



**THE INTERNATIONAL CONFERENCE ON GLOBAL
AERONAUTICAL ENGINEERING AND SATELLITE
TECHNOLOGY:
ADVANCEMENTS, CHALLENGES AND OPPORTUNITIES
GAST'24**



IEEE Aerospace and
Electronic Systems Society

April, 24-26, 2024, Faculty of Sciences Semlalia, Marrakech-Morocco



Conference location: Semlalia Faculty of Sciences of Marrakech (FSSM),
Prince Moulay Abdellah Avenue, Marrakech, Morocco

To join us





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IEEE **AESS** | IEEE Aerospace and Electronic Systems Society

April 24-26, 2024, Marrakech, Morocco

SESSION PROGRAM OF GAST'24

Wednesday, April 24, 2024 - 11h15 – 12h15

Room 1 ID	Session 1 Satellite Technologies Chair : Pr T.RACHIDI Co-Chair : Pr A. OULAD SAID
4	" <i>Low-Cost LISN Design for Overcoming CubeSat EMC Challenges</i> ", Youssef El Hachimi, Amina Daghour, Abdelaali Ouhammam, Hassane Mahmoudi and Soumia El Hani.
27	" <i>Development of Attitude Determination and Control System for Skoltech-F CubeSat</i> ", Hoor Bano, Bisma Sajid, Zaina Abu Shaar, Tatiana Podladchikova and Dmitry Ris.
8	" <i>Circularly Polarized Square Patch Array Antenna with Circular Slot for Deep Space CubeSat Communication</i> ", Nabil El Hassainate, Zouhair Guennoun and Ahmed Oulad Said.
73	" <i>A Systematic Approach for Cubesat Mission Risk Analysis</i> ", Ibtissam Latachi, Tajjeeddine Rachidi and Mohammed Karim.

Room 2 ID	Session 2 Telecommunications and Electrical Engineering Chair : Pr R.BAKTUR Co-Chair : Pr S. IBNYAICH
26	" <i>Enhanced Algorithmic Approaches for Miniaturizing Microstrip Patch Antennas</i> ", Bayoud Ahmed and Rhazi Youssef.
28	" <i>A Broadband, Highly Efficient PA Using a New Multi-Harmonic Tuning Network</i> ", Mohamed Boumalkha, Mohammed Lahsaini and Moulay El Hassane Archidi.
78	" <i>Bandwidth Enhancement of SIW Cavity-Backed Antenna by Using Square-shaped Slot for Ku Band Applications</i> ", Chrij Dounia, Asma Khabba, Saida Ibnyaich and Abdelouhab Zeroual.
29	" <i>A Double Square Monopole Antenna With Dual Band (S band/X band) For Radar And Satellite Communication</i> ", Nisrin Sabbar and Larbi Setti.



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Wednesday, April 24, 2024 - 14h45 - 16h15

Room 1 ID	<p align="center">Session 3 Aerospace and Electronic Systems Chair : Pr S. CHOUKRI Co-Chair : Pr H. BELAHRACH</p>
5	<i>"Realization and control of a high voltage gain DC-DC converter for CubeSat electric propulsion"</i> , Abdelaali Ouhammam and Hassane Mahmoudi.
15	<i>"Leveraging Industry 4.0 in Aircraft Maintenance: Addressing Challenges and Improving Efficiency"</i> , Mohammed Timjerdine, Saoudi Taibi and Younes Moubachir.
17	<i>"Adaptive Observer-based Fault-tolerant Control for Actuator fault in quadrotor UAV"</i> , Abderrahim Ezzara, Ahmed Youssef Ouadine and Hassan Ayad.
47	<i>"Characterization of bilaminated cylindrical shell under oblique excitation: Effects of fluid filled cavity on resonances"</i> , Elhoussine Oukhai and Said Agounad.
9	<i>"Airfoils selection for a Blended Wing Body aircraft in medium Reynolds number"</i> , Mohamed Hakim, Saad Choukri and Mohamed El Amine Ait Ali.

Room 2 ID	<p align="center">Session 4 AI and computing Chair : Pr Xiyu Shi Co-Chair : Pr A. EL KARI</p>
33	<i>"A Comparative Study of RNN and DNN for Climate Prediction"</i> , Mohcen El Makkaoui, Anouar Dalli and Khalid Elbaamrani.
32	<i>"Detecting Cyber Threats and Enhancing Security in IOT Devices: A Federated Learning Approach"</i> , Motunrayo F. Ogundipe and Xiyu Shi.
70	<i>"A bibliometric analysis of the Sentinel-2 missions in academic literature within the Marrakech region"</i> , El Houcine El Moussaoui, Aicha Mourni, Sofyan Sbahi, Said Khabba and Abderrahman Lahrouni.
86	<i>"Designing Gamified Virtual Reality Platforms for Collaborative Work: A User-Centered Approach"</i> , Oumaima DEROUÉCH, Hamid HRIMECH, Mohamed LACHGAR and Mohamed HANINE.
75	<i>"A Short Survey on Multimodal Data Fusion in Image Classification"</i> , Toufik Datsi, Khalid Aznag, Brahim Ait Benali, Karim Karbout, Ahmed El Oirrak and Khayya El Kharrachi.



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Wednesday, April 24, 2024 - 16h45 - 18h15

Room 1 ID	Session 5 Online Session Chair : Pr S. IBNYAICH Co-Chair : Pr N. MOUHNI
57	"Vulnerability Assessment and Mitigation Strategies for Satellite Communication Systems Under DDoS Attacks" , Toubi Ayoub and Hajami Abdelmajid.
14	"Nascerr: Nanosatellite with Electronics Radiation Robust" , Jose Edison Silva Filho, Julio Vitorino, Carlos Alfredo, Alexandre Almeida, Nicolas Araujo and Jarbas Aryel Nunes da Silveira.
7	"Estimation of heat fluxes and temperature in a 1U cubesat using mathematical models" , Ramiro Gustavo Tintaya Quispe and Michael Anthony Cárdenas Solano.
20	"Slot-Optimized Circular Antenna Design for Advanced Applications in Sub-6 GHz 5G and LTE Communications" , Moussab Chbeine, Monir Azmani, Abdelali Astito and Lahcen Sellak.
42	"Channel Capacity Estimation of Four UWB MIMO antennas" , Aicha Mchbal, Naima Amar Touhami, Mohamed El Mrini and Abdelhafid Marroun.

Room 2 ID	Session 6 Telecommunications and Electrical Engineering Chair : Pr A. OULAD SAID Co-Chair : Pr A. REHA
10	"UWB transparent antenna for 5G mm-wave applications" , Omar Ourahou, Hind Abaoui, Fatima Ez-Zaki, Hassan Belahrach, Abdelilah Ghammaz and Raefat-Jalila El Bakouchi.
21	"Miniaturized Dual-Band Circular Patch Antenna Design for 5G mmWave Applications Using ANFIS Technique" , Lahcen Sellak, Asma Khabba, Samira Chabaa, Saida Ibnyaich, Abdelouhab Zeroual and Atmane Baddou.
24	"NOMA based Walsh Hadamard Transform and User Pairing Strategy" , Karima Ait Bouslam, Jamal Amadid, Fatim-Zahra Bennioui, Iqdour Radouane and Abdelouhab Zeroual
49	"Antenna feeding network design for 5G massive MIMO Applications" , Mohamed El Mrini, Naima Amar Touhami, Aicha Mchbal and Abdelhafid Marroun.
39	"Numerical Analysis of Crosstalk Effects of Uniform Interconnect Lines Using theta-method" , Mouaad Ait Errais, Khaoula Ait Belaid, Hassan Belahrach and Abdelouhab Zeroual.



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Thursday, April 25, 2024 - 10h30 - 12h00

Room 1 ID	Session 7 Satellite Technologies Chair : Pr H.BELAHRACH Co-Chair : Pr S. IBNYAICH
69	" <i>Exploring the Frontiers: An In-Depth Study on Nanosatellites as the Pinnacle of Embedded Systems in Space Technology</i> ", Sara Essoumati, Ouladsaid Ahmed, Gharnati Fatima and Mustapha Raoufi.
59	" <i>How nanosatellites contribute to 6G</i> ", Imane Ammy Driss and Tomader Mazri.
6	" <i>Miniaturized Micro Ion Thruster: Integration and Performance Analysis for CubeSat Application</i> ", Ahmed Saeed Altunaiji, Yousuf Faroukh, Abdulrahman Sulaiman, Maryam Alansaari, Ilias Fernini, Mohamed Alzarooni and Hamid Alnaimiy. Online
16	" <i>SHARJAH-SAT-2: AN EARTH-OBSERVING SATELLITE FOR SUSTAINABLE URBAN DEVELOPMENT</i> ", Maryam Alansaari, Tarifa Alkaabi, Yousuf Faroukh, Abdulrahman Sulaiman, Amel Alhammadi, Fatima Alketbi, Ilias Fernini Hamid N.K. Alnaimiy and Ahmed Saeed Altunaiji. Online
71	" <i>Detection and Classification of Pulsed Doppler Radar Signals Using Deep Learning</i> ", Sujal Gupta, Suhani Grover and Anup Mandpura. Online

Room 2 ID	Session 8 AI and computing Chair : Pr V. DE SILVA Co-Chair : Pr A. EL KARI
77	" <i>Multimodal data fusion techniques in smart healthcare : Comparative study</i> ", Karim Karbout, Mohamed El Ghazouani, Mohamed Lachgar and Hamid Hrimech
41	" <i>Intelligent Autonomous Driving Assistance System based on Brain-computer Interface</i> ", Yuankun Chen, Xiyu Shi and Varuna De-Silva.
55	" <i>Time-Series Neural Network Predictions Using LSTM for Clustering and Forecasting GPS Data of Bird Immigration</i> ", Sana Chakri and Naoual Mouhni.
11	" <i>CNN-LSTM architectures for non-stationary time series : decomposition approach</i> ", Ibtissam Amalou, Naoual Mouhni and Abdelmounaim Abdali.
23	" <i>Autonomous Door with Face Recognition for Enhanced Security Systems of Educational Institutions</i> ", Abdelghani Ait Ben Braim, Abdelal El Gourari, Mustapha Raoufi and Mohammed Skouri.



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Thursday, April 25, 2024 - 14h00 – 15h30

Room 1 ID	Session 9 Telecommunications and Electrical Engineering Chair : Pr H. BELAHRACH Co-Chair : Pr A. REHA
34	"Modeling of Electromagnetic Wave Propagation in Graphene" , Mohamed Moumou, Khalid Mounirh, Soufiane El Adraoui, Mohammed Kanjaa, Otmane El Mrabet and Mhsine Khalladi
30	"Design and Simulation of a Tiny Bandpass Filter Utilizing Planar Technology for 5G Mid-Band Applications" , Zakaria El Ouadi, Jamal Amadid, Asma Khabba, Saida Ibnyaich and Abdelouhab Zeroual
40	"A Miniaturized Reconfigurable Multi-Band Antenna with ACS Feed for Wireless Communication" , Omaima Benkhadda, Mohamed Saih, Abdelati Reha, Kebir Chaji and Hicham Rouijjaa
37	"Design of Ultra Wide-Band Triangular Shaped Patch Antenna for 39 GHz Millimeter-Wave Applications" , Salah Eddine El Aoud, Hind Abbaoui, Sanae Attioui, Saida Ibnyaich, Abdelilah Ghammaz, Abdelouhab Zeroual and Hassan Belahrach
68	"Design and simulation of a phase-shift backscatter modulator for UHF RFID tag at 900 MHz" , Sanae Habibi, Abdelhak Bendali, Zahra Sahel, Samia Zarrik, Mouad El Kobbi, Karima Benkhadda, Abid Reda El Wardi, Mohamed Habibi and Abdelkader Hadjoudja

Room 2 ID	Session 10 AI and computing Chair : Pr M.CHAFOUK Co-Chair : Pr N. MOUHNI
43	"The Positive Impact of Artificial Intelligence on Education" , Abdelali El Gourari, Mustapha Raoufi, Mohammed Skouri, Abdelghani Ait Ben Braim and Mustapha Ezzini
51	"Evaluating Government Open Data in Morocco for the Advancement of Artificial Intelligence" , Driss Essabbar, Saad Yasser Chadli and Hassnae Remmach
53	"Improving Skin Cancer Identification via Transfer Learning Implementation" , Ayoub Elaaloui, Anouar Dalli and Khalid El Baamrani
54	"Artificial Intelligence Application for the Classification of Central Nervous System Tumors Based on Blood Biomarkers" , Sara Haddou Bouazza and Jihad Haddou Bouazza
79	"The Role of Technology in Global Learning Transformation: A Comprehensive overview" , Hajar Elkoumitti, My Driss Laanaoui and Sabah Selmaoui



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Thursday, April 25, 2024 - 16h00 – 17h30

Room 1 ID	Session 11 Online Session Chair : Pr N. MOUHNI Co-Chair : Pr A.REHA
18	<i>"Enhancing Wind Power Estimation for Dakhla, Morocco: A Comparative Exploration of Four Numerical Methods Leveraging the Weibull Distribution"</i> , Najoua Mrabet, Chirine Benzazah, Ahmed El Akkary and Mohsine Chakib.
46	<i>"Compact Miniaturized Antenna Design for Enhanced Data Rates in Implantable Brain-Machine Interfaces"</i> , Abdelmouttalib Bousrout, Asma Khabba, Saida Ibnyaich, Tomader Mazri and Mohamed Habibi.
63	<i>"Implementation of a ground station to encourage space science in developing countries"</i> , Jorge Soliz, Mishel Cuiza and Peter Carvajal.
19	<i>"A comparative and analysis study for recommending a chatbot development tool"</i> , Charaf Ouaddi, Lamya Benaddi, Adnane Souha and Abdeslam Jakimi.
44	<i>"Model-Driven Engineering to develop chatbots for smart tourism"</i> , Lamya Benaddi, Charaf Ouaddi, Abdeslam Jakimi, Brahim Ouchao and Adnane Souha.

Room 2 ID	Session 12 AI and computing Chair : Pr A.EL KARI Co-Chair : Pr S. CHABAA
56	<i>"Design Analysis and Generation of Islamic Patterns Using Artificial Intelligence"</i> , Yassine Ait Lahcen, Abdelali El Gourari, Essaid Elbachari and Mohamed Jamal Eddine Benatia.
60	<i>"Non-linear model predictive control of a tilt-rotor quadcopter for control allocation and path following"</i> , Yanchao Wang, Xu You and Mehdi Baghdadi.
61	<i>"Analyzing Moroccan E-Government status: An Initial Review"</i> , Saad Yasser Chadli, Hassnae Remmach and Driss Essabbar.
25	<i>"Genetic Algorithm-Based Optimization of Rectangular Patch Antenna Parameters for 2.45 GHz"</i> , Fatim-Zahra Benniou, Asma Khabba, Karima Ait Bouslam, Layla Wakrim, Saida Ibnyaich and Abdelouhab Zeroual.
62	<i>"A CNN-based Multi-Task Regressor Network for Three-dimensional Reconstruction From 3D Point Cloud"</i> , Hassnae Remmach, Driss Essabbar, Raja Mouachi, Saad Yasser Chadli and Mohamed Sadgal. Online



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Friday, April 26, 2024 - 9h00 – 10h30

Room 1 ID	Session 13 Telecommunications and Electrical Engineering Chair : Pr A.REHA Co-Chair : Pr H. BELAHRACH
45	"Minkowski Fractal Antenna Design with Defected Ground Structure for 5G Millimeter Wave Applications" , Sanae Attioui, Salah Eddine El Aoud, Saida Ibnyaich and Abdelouhab Zeroual.
64	"Study and Design of an Efficient Rectifier and DC Voltage Limiter of a UHF RFID Tag Passive in 180nm CMOS Technology" , Zahra Sahel, Abdelhak Bendali, Sanae Habibi, Karima Benkhadda, Abid Reda El Wardi, Mouad El Kobbi, Samia Zarrik, Fatehi Al Talqi and Mohamed Habibi.
66	"Design and Optimization of Microstrip Patch Antenna using Ant Colony Optimization" , Ibtissam Bahlaouane, Abdelfettah Belhabib, Saida Ibnyaich and Abdelouhab Zeroual.
67	"Bi-band circular patch antenna with inserted metamaterial cell for mmWave applications" , Hind Abbaoui, Hassan Belahrach, Omar Ourahou and Abdelilah Ghammaz.

Room 2 ID	Session 14 AI and computing Chair : Pr S. CHABAA Co-Chair : Pr N. MOUHNI
76	"Completing a dataset for a passive house using a Feedforward Neural Network with Adam optimization" , Mohammed Ennejjar, Samira Chabaa, Saida Ibnyaich, Abdelouhab Zeroual and Asma Khabba.
80	"Smart Pest Control in Grain Warehouses: YOLOv8-powered IoT Robot Car for Precision Agriculture" , Mohamed Zarboubi, Samira Chabaa and Azzedine Dliou.
84	"The impact of ChatGPT in-education: A comprehensive overview" , Khaoula Achour, My Driss Laanaoui and Mustapha Ourahay.
85	"Effect of Pedestrian Crossings on Traffic Speed and Flow at a Roundabout in Marrakech" , Ayoub Charef, Zahi Jarir and Mohamed Quafafou.



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GENERAL CO-CHAIRS	
	Prof. Abdelouhab ZEROUAL, Cadi Ayyad University, Marrakech, Morocco
	Prof. Ahmed OULAD SAID, Royal Air Academy, Marrakech, Morocco
KEYNOTE SPEAKERS	
	Keynote speaker 1: Prof. Mohammed BENHAMMOU, Mohammed V University Rabat, Morocco Title : Growing Vulnerability of Space: Challenges of Space Cybersecurity
	Keynote speaker 2 : Dr Jamila HASSAR, Royal Center for Space Studies and Research Rabat, Morocco Title : Spatial Projects
	Keynote speaker 3 : Prof. Tajjedine RACHIDI, Al Akhawayn University Ifrane, Morocco Title : Design and Implementation of a Generic CubeSat on-board Computer Software
	Keynote speaker 4 : Prof. Reyhan BAKTUR, Utah State University, USA Title : Wireless Communication Link Budget : Space to Biomedical Applications
	Keynote speaker 5 : Prof. Varuna DE SILVA, Loughborough University London, UK Title : Challenges of scaling Machine Learning to Real World Applications
	Keynote speaker 6 : Prof. HOUICINE CHAFOUK, IRSEEM / ESIGELEC-University of Rouen Normandy, France Title : Health Monitoring Systems (HMS) : Developments in the Diagnosis and Fault Tolerant Control For the automotive, aeronautical, and renewable energy sectors

