ID_528825	<i>Benzazah chirine, Mrabet najoua, El Akkary ahmed, Rerhrhaye fathallah</i> ; "Laboratory Power Conversion System for

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		Controlling and Managing Renewable Energy Chains: Design and Hardware Implementation”
	ID_537906	<b>Laloui abderrezzak, Aicha wahabi, Fathi zineb;</b> “Optimal sizing of a hybrid microgrid based on a hydro-gen storage system in a desert climate: case of Moroccan Sahara”
	ID_541098	<b>Taki oumaïma,, Senhaji Rhazi kaoutar, Mejdoub Youssef;</b> “Fault Detection and Diagnosis in Stirling Engines: A Computational Approach”
	ID_541099	<b>Lakouairi Jihad,</b> Rifi mounir; "Modeling ion distribution and electric field in a desalination capacitor system"
<b>17:30 – 18:00</b>	<b>Clôture Officielle</b>	
<b>Friday, May 10, 2024</b>		
<b>9:00 –10:15</b>	<b>Session 15 : Artificial Intelligence and Intelligent Systems</b>	
	<b>Moderators:</b>	
	<b>Prof. Maha AYACHE (EST Casablanca UH2C University, Morocco)</b>	
	<b>Prof. Abdel-Ali LAABADLI (EST Casablanca UH2C University, Morocco)</b>	
	<b>Room: online</b>	
	ID_522791	Aftatah mohammed, Zebbara khalid; "A Comprehensive Survey on Secure Navigation for Intelligent Systems: Artificial Intelligence Approaches to GPS Jamming and Spoofing Detection"
	ID_525694	Awotunde joseph Bamidele, Olanloye odunayo Dauda, Adeniyi abidemi Emmanuel, Aworinde halleluyah Oluwatobi, Imoize agbotiname Lucky, Mejdoub youssef ; "Breast Cancer Detection and Classification from Mammogram images Using Improved Convolutional Neural Network Model
	ID_526481	Awotunde joseph Bamidele, Adeniyi abidemi Emmanuel, Imoize agbotiname Lucky, Youssef mejdoub, Abdualazizu zakariyya; "A Mobile Visitor Management System using QR Code and Pin for Access Control"
	ID_531054	Joseph Bamidele AWOTUNDE, Biswajit BRAHMA, Abidemi Emmanuel ADENIYI, Lauretta Nkonyeasua, EDOGBO, Agbotiname Lucky IMOIZE, Youssef MEJDOUB; "An Enhanced Hybrid Cryptography Model for Online Banking Authentication and Security"
<b>9:00 –10:15</b>	<b>Session 16 : Artificial Intelligence and its Application</b>	
	<b>Moderators:</b>	
	<b>Prof. Abdessalam EL YASSINI (EST Casablanca UH2C University, Morocco)</b>	
	<b>Prof. Zakaria M’BARKI (EST Casablanca UH2C University, Morocco)</b>	
	<b>Room:</b>	
	ID_518596	Mohamed Elghayaty, Azeddine Wahbi, Anas El Habti El Idrissi, Omar Mouhib and Abdelkader Hadjoudja; "Improving Reed Solomon (RS)



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		decoder using two simultaneously modified blocks of chien search and syndrome"
	ID_528060	Ben Rebah hassen; "Implementation of a smart System for Monitoring Suspicious Individuals in Airports using the SSD Method"
	ID_522604	Charef ayoub, Jarir zahi, Quafafou mohamed; "Examination of the impact of motorcycles on the efficiency of signalized intersections"
	ID_528117	Elkazini rajae, Ben Ali mohamed, Sassi abdellah, Rifai said, Adri ahmed; "Assessing Moroccan Firms' Readiness for Industry 4.0 Adoption: Opportunities and Challenges"
	ID_528002	Nabhan nour Al-Deen; "Logical Description of the Nature of Machine Intelligence with Consideration for the Future Role of the Development of Artificial Intelligence in Privacy, Stability, and Automation"
10:15 –10:45	<b>Coffee Break</b>	
10:45 –11:45	<b>Table ronde</b>	
11 :45 – 12:45	<ul style="list-style-type: none"> <li>▪ COCIA'24 Committee Meeting</li> <li>▪ AMaCTIA Association meeting</li> <li>▪ Collaboration and exchanges</li> </ul>	

## Session Poster

- RAGHIYA MOHAMED EL GHAWTH; "Palm trees detection and counting based on deep learning applications"
- AMAL BARKOUK; "Decision support systems in clinical practice"
- ZINEB BOUBEKRI; "Deep Learning for Early Diabetic Retinopathy Diagnosis"
- HIND BERRAMI; "Virtual Reality and Augmented Reality in medicine"
- HIND BERRAMI; "Overview of Decision Tree Modeling in Healthcare"
- KAWTAR ELFAOUTI.; "management of connected objects based on the concepts of multi-agent systems"
- OMAR EL KHOUNDAFI; "Study of the performance of an individual solar water heater"

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## Speakers



### Pr Nasreddine BOUHAÏ

Maitre de conférences, Université de Paris 8

Universitaire et chercheur au sein du laboratoire Paragraphe, en sciences de l'information et de la communication à l'Université Paris 8. Son parcours académique est essentiellement ancré dans le domaine du numérique et de la communication. En tant que membre actif du laboratoire Paragraphe, et coanimateur de l'axe de recherche « Innovation numérique et Intelligence Artificielle », il s'intéresse particulièrement aux dynamiques de développement et l'influence profonde des technologies informatiques et de l'information sur les structures sociales et culturelles, et les implications des avancées technologiques dans les différents domaines de la société. À travers ses enseignements, il inspire à encourager la pensée critique et l'innovation, tout en soulignant l'importance de la responsabilité éthique dans l'utilisation des technologies de l'information. Ses travaux s'inscrivent dans une démarche de recherche théorique et d'application pratique.

### **Title: "Digital Convergence and Technocentrism in the Connected Era"**

**Abstract:**As 5G deployment continues Hyperconnectivity and the Internet of Things (IoT) are redefining "Digital Convergence" by creating an ecosystem where technologies, industries, and services not only converge but also interact dynamically through digitization and interconnection of devices. In this context, previously separate media and technologies such as television, radio, internet, and telecommunications are intertwined within a smart network of connected objects. This advanced integration leads to increased interdependence, where devices communicate and respond in real time, enhancing the user experience through extensive personalization and seamless access to digital content, while paving the way for new possibilities of interaction and innovation in our daily lives.

Over the past few years, technology has been recognized as a pivotal element for solving contemporary challenges and advancing society. This perspective highlights the critical importance of technical innovations in the development and improvement of human

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conditions. In this context, the Internet of Things (IoT) and Artificial Intelligence (AI) are seen as catalysts for transformation, offering innovative and interconnected solutions. This vision is characterized by a sometimes blind faith in the potential of technological solutions, which, thanks to IoT and AI, promise to revolutionize our daily lives by making the objects in our environment smarter and more autonomous. However, this approach can sometimes overshadow crucial considerations such as social, cultural, ethical, and environmental impacts. In the era of ubiquitous connectivity, technocentrism tends to promote an increasing dependence on digital technologies, placing AI and IoT at the heart of strategies to address societal challenges.

Digital convergence and technocentrism are shaping our experience of the connected era by influencing how we interact with technology, consume digital content, and approach contemporary challenges. This dynamic raises important questions about how we use and perceive technology in our daily lives and in society at large.



## **Dr. Abdeslam Jakjoud**

*CEO and co-founder of the [Jakjoud labs](#), Morocco  
Data scientist and member of the [French Roa laboratory](#)*

Mr **Abdeslam Jakjoud**, originaire de Marrakech. Il obtient son diplôme d'ingénieur en 2009 à l'ENSA de Marrakech ensuite son doctorat en 2015 au même institut. Il a travaillé en tant qu'analyste développeur, chef de projet informatique et architecte de solutions informatiques avant de se convertir aux sciences de données.

Ses travaux de recherche portent sur l'ingénierie des systèmes, l'ingénierie dirigée par les modèles et les métaheuristiques évolutionnaires. Il a créé et publié un nouvel algorithme d'optimisation sous le nom SPORES en 2019 et a co-inventé une blockchain auto validable qui a fait l'objet d'un brevet publié en 2023.

Il a occupé des postes de responsable recherche et développement dans différentes entreprises œuvrant dans l'innovation et a travaillé en tant que consultant cloud et machine learning pour le compte de clients en Afrique, en Europe et en Asie.

Il a cofondé l'entreprise Terradoxa en France œuvrant dans le domaine de la blockchain et du web3.0 et l'entreprise Jakjoud Labs au Maroc spécialisée dans la R&D dans les domaines de l'intelligence artificielle, la physique des matériaux et l'informatique quantique.



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## **Title:** *Towards an integrated manufacturing environment for industry 4.0*

**Abstract:** We explore the evolution of manufacturing environments in the context of Industry 4.0, focusing on the integration of cutting-edge technologies to enhance customization and scheduling capabilities. The presentation introduces the latest version of the Systems Process Engineering Metamodel (SysPEM), a comprehensive framework designed to streamline systems engineering processes. Additionally, an integrated environment is showcased, empowering users to customize manufactured products by manipulating composition, geometry, and aesthetics while efficiently scheduling manufacturing jobs. The tool encompasses a Virtual Reality (VR) component, offering a dynamic and immersive experience to navigate through the manufacturing chain. This immersive tool aids in visualizing the production processes, fostering better comprehension and decision-making. Furthermore, an Artificial Intelligence (AI) advisor is integrated into the system, leveraging territorial intelligence to optimize the supply chain. The AI advisor intelligently analyzes geographic and contextual data, providing recommendations for enhanced efficiency and resource utilization. This presentation serves as a platform to discuss the synergistic integration of SysPEM and advanced technologies, demonstrating the potential of an integrated manufacturing environment for Industry 4.0. The presented tools not only empower users with product customization and efficient scheduling but also pave the way for informed decision-making through VR visualization and AI-driven supply chain optimization.



### **Pr. Moulay Akhloufi**

*Professor in Computer Science at Université de Moncton, Canada*

*Leads the Perception, Robotics, and Intelligent Machines (PRIME) research lab, & Director at the Center for Artificial Intelligence NB Power*

Professor **Moulay Akhloufi** holds a Bachelor of Science in Physics from the University Abdelmalek Essaadi (Morocco) and a Bachelor of Engineering from Telecom Saint-Etienne (France). He has a Master's and Ph.D. in Electrical Engineering from Ecole Polytechnique of Montreal and Laval University (Canada), respectively. Additionally, he holds an MBA from Laval University.

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Presently, Professor Akhloufi serves as Professor in Computer Science at Université de Moncton, where he leads the Perception, Robotics, and Intelligent Machines (PRIME) research lab, and holds the position of Director at the Center for Artificial Intelligence NB Power. Prior to joining Université de Moncton in 2016, he gained valuable experience in the industry and in technology transfer within the fields of machine vision and robotics.

Professor Akhloufi's research expertise spans across the domains of artificial intelligence, computer vision, and intelligent robotic systems, where he has contributed to over two hundred publications. Additionally, he holds the distinguished status of being a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). He is also an active member of both the Association for Computing Machinery (ACM) and the Society of Photo-Optical Instrumentation Engineers (SPIE).

## **Title: Advancing Healthcare Through Deep Learning: Innovations in Medical Imaging and Future Perspectives**

**Abstract:** In recent years, there have been significant advancements in AI for medical imaging, largely attributed to the impressive progress in the field of deep learning. Various medical disciplines, including ophthalmology and radiology, have experienced the positive impacts of these advancements. This presentation will explore recent developments in deep learning for medical imaging, encompassing the use of Convolutional Neural Networks (CNNs) and deep Transformers. Additionally, it will showcase how incorporating deep ensemble learning improves the performance of specific tasks in this domain. Furthermore, the presentation will highlight the role of deep learning and transformers in radiology and oncology for identifying and diagnosing a diverse range of diseases. Practical cases in oncology, specifically in breast cancer and skin cancer detection, will be presented. Given the importance of understanding the decisions made by these algorithms, examples of the use of explainability techniques will be provided. The significance of federated learning in enhancing the training performance of deep models while ensuring privacy will be emphasized. Finally, the presentation will touch upon potential research avenues in the future of this field.

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*Pr. Elmahdi Driouch*

University of Quebec Montreal, Canada

Elmahdi Driouch received the B.E. degree from the National School of Applied Sciences, Marrakech, Morocco, in 2006, and the M.Sc. and Ph.D. degrees in computer science from the Université du Québec à Montréal (UQAM) in 2009 and 2013, respectively. He was a Post-Doctoral Fellow with Concordia University from 2014 to 2015, and with UQAM from 2016 to 2017. He was an Assistant Professor with the Department of Computer Science, Université de Moncton from 2017 to 2019. He is currently an Associate Professor with the Department of Computer Science, UQAM. His research interests include wireless communications and networks, resource allocation, and algorithm design. He is the author or co-author of many journal papers and conferences papers in these areas.

## **Title: “Future Wireless Networks: A Vision to the Landscape of 6G Connectivity”**

**Abstract:** As 5G deployment continues to reshape the global telecommunications landscape, the anticipation for the next frontier, 6G, is already gaining momentum. With 6G initial standard projected to emerge between 2028 and 2030, the groundwork for this revolutionary technology is being laid today. This presentation offers a forward-looking

perspective on the potential capabilities of 6G, drawing inspiration from research and development initiatives in both industries and academy. This presentation will delve into the multifaceted dimensions of next-generation connectivity. We will explore key domains that are poised to shape the foundation of 6G.

Artificial intelligence (AI) applied to wireless communication emerges as a central theme, unlocking new possibilities for intelligent network management and resource optimization. Integrated sensing communication and computation, a key enabling technology for 6G, will be highlighted for its role in creating adaptive and context-aware networks. Our journey into the landscape of 6G will illuminate the role of reflective intelligent surfaces (RIS), a transformative technology that creates adaptive

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communication environments, pushing the boundaries of connectivity. Additionally, the discussion will spotlight the integration of unmanned aerial vehicle (UAV) communications as a critical aspect of 6G, enabling seamless connectivity in dynamic and challenging environments. Another dimension of our exploration will be the concept of integrated ground-air-space wireless Networks, a paradigm that extends beyond traditional terrestrial communication boundaries. Addressing the crucial demand for ultra-reliable and low-latency communications (URLLC) will be a focal point of the presentation, recognizing its significance as a cornerstone application of 6G. Emphasizing the importance of energy efficiency in the development of 6G, the presentation aims to weave together the threads of AI, RIS, UAV communications, integrated ground-air-space wireless networks, and integrated sensing, communication, and computation. Thanks to the synergetic combination of these technologies, 6G is not only expected to transcend the limits of current telecommunications capabilities but also to ensure sustainable and energy-efficient future networks.



## *Senior Security Architect at Siemens Technology USA*

**Dr. Charif Mahmoudi** is a renowned expert in the field of Internet of Things (IoT) technologies and distributed systems, with a notable academic and professional background that bridges advanced research and real-world application. He holds a Ph.D. in Formal Verification of Distributed Systems from Paris-Est Créteil University in France, where his dissertation focused on orchestrating mobile agents within community settings—a fundamental work that set the stage for his future innovations in IoT.

Currently serving as the Senior Security Architect at Siemens Technology in Princeton, New Jersey, Dr. Mahmoudi spearheads projects that integrate IoT solutions into industrial and security-sensitive environments. His work includes the development of Titanium, a Siemens-funded project that applies Artificial Intelligence to certify safety-critical operations, and Micro-SOC, a solution designed to protect commercial buildings through advanced IoT and building automation systems.

Dr. Mahmoudi has significantly contributed to IoT security with his development of a secure network architecture for Independent Power Producers (IPP) that adheres to



The banner features a light blue background with a central white circle. On either side of the circle are decorative circuit-like patterns with various icons representing technology, such as a gear, a shield, a plane, a car, a house, a factory, and a person. The text is centered and reads: "Second International Conference on Connected Objects and Artificial Intelligence" in blue, "May 08-09-10, 2024" in red, and "2024 COCIA" in blue. Logos for HIA, EST, and AMCTIA are visible at the bottom.

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stringent North American standards. He has also developed frameworks for real-time monitoring and dynamic resource management, essential for the efficient operation of IoT networks.

His commitment to advancing IoT education is evident from his role as a guest lecturer, where he has designed and taught courses focusing on IoT applications at universities such as the Alioune DIOP University in Senegal. His publications and speaking engagements further highlight his ongoing contributions to the field, including papers on secure resilient 5G operations and service-oriented architectures for IoT. Dr. Mahmoudi's work has earned him numerous accolades, including the Siemens Excellence Award, recognizing his contributions to technology and security in IoT environments. His pioneering research and dedication to teaching continue to influence the development of IoT technologies globally.

**Title: Intelligent Security Functions for Industrial Internet of Things**

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