



# CommNet

## The 7th International Conference On Advanced Communication Technologies And Networking



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Hybrid Conference

December 04-06,2024

ENSIAS, Mohammed V University in Rabat, Morocco



## *CommNet'24 Program*

(\*) **Note: All times are Morocco local time (GMT+01)**

[Conference Sessions' link \(Amphithaeater\)](#)

[Conference Sessions' link \(Room 1\)](#)

**Venue:** ENSIAS, Mohammed V University in Rabat, Morocco. Avenue Mohammed Ben Abdallah Regragui, Madinat Al Irfane, Rabat

### ***Wednesday December 4, 2024***

08:15-09:00	<b>Registration</b>		
09:00-09:45	<b>Opening Ceremony</b>		
09:45-10:30	<p><b>Keynote Speaker 1:</b> Prof. Muhammad Ali Imran, James Watt School of Engineering, University of Glasgow, UK.</p> <p><b>Title:</b> “Exploring the Boundaries of Connected Systems: Communications for Hard-to-Reach Areas and Extreme Conditions”</p> <p><b>Session Chair:</b> Prof. Yuanming Shi, School of Information Science and Technology, ShanghaiTech University, China</p>		
10:30-11:00	<b>Coffee break</b>		
11:00-11:45	<p><b>Keynote Speaker 2:</b> Prof. Lajos Hanzo, University of Southampton, Southampton, UK.</p> <p><b>Title:</b> “The Evolution of Quantum Key Distribution Networks: on the Road to the QInternet”</p> <p><b>Session Chair:</b> Prof. George K. Karagiannidis, Aristotle University of Thessaloniki, Greece</p>		
11:45-13:30	<b>Lunch</b>		
13:30-14:55	<b>Technical Sessions</b>		
	<p><b>S-ession I</b> <i>Networking and Security 1</i> <b>Session Chair:</b> Prof. Khalil Ibrahim, Ibn Tofail University, Kenitra, Morocco</p>	<p><b>Session II</b> <i>PHY &amp; Performance Analysis 1</i> <b>Session Chair:</b> Prof. Saud Althunaibat Texas A&amp;M University at Qatar, Qatar &amp; Al-Hussein Bin Talal University, Jordan</p>	<p><b>Session III</b> <i>Artificial Intelligence and Smart Applications 1</i> <b>Session Chair:</b> Prof. Azeddine ElHassouny, ENSIAS, Mohammed V University in Rabat, Morocco</p>
14:55-15:40	<p><b>Keynote Speaker 3:</b> Prof. Dr. Huseyin Arslan, Istanbul Medipol University, Türkiye</p> <p><b>Title:</b> <i>Are we Ready for 6G Vision? What is Next?</i></p> <p><i>Flexible and Cognitive Radio Access Technologies for 5G and beyond</i></p> <p><b>Session Chair:</b> Prof. Saud Althunaibat Texas A&amp;M University at Qatar, Qatar &amp; Al-Hussein Bin Talal University, Jordan</p>		
15:40-16:00	<b>Coffee break</b>		
16:00-18:00	<p><b>Panel: “The Race Towards Near Space Communication”</b></p> <ul style="list-style-type: none"> <li><b>Panel Moderator:</b> Prof. Mohamed-Slim Alouini, King Abdullah University of Science and Technology (KAUST), Kingdom of Saudi Arabia</li> </ul> <p><u><b>Panelists:</b></u></p> <ul style="list-style-type: none"> <li>Prof. Halim Yanikomeroglu, Chancellor's Professor, Carleton University, Canada</li> </ul>		

	<ul style="list-style-type: none"><li>• Prof. Hamed Khalkhali, President, Swift Engineering, California, USA</li><li>• Prof. Michel Masselin, VP Stratobus Sales, France</li><li>• Mr. Brian Barritt, CTO, Aalyria, USA</li><li>• Mr. David Grace, Research Professor, University of York, UK</li></ul>		
Thursday December 5, 2024			
08:30-11:00	<p><b>Tutorial 1: “6G Waveform Options”</b></p> <ul style="list-style-type: none"><li>• Prof. Hüseyin Arslan, Istanbul Medipol University, Istanbul, Türkiye</li></ul> <p><b>Session Chair:</b> Prof. Khalid A. Qaraqe, Hamad Bin Khalifa University &amp; College of Science and Engineering, Qatar</p>		
11:00-11:20	Coffee Break		
11:20-12:45	Technical Sessions		
	<p><b>Session IV</b></p> <p><i>Networking and Security 2</i></p> <p><b>Session Chair:</b> Prof. Hanan El Bakkali, ENSIAS, Mohammed V University in Rabat, Morocco</p>	<p><b>Session V</b></p> <p><i>PHY &amp; Performance Analysis 2</i></p> <p><b>Session Chair:</b> Prof. Mohamed Et-tolba, National Institute of Posts and Telecommunications, Rabat, Morocco</p>	<p><b>Session VI</b></p> <p><i>Artificial Intelligence and Smart Applications 2</i></p> <p><b>Session Chair:</b> Prof. El Houssaine Hssayni, ENSIAS, Mohammed V University in Rabat, Morocco</p>
12:45-14:00	Lunch		
14:00-14:45	<p><b>Keynote Speaker 4:</b> Prof. Ammar B. Kouki, ÉTS, Montreal, Quebec, Canada</p> <p><b>Title:</b> “RF Components &amp; Subsystems for NextG Wireless Communications: Efficiency and Field Reconfigurability”</p> <p><b>Session Chair:</b> Dr. Olfa Ben Yahia, Polytechnique Montréal, Montréal, Canada</p>		
14:45-16:15	Technical Sessions		
	<p><b>Session VII</b></p> <p><i>Networking and Security 3</i></p> <p><b>Session Chair:</b> Prof. Mustapha Benjillali, National Institute of Posts and Telecommunications, Rabat, Morocco</p>	<p><b>Session VIII</b></p> <p><i>Artificial Intelligence and Smart Applications 3</i></p> <p><b>Session Chair :</b> Prof. Abdellatif Kobbane, ENSIAS, Mohammed V University in Rabat, Morocco</p>	
16:15-16:35	Coffee Break		
16:35-18:35	Technical Sessions		

	<div>Session IX</div> <div>Networking and Security 4</div> <div>Session Chair: Prof. Fouad Ayoub, CRMEF-RSK, Morocco</div>	<div>Session X</div> <div>Mathematical Modeling and Optimization for Engineering Problems 1</div> <div>Session Chair: Prof. Zakaria El Allali, Multidisciplinary Faculty of Nador, Mohammed First University, Morocco</div>	<div>Session XI</div> <div>Mathematical Modeling and Optimization for Engineering Problems 2</div> <div>Session Chair: Prof. Mohamed Chergui CRMEF – Rabat Salé-Kenitra</div>
19:00	Gala Dinner		
Friday December 6, 2024			
08:30-09:15	<div>Keynote Speaker 5: Prof. Ahmed Eltawil, King Abdullah University of Science and Technology, Kingdom of Saudi Arabia</div> <div>Title: “Taming mmWave Complexity with Machine Learning Approaches”</div> <div>Session Chair: Prof. Ali Ghrayeb, Texas A&amp;M University at Qatar, Qatar</div>		
09:20-10:05	<div>Keynote Speaker 6: Prof. Dush Nalin Jayakody, Lusófona University, Lisbon Portugal</div> <div>Title: “Semantic Communications for UAV-Assisted Wildfire Detection”</div> <div>Session Chair: Prof. Meryeme Ayache (National Institute of Posts and Telecommunications, Morocco)</div>		
10:05-11:50	<div>Technical Session</div> <div>Session XII: PHY &amp; Performance Analysis 3</div> <div>Session Chair: Prof. Meiling Li, Taiyuan University of Science and Technology Taiyuan, China</div>		
12:00-14:00	Break		
14:00-16:00	<div>Tutorial 2: Prof. Gunes Karabulut Kurt and Dr. Olfa Ben Yahia</div> <div>Polytechnique Montréal, Montréal, Canada</div> <div>Title: “Communications and Networking in LEO Mega-Constellations”</div> <div>Session Chair: Dr. Mounia Bouabdellah, Ruhr-Universitat Bochum, Germany</div>		
16:00-17:45	<div>Technical Session</div> <div>Session XIII: IoT, Cloud, and Fog Computing</div> <div>Session Chair: Prof. Abdelalim Sadiq, Ibn Tofail University, Morocco</div>	<div>Technical Session</div> <div>Session XIV: Artificial intelligence, Smart Applications, and Networking 4</div> <div>Session Chair: Prof. Toufik Chaayra, Multidisciplinary Faculty of Nador, Mohammed First University, Morocco</div>	
17:45	Closing Ceremony		

## **Detailed program**

### *Wednesday December 4, 2024*

#### **Registration - (08:15-09:00)**

#### **Opening Ceremony - (09:00-09:45)**

- **Prof. Faissal El Bouanani**, ENSIAS, Mohammed V University in Rabat, Morocco (**General Chair**)
- **Prof. Mohamed-Slim Alouini**, King Abdullah University of Science and Technology, Kingdom of Saudi Arabia (**Steering Committee Chair**)
- **Prof. Ilham Berrada**, ENSIAS, Mohammed V University in Rabat, Morocco (**Dean & Honorary chair**)
- **Prof. Ikram Bouayad**, CRMEF, Rabat-Salé-Kénitra, Morocco (**Dean & Honorary chair**)
- **Prof. Abdelmajid Farchi**, Faculty of Sciences & Techniques, Hassan I University, Settat (**Dean**)
- **Dr. Soukaina Boudouh**, IRESEN, Rabat, Morocco (**R&D and Innovation Programs Technical Manager**)

#### **Keynote Speaker 1- (09:45-10:30)**

- **Keynote Speaker 1:** Prof. Muhammad Ali Imran, James Watt School of Engineering, University of Glasgow, UK.
- **Title:** “Exploring the Boundaries of Connected Systems: Communications for Hard-to-Reach Areas and Extreme Conditions”
- **Session Chair:** Prof. Yuanming Shi, School of Information Science and Technology, ShanghaiTech University, China

#### **Coffee Break- (10:30-11:00)**

#### **Keynote Speaker 2- (11:00-11:45)**

- **Keynote Speaker 2:** Prof. Lajos Hanzo, University of Southampton, Southampton, UK.
- **Title:** “The Evolution of Quantum Key Distribution Networks: on the Road to the QInternet”
- **Session Chair:** Prof. George K. Karagiannidis, Aristotle University of Thessaloniki, Greece

#### **Lunch Break- (11:45-13:30)**

#### **Session I (Amphitheater) - (13:30-14:55): Networking and Security 1**

**Session Chair:** Prof. Khalil Ibrahim, Ibn Tofail University, Kenitra, Morocco

**1571070947:** “MQTT-MTD: Integrating Moving Target Defense into MQTT Protocol as an Alternative to TLS” Kentaro Kusumi and Hiroshi Koide (Kyushu University, Japan)

**1571073119:** “Privacy-Preserving and Access Control Scheme for IoT-Based Healthcare Systems Using Ethereum Blockchain” Chaimae El Filali, Imad Bourian, and Khalid Chougali (Ibn Tofail University, Morocco)

**1571070585:** “Towards an SDN-Based Reconfigurable Edge Architecture for Railway Environment”, Radheshyam Singh (Technical University of Denmark, Denmark) Mohamed Aymen Chalouf (IRISA Lab - University of Rennes 1, France), Leo Mendiboure (Université Gustave Eiffel, France), Michael S. Berger and Lars Dittmann (Technical University of Denmark, Denmark)

**1571084296:** “Adaptive PMME Medium Access Control Protocol for Multi-Event IoT Sensor Networks” Nguyen Thi Thu-Hang (Posts and Telecommunications Institute of Technology, Vietnam & Middlesex University, UK), Serengul Smith and Huan X Nguyen (Middlesex University, UK)

**1571088118:** “Evaluating Machine Learning Algorithms for Intrusion Detection: A Step Toward Securing Real-Time Big Data” Ikram Hamdaoui, Khalid El Makkaoui, Zakaria El Allali (MF of Nador, Mohammed First University, Oujda, Morocco)

## Session II (Room 1) - (13:30-14:55): PHY & Performance Analysis 1

**Session Chair:** Prof. Saud Althunibat, Texas A&M University at Qatar, Qatar, Al-Hussein Bin Talal University, Jordan

**1571071968:** “MIMO-Aided Index Modulation-Based Orthogonal Frequency Division Multiple Access” Widad Belaoura (Université M'hamed Bougara Boumerdès, Algeria), Saud Althunibat (Texas A&M University at Qatar, Qatar), Mazen Omar Hasna (Qatar University, Qatar), and Khalid A. Qaraqe (Hamad Bin Khalifa University & College of Science and Engineering, Qatar)

**1571079710:** “Antenna Array Design for 28 GHz Millimeter-Wave 5G Communication Systems” Ghizlane Mounir and Jamal El Abbadi (Mohammadia School of Engineering, Mohammed V University in Rabat, Morocco)

**1571088102:** “A Wind Speed-Driven Approach to Round Earth Loss Modeling for Maritime Communications” Zoubair Alimouch, Mohamed Et-tolba, and Najib Naja (National Institute of Posts and Telecommunication, Rabat, Morocco)

**1571085167:** “New Approach for Studying HARQ-Aided MIMO-NOMA Communication System” Raed Taleb Al-Zubi (The University of Jordan, Amman, Jordan), Yazid M Khattabi (American University of the Middle East, Kuwait), Mohammad Hawa, Hasan Farahneh, Khalid A. Darabkh (The University of Jordan, Jordan), and Khaled Hayajneh (American University of the Middle East, Kuwait)

## Session III (Room 2) - (13:30-14:55): Artificial Intelligence and Smart Applications 1

**Session Chair:** Prof. Azeddine ElHassouny, ENSIAS, Mohammed V University in Rabat, Morocco

**1571078275:** “A Constructive Analysis on Machine Learning Integration in High Delay Tolerant Networking” Mohammad Abdus Salam, A F M Saifuddin Saif and Priya Hamsa Katroju (Chicago State University, USA), Robert Short (NASA Glenn Research Center, USA)

**1571070644:** “AI-Driven Autonomous Systems for Optimal Management of Fog Computing Resources” Hind Mikram and Said El Kafhali (Hassan First University of Settat, Morocco)

**1571076802:** “Elevating the Future of Mobility: UAV-Enabled Intelligent Transportation Systems” Abdul Saboor (KU Leuven, Belgium), Evgenii Vinogradov (Technology Innovation Institute, United Arab Emirates & KU Leuven, Belgium), Zhuangzhuang Cui (KU Leuven, Belgium), Sander Coene, Wout Joseph (Ghent University, Belgium), and Sofie Pollin (KU Leuven, Belgium)

**1571075583:** “MeanC-IQR: Enhanced Fault Detection in WSNs for Smart Farming” Yassine Aitamar, and Jamal El Abbadi (Mohammadia School of Engineers, Mohammed V University in Rabat, Morocco)

## Keynote Speaker 3- (14:55-15:40)

**Keynote Speaker 3:** Prof. Huseyin Arslan, Istanbul Medipol University, Türkiye

- **Title:** “Are we ready for 6G vision? What is next? Flexible and Cognitive Radio Access Technologies for 5G and beyond”
- **Session Chair:** Prof. Saud Althunibat, Texas A&M University at Qatar, Qatar, Al-Hussein Bin Talal University, Jordan

## Coffee Break (15:40-16:00)

### Panel: “The Race Towards Near Space Communication” (16:00-18:00)

- **Panel Moderator:** Prof. Mohamed-Slim Alouini, King Abdullah University of Science and Technology (KAUST), Kingdom of Saudi Arabia

#### Panelists:

- Prof. Halim Yanikomeroglu, Chancellor's Professor, Carleton University, Canada
- Prof. Hamed Khalkhali, President, Swift Engineering, California, USA
- Prof. Michel Masselin, VP Stratobus Sales, France
- Mr. Brian Barritt, CTO, Aalyria, USA
- Mr. David Grace, Research Professor, University of York, UK



## *Thursday December 5, 2024*

### **Tutorial 1- (08:30-11:00)**

- **Title:** “6G Waveform Options”
- **Presenter:** Prof. Hüseyin Arslan, Istanbul Medipol University, Istanbul, Türkiye
- **Session Chair:** Prof. Khalid A. Qaraqe, Hamad Bin Khalifa University and College of Science and Engineering, Qatar

### **Coffee Break - (11:00-11:20)**

### **Session IV (Amphitheater) - (11:20-12:45): Networking and Security 2**

**Session Chair:** Prof. Hanan El Bakkali, ENSIAS, Mohammed V University in Rabat, Morocco

**1571081534:** “Android Malware Detection Using Machine Learning and Neural Network: A Hybrid Approach with Federated Learning” Bishal Shyam Purkayastha (University of Staffordshire London, UK), Md. Musfiqur Rahman (Chittagong University of Engineering and Technology Chittagong, Bangladesh), and Maryam Shahpasand (Staffordshire University, UK)

**1571085333:** “Intrusion Detection for Internet of Things Integrating Blockchain Technologies: A Review Paper” Mohammed Bouhassane, Abderrahim Kaabouch, Oussama Aziz, Abdelalim Sadiq (Ibn Tofail University, Morocco), and Mohamed Oualla (FST of Errachidia, Moulay Ismail University, Morocco)

**1571082073:** “A Balloon-Based UAV-Aided Non-Terrestrial Sectorized Network for Post-Disaster Cellular Coverage: A Dynamic Environment Perspective” Mohammad Taghi Dabiri and Mazen Omar Hasna (Qatar University, Qatar), Saud Althunibat (Texas A&M University at Qatar, Qatar), Khalid A. Qaraqe (Hamad Bin Khalifa University, Qatar), and Mohamed-Slim Alouini (King Abdullah University of Science and Technology, Kingdom of Saudi Arabia)

**1571085353:** “A Comparative Analysis of Apache Cloud Projects for Data Storage” Abderrahim Kaabouch, Mohammed Bouhassane, Oussama Aziz, Abdelalim Sadiq (Ibn Tofail University, Morocco), and Mohamed Oualla (Faculty of sciences and technologies, Errachidia, Moulay Ismail University, Morocco)

**1571084677:** “Evaluating Energy Efficiency: A Comparative Study of LTE, 5G-NSA, 5G-SA, and Private 5G Networks” Radheshyam Singh (Technical University of Denmark, Denmark), Daa Jadaan (Norwegian University of Science and Technology, Norway), Drona Ghimire and Michael S. Berger (Technical University of Denmark, Denmark), Amund Skavhaug (Norwegian University of Science and Technology, Norway), and Lars Dittmann (Technical University of Denmark, Denmark)

### **Session V (Room 1) - (11:20-12:45): PHY & Performance Analysis 2**

**Session Chair:** Prof. Mohamed Et-Tolba, National Institute of Posts and Telecommunications, Rabat, Morocco

**1571085310:** “Enhancing Physical-Layer Security in Full-Duplex Cooperative Wireless Networks over  $\alpha$ - $\mu$  Fading Channels” Ayyam Sadouk, Mamoun F. Al-Mistarihi and Mahmoud A. Khodeir (Jordan University of Science and Technology, Jordan), Khalid A. Darabkh (The University of Jordan, Jordan)

**1571085342:** “Triple-Layer TTD Hybrid Beamformer for Beam Split Mitigation in Wideband THz Systems” Nada Essam, Bassant Abdelhamid and Michael Ibrahim (Ain Shams University, Egypt)

**1571078931:** “Enhancing Spectral Efficiency in 5G MIMO Networks Through Adaptive Beamforming Techniques” Konstantinos Tsachrelis, Chrysostomos Athanasios Katsigiannis and Vasileios Kokkinos (University of Patras, Greece), Apostolos Gkamas (University of Ioannina, Greece), Christos J Bouras (University of Patras, Greece), and Philippos Pouyioutas (University of Nicosia, Cyprus)

**1571087894:** “Effective Capacity of Maximal-Ratio Combining Subject to the Fading Impairment” Abdelmajid Bessate and Abdellah Madani (Chouaib Doukkali University, Morocco), Faissal El Bouanani (ENSIAS, Mohammed V University in Rabat, Morocco), and Mohamed El Omari (Chouaib Doukkali University, Morocco)

**1571088077:** “3D Printed Frequency Reconfigurable DRA for Wireless Applications” Raneem Farouq Abdelraheem, Jana Mohammad AlNatour, Layan T. AbuRayyan and Yanal S. Faouri (The University of Jordan, Jordan)

## **Session VI (Room 2) - (11:20-12:45): Artificial Intelligence and Smart Applications 2**

**Session Chair:** Prof. Houssaine El Hssayni, ENSIAS, Mohammed V University in Rabat, Morocco

**1571090741:** “**Betting on Machine Learning: Extracting Patterns from Football's Anarchic Odds**” Ilyas Tammouch, Abdelamine ElOuafi, and Ibtissam Essadik (Ibn Tofail University, Morocco)

**1571093275:** “**Optimizing Feature Selection for IoT Intrusion Detection: A Hybrid Bio-Inspired Method**” Aouatif Arqane, Omar Boutkhoul, and Abdelmajid El Moutaouakkil (Chouaib Doukkali University, Morocco)

**1571085694:** “**Neighborhood Determination of Extrema for BMED and Multifractal Feature for Osteoporosis Classification**” Fatima Ghazi (Ibn Tofail University, Morocco), Fouad Ayoub (CRMEF-RSK, Morocco), Khalil Ibrahim, and Aziza Benkuider (Ibn Tofail University, Morocco)

**1571086856:** “**All You Should Know About Large Language Models (LLMs)**” Abadila Alaktif, Meriyem Chergui, Abdelkrim Ammoumou, and Imane Daoudi (Hassan II University, Casablanca, Morocco)

**1571087553:** “**Evaluation of Serious Games Intended to be used in Education: Systematic Review**” Farida Bouroumane and Ikram Hamdaoui (Multidisciplinary Faculty of Nador, Mohammed I University, Oujda, Morocco), and Mustapha Abarkan (Multidisciplinary Faculty of Taza, Sidi Mohammed Ben Abdellah, Fes, Morocco)

## **Lunch - (12:45-14:00)**

### **Keynote Speaker 4- (14:00-14:45)**

- **Speaker:** Prof. Ammar B. Kouki, ÉTS, Montreal, Quebec, Canada
- **Title:** “**RF Components & Subsystems for NextG Wireless Communications: Efficiency and Field Reconfigurability**”
- **Session Chair :** Dr. Olfa Ben Yahia, Polytechnique Montréal, Montréal, Canada

## **Session VII (Amphitheater) - (14:45-16:15): Networking and Security 3**

**Session Chair:** Prof. Mustapha Benjillali, National Institute of Posts and Telecommunications, Rabat Morocco

**1571084718:** “**HC-HackerRank: Identifying Key Hackers in Cybercrime Social Network Forums**” Abdoul Nasser Hassane Amadou and Anas Motii (Mohammed VI Polytechnic University, Morocco), and Mohammed Jouhari (EMSI, Morocco)

**1571085252:** “**Novel Lightweight Method for Detecting Backdoor Attacks in Edge-Deployed Neural Networks**” Salmane Douch (Mohammed V University in Rabat, Morocco), Mohamed Riduan Abid (Columbus State University, USA), Khalid Zine-Dine (Mohammed V University in Rabat, Morocco), Driss Bouzidi (Mohammed V University in Rabat, Morocco), and Driss Benhaddou (Alfaisal University, Saudi Arabia)

**1571071415:** “**Blockchain Based Decentralized Spectrum Trading Using Smart Contracts**”, Talal Marei Alqahtani, Shuja Ansari, Yusuf A. Sambo, and Muhammad Ali Imran (University of Glasgow, UK)

**1571088029:** “**New Quantum Key Distribution Scheme Based on Balanced Incomplete Block Designs for Efficient and Secure Qubit Distribution**” Abdelhalim Houssaoui, Otmane El Mouaatamid, and Mostafa Belkasmi (Mohammed V University in Rabat, Morocco)

**1571088098:** “**Toward a City Digital Twin: Design Principles, and Challenges**” Fouad Younes, Iyad Lahsen-Cherif, and Hassan El Ghazi (National Institute of Posts and Telecommunications, Morocco)



**Session VIII (Room 1) - (14:45-16:15): *Artificial Intelligence and Smart Applications 3***

**Session Chair:** Prof. Abdellatif Kobbane, ENSIAS, Mohammed V University in Rabat, Morocco

**1571088935:** “A Comparative Study of Supervised Learning Algorithms for Spiking Neural Networks” Yongtao Wei and Farid Nait-Abdesselam (Paris Cité University, France), Siqi Wang and Aziz Benlarbi-Delaï (Sorbonne University, Paris, France)

**1571080719:** “Deep Learning-Based Traffic Banner Recognition for Enhanced Road Safety in Autonomous Vehicles” Iness Hassani Idrissi, Mohammed Jouhari, Hafsa Benaddi (Moroccan School of Engineering Sciences (EMSI), Tangier, Morocco), Anas Motii (Mohammed VI Polytechnic University, Morocco), and Khalil Ibrahim (IBN Tofail University, Morocco)

**1571081017:** “Computer Vision for Damage Detection in Cars Images” Younes ElGargouh (Hassan II University, Casablanca, Morocco), Mohammed Ghazali (Telecom Sud Paris, France), Mohammed Reda Chbihi Louhdi (Hassan II University, Morocco), Elmoukhtar Zemmouri (Moulay Ismail University, Meknes, Morocco), and Hicham Behja (Hassan II University, Casablanca, Morocco)

**1571081155:** “Energy Efficiency Optimization of Wireless Sensor Networks with K-Means Integration” Hilmani Adil (Higher School of Technology (EST of Salé, Mohammed V University in Rabat, Morocco), Yassine Sabri (Faculty of Sciences, Ibn Zohr University, Agadir, Morocco), Siham Aouad (ENSIAS, Mohammed V University in Rabat, Morocco), Moahammed Koundi (ENSA, Ibn Tofail University, Kenitra, Morocco), and Fouad Ayoub (CRMEF Kenitra, Morocco)

**1571083867:** “Artificial Intelligence and Big Data Analytics for Supply Chain Sustainability” Petya Popova and Veselin Popov (Tsenov Academy of Economics, Svishtov, Bulgaria)

**Coffee Break - (16:15-16:35)**

**Session IX (Amphitheater) - (16:35-18:35): *Networking and Security 4***

**Session Chair:** Prof. Fouad Ayoub, CRMEF-RSK, Morocco

**1571088113:** “Chaos-Based Encryption: Performance Metrics for Secure Multimedia Communication and Comparative Analysis” Ali Abou El Qassim, Hasna Nhaila, and Lhoussain Bahattii (ENSET-Mohammedia, Hassan II University, Morocco)

**1571080956:** “Securing Healthcare Data in IoT: A Study on Homomorphic Encryption” Sara Erregui (Chouaib Doukkali University, Morocco), Otmane El Mouaatamid (ENSIAS, Mohammed V University, Morocco), El Mehdi Loualid (ENSA, Chouaib Doukkali University, Morocco)

**1571097862:** “Modeling and Mathematical Analysis of Liquidity-Credit Risk Contagion in the Banking System” Rachid Elibraqui, Moulay Othman Aboutafail (Ibn Tofail University, Morocco), and Nouria Redouane (CRMEF-RSK, Morocco)

**1571090639:** “Security Challenges in Integrating BloT Systems: A Comprehensive Review” Mohamed Faraji (ENSIAS, Mohammed V University, Morocco), Meryeme Ayache (National Institute of Posts and Telecommunications, Morocco), and Hanan El Bakkali (ENSIAS, Mohammed V University, Morocco)

**1571092608:** “Unveiling Blockchain Security and Resilience in the Quantum Age: An Analytical Study of Post-Quantum and Quantum Approaches” Samia El Haddouti and Mohamed Dafir Ech-Cherif El Kettani (ENSIAS, Mohammed V University in Rabat, Morocco), and Habiba Chaoui (ENSA, Ibn Tofail University, Kenitra, Morocco)

**1571097856:** “Enhancing Industrial IoT Intrusion Detection with Hyperparameter Optimization” Imane Laassar, Moulay Youssef Hadi, Amine Mrhari, and Soukaina Ouham (Ibn Tofail University, Morocco)

**Session X (Room 1) - (16:35-18:35): *Mathematical Modeling and optimization for engineering problems 1***

**Session Chair:** Prof. Zakaria El Allali, Multidisciplinary Faculty of Nador, Mohammed First University, Oujda, Morocco

**1571085345:** “Crowdsourcing: Modeling Techniques and Comprehensive Studies” Youssef Oubaydallh, Khalil Ibrahim, Younes Larabi (Ibn Tofail University, Morocco)

**1571088126:** “Stochastic Modeling for Waterborne Diseases Dynamics: A Survey” Hanae El Ouardani, Toufik Chaayra, and Zakaria El Allali (Multidisciplinary Faculty of Nador, Mohammed I University, Oujda, Morocco)

**1571082057:** “Some Results About The Class Of Order Weakly Demicompact Operators On Banach Lattices” Issam Ouba (Ibn Tofail University, Morocco), Larbi Zraoula (CRMEF-RSK, Morocco), Bouazza El Wahbi (Ibn Tofail University, Morocco)

**1571082911:** “Weak Almost Grothendieck Operators in Banach Lattice” Ilham Es sadki (Ibn Tofail University, Morocco), Larbi Zraoula (CRMEF-RSK, Morocco), and Bouazza El Wahbi (Ibn Tofail University, Morocco)

**1571088125:** “A Survey of Advanced Gradient Methods in Machine Learning” Otmane Filali Razzouki (ENCG, Mohammed First University, Morocco), Anas Charroud, Zakaria El Allali (Multidisciplinary Faculty of Nador, Mohammed First University, Morocco), Abdelaziz Chetouani (ENCG, Mohammed First University, Morocco), and Nassime Aslimani (Multidisciplinary Faculty of Nador, Mohammed First University, Morocco)

**1571088109:** “Accurate Approximations for the Ratio of Sums of Independent Rayleigh Random Variables.” Mohamed Bourhail, Toufik Chaayra (MultiDisciplinary Faculty of Nador, Mohammed I University, Oujda, Morocco), Faissal El Bouanani (ENSIAS, Mohammed V University in Rabat, Morocco), and Zakaria El Allali (MultiDisciplinary Faculty of Nador, Mohammed I University, Oujda, Morocco)

**Session XI (Room 2)- (16:35-18:35): *Mathematical Modeling and optimization for engineering problems 2***

**Session Chair:** Prof. Mohamed Chergui, CRMEF, Rabat Salé-Kenitra

**1571082127:** “On the Class of Absolutely Weakly Compact Operators” Adil Driouich (Ibn Tofail University, Morocco), Larbi Zraoula (CRMEF-RSK, Morocco), and Bouazza El Wahbi (Ibn Tofail University, Morocco)

**1571083034:** “Unbounded Order-Order Continuous Operator” Mohammed El Amrani (Ibn Tofail University, Morocco), Larbi Zraoula (CRMEF-RSK, Morocco), and Bouazza El Wahbi (Ibn Tofail University, Morocco)

**1571094117:** “On Order Gelfand-Phillips Property and Order Limited Completely Continuous Operators” Hassane Ansary (Ibn Tofail University, Morocco), Larbi Zraoula (CRMEF-RSK, Morocco), and Mohamed Ech-Chad (Ibn Tofail University, Morocco)

**1571098774:** “A note on an Elementary Operator with Quasi-M-hyponormal Operator” Mohamed Mourabet, Yassir Alaoua, and Mohamed Ech-chad (Faculty of Sciences, Ibn Tofail University )

**1571098772:** “On the  $\Delta$ -Symmetric Operators and Applications” Soukaina Madani, Mohamed Morjane, and Mohamed Ech-chad (Ibn Tofail University, Morocco)

**1571098773:** “On the  $\Delta$ -Finite Operators and Applications” Karim Azhoum, Mohamed Missouri, and Mohamed Ech-chad (Ibn Tofail University, Morocco)

**Gala Dinner - 19:00**

## Friday *December 6, 2024*

### Keynote Speaker 5- (08:30-09:15)

- **Speaker:** Prof. Ahmed Eltawil, King Abdullah University of Science and Technology, Kingdom of Saudi Arabia
- **Title:** “Taming mmWave Complexity with Machine Learning Approaches”
- **Session Chair:** Prof. Hatim Guermah, ENSIAS, Mohammed V University, Rabat

### Keynote Speaker 6- (09:20-10:05)

- **Speaker:** Prof. Dush Nalin Jayakody, Lusófona University, Lisbon, Portugal
- **Title:** “Semantic Communications for UAV-Assisted Wildfire Detection”
- **Session Chair:** Prof. Meryeme Ayache (National Institute of Posts and Telecommunications, Morocco)

### Session XII - (10:05-11:50): PHY & Performance Analysis 3

**Session Chair:** Prof. Meiling Li, Taiyuan University of Science and Technology Taiyuan, China

**1571087250:** “IRS-Assisted Collaborative Tracking for ISAC in Vehicular Networks” Yuncan Zhu and Meiling Li (Taiyuan University of Science and Technology, China), Faissal El Bouanani (ENSIAS, Mohammed V University in Rabat, Morocco), Yubin Zha (Sun Yat-sen University, China)

**1571080717:** “Reinforcement Learning for Optimized Resource Allocation in 5G URLLC” Khalil Ibrahimi (Ibn Tofail University, Morocco), Mohammed Jouhari (EMSI, Morocco), Salif Sow (Ibn Tofail University, Morocco), Fouad Ayoub (CRMEK-RSK, Morocco), Mohamed El Kamili (Hassan II University, Morocco), and Khalid Chougali (Ibn Tofail University, Morocco)

**1571098776:** “Comparative Analysis of Blockchain Platforms for Adapting Proof of Authentication in IoT” Mohamed Aghroud, Yassin ElGountery, Mohamed Oualla, Lahcen El Bermi (Faculty of Sciences and Technologies-Errachidia, Moulay Ismail University, Morocco), and Abdelalim Sadiq (Ibn Tofail University, Morocco)

**1571067845:** “Multi-Service & Multi-Tier Edge-Cloud Continuum Planning” Anargyros J Roumeliotis, Evangelos Kosmatos, Konstantinos V. Katsaros, and Angelos Amditis (Institute of Communication and Computer Systems (ICCS), Greece)

**1571088116:** “Enhancing MPR Selection in Ad Hoc Networks Through Balanced Neighbor Distribution” Younes Hamzaoui (CRMEF-RSK, Morocco) and Mohammed Chekour (Ibn Tofail University, Morocco)

### Break - (12:00-14:00)

### Tutorial 2 - (14 :00-16 :00)

- **Title:** “Communications and Networking in LEO Mega-Constellations”
- **Presenters :** Prof. Gunes Karabulut Kurt, and Dr. Olfa Ben Yahia, Polytechnique Montréal, Montréal, Canada
- **Session Chair:** Dr. Mounia Bouabdellah, Ruhr-Universitat Bochum, Germany



### Session XIII - (16:00-17:45): IoT, Cloud, and Fog Computing

**Session Chair:** Prof. Abdelalim Sadiq, Ibn Tofail University, Morocco

**1571071590:** “Adaptive Energy Management for Smart Parking Sensors: Enhancing Efficiency and Sustainability” Hind Kadim Alaoui, Moussa Coulibaly and Ahmed Errami (ENSEM, Hassan II University, Morocco)

**1571085289:** “Autonomous Control with Vision and Deep Learning: A Raspberry Pi Edge Computing Platform for Obstacle Detection in SUAV Path” Farman Ullah, Mohammad Hayajneh, Najah A. Abu Ali (United Arab Emirates University, UAE), Haroon Asad, Fizza Saeed Malik (COMSATS University Islamabad, Pakistan), and Bisni Fahad Mon (United Arab Emirates University, UAE)

**1571087749:** “Use Cases and Scenarios Engineering in Smart Software Application Development Services” El Mahi Bouziane, Lahbib Naimi, Charaf Ouaddi, Lamy Benaddi, and Jakimi Abdeslam (Faculty of Sciences and Technologies-Errachidia, Moulay Ismail University, Morocco)

**1571087891:** “Integrating Software-Defined Networking and Fog Computing for a Novel Routing Protocol in Vehicular Ad-Hoc Networks” Khalid A. Darabkh (The University of Jordan, Jordan), Mamoun F. Al-Mistarihi and Bayan Abdallah Odat (Jordan University of Science and Technology, Jordan)

**1571088120:** “Code Generation Templates for Accelerating Chatbot Development in Smart Tourism” Lamy Benaddi, Charaf Ouaddi, Adnane Souha, Abdeslam Jakimi, Brahim Ouchao (Faculty of Sciences and Technologies-Errachidia, Moulay Ismail University, Meknes, Morocco)

**1571085286:** “Sign Language Recognition of Autistic Children Using Wearable Sensors Signals Features Selection” Farman Ullah, Mohamed Isa, Ahmed Khaled Alhammadi, Abdalla Ali Alyassi, Shumayla Yaqoob, Htsham Jadoon (United Arab Emirates University, UAE)

### Session XIV - (16:00-17:30): Artificial intelligence, Smart Applications, and Networking 4

**Session Chair:** Prof. Toufik Chaayra, Multidisciplinary Faculty of Nador, Mohammed First University, Morocco

**1571088117:** “Analyzing the Impact of Thresholds in Bit-Flipping Decoding for QC-MDPC Based McEliece Cryptosystems” Abdellatif Kichna, Abderrazak Farchane and Said Hakimi (Polydisciplinary Faculty Beni Mellal, Sultan Moulay Slimane University, Morocco)

**1571097549:** “Algebraic Construction of Non-Primitive BCH Codes on  $GF(2^m)$  for Extensions of Degree  $m = 4$  to 10 with Minimum Distance Checking” Mustapha Hilia (Ibn Tofail University, Morocco), Bouchaib Aylaj (CRMEF-RSK, Morocco), Fouad Ayoub (CRMEF-RSK, Morocco), Faissal El Bouanani (ENSIAS, University Mohammed V in Rabat, Morocco) Adil Hilmani (EST-Salé, Mohammed V University, Morocco), Khalil Ibrahimi (Ibn Tofail University, Morocco)

**1571085039:** “On Quantum and LCD Codes from the Cyclic Codes over the Ring  $F_q[u, v, w, Z/\langle u^3 - u, v^2 - v, w^2 - w, z^2 - z, Uv, Vu, Uw, Wu, Uz, Zu, Vw, Wv, Vz, Zv, Wz - Zw \rangle$ ” Mohammed Sabiri and Bassou Aouijil (Faculty of Sciences and Technologies-Errachidia, Moulay Ismail University, Morocco)

**1571083290:** “Recent Research Study on AI-Based Crime Scene Evidence Detection” M Thangavel Murugan, Fotoon Khaleifah Abdulla Mosabbas Aldahmani, Ghalya Salem Mohamed Alshuraiqi Almehrz, Eiman Mohamed Salem Mohamed Alsereidi, Aasha Abdulla Khalfan Ali Aldahmani, and Eiman Alahbabi (United Arab Emirates University, UAE)

**1571088129:** “A Graphical DSL for Accelerating Chatbot Development” Charaf Ouaddi, Lamy Benaddi, Lahbib Naimi, El Mahi Bouziane, and Abdeslam Jakimi (Faculty of Sciences and Technologies-Errachidia, Moulay Ismail University, Morocco)

### Closing the Event - (17:45)