

JAC-ECC 2024

Technical Program



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JAC-ECC2024 Conference Program (At-A-Glance)

Day 1: Monday, December 16, 2024

Times	Activity\Session		
9:00 – 10:00	Registration and Reception		
10:00 – 10:35	<p>Opening Session Hosts by: Dr. Rami Zewail, E-JUST, Egypt Room: E-JUST Campus (Prof. Abo-Ismael Theater)</p> <p>10:00 – 10:05 National Anthems of Egypt and Japan 10:05 – 10:10 Prof. Haruichi Kanaya, Conference Co-Chair, Kyushu University, Japan 10:10 – 10:15 Prof. Amr Elmasry, Conference Co-Chair, EUI, Egypt 10:15 – 10:20 Prof. Mohammed S. Sayed, Conference Chair, E-JUST, Egypt 10:20 – 10:25 Prof. Toshio Fukuda, IEEE Fellow, E-JUST Vice President of Research 10:25 – 10:30 Prof. Reem Bahgat, EUI President 10:30 – 10:35 Prof. Amr Adly, IEEE Fellow, E-JUST President</p>		
10:35 – 11:20	<p>Keynote Session 1 Room: E-JUST Campus (Prof. Abo-Ismael Theater) Chairs: Prof. Haruichi Kanaya, Kyushu Uni., Japan, and Prof. Mohamed Abo-Zahhad, E-JUST, Egypt Keynote #1: Prof. Shuji Hashimoto, Egypt-Japan University of Science & Technology, Egypt “Human and Machine in AI Era - Machine Having a Heart”</p>		
11:20 – 12:05	<p>Keynote Session 2 Room: E-JUST Campus (Prof. Abo-Ismael Theater) Chairs: Prof. Mohammed S. Sayed, E-JUST, Egypt, and Prof. Osamu Muta, Kyushu University, Japan Keynote #2: Prof. Robert Kinyua & Prof. Daniel Ndaka Sila, Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya “Multidisciplinary collaboration between Agriculture and Engineering as a Catalyst for Development in Kenya”</p>		
12:05 – 12:35	Coffee Break		
12:35 – 13:00	<p>Invited Speaker Session Room: E-JUST Campus (Prof. Abo-Ismael Theater) Chair: Prof. Mohammed S. Sayed, E-JUST, Egypt Invited Speaker: Dr. Hisham Arafat Shehata, Executive Advisor, Chief AI Architect, Dell/MCIT “AI-Empowered Egypt Initiative”</p>		
13:00 – 13:45	<p>Keynote Session 3 Room: E-JUST Campus (Prof. Abo-Ismael Theater) Chairs: Prof. Tenamesa Asano, Kyushu Uni., Japan, and Prof. Adel B. Abd El-Rahman, E-JUST, Egypt Keynote #3: Prof. Mutsumi Kimura, Ryukoku Uni., Nara Institute of Sci. & Technol. (NAIST), Japan “Thin-Film Memdevices and Neuromorphic Systems”</p>		
13:45 – 14:30	<p>Keynote Session 4 Room: E-JUST Campus (Prof. Abo-Ismael Theater) Chairs: Dr. Sherief Hashima, RIKEN-AIP, Japan, Dr. Hossam Kassem, E-JUST, Egypt Keynote #4: Prof. Kohei Hatano, Kyushu University/RIKEN AIP, Japan “Introduction to Theory of Online Decision-Making and Its Applications to Communication”</p>		
14:30 – 15:30	Lunch Break		
15:30 – 17:00	<p>Technical Session #1 Selected Topics in Artificial Intelligence Room: 201</p>	<p>Technical Session #2 Selected Topics in Biomedical Engineering Room: 209</p>	<p>Technical Session #3 Selected Topics in Microwave Engineering/Circuits and Systems Room: 210</p>
17:00 – 17:15	Coffee Break		
17:00 – 18:30	<p>Technical Session #4 Selected Topics in Big Data and Signal Processing Room: 201</p>	<p>Technical Session #5 Selected Topics in Internet of Things Room: 209</p>	<p>Technical Session #6 Selected Topics in Communications Room: 210</p>

Day 2: Tuesday, December 17, 2024

Times	Activity\Session		
09:00– 10:00	Registration and Reception		
10:00 – 10:45	<p style="text-align: center;">Keynote Session 5 Room: E-JUST Campus (Prof. Abo-Ismael Theater) Chairs: Prof. Elsayed Elrabie, Menoufia University, Egypt, and Dr. Sameh Sherif, E-JUST, Egypt Keynote #5: Dr. Farhad Mehdipour, Otago Polytechnic Auckland Int. Campus, New Zealand “Transforming Healthcare and Beyond: The Power of AI, IoT, and HCI in Data-Driven Innovation”</p>		
10:45 – 11:30	<p style="text-align: center;">Keynote Session 6 Room: E-JUST Campus (Prof. Abo-Ismael Theater) Chairs: Prof. Mohamed Abbas, Assiut Uni., Egypt, and Prof. Mohammed S. Sayed, E-JUST, Egypt Keynote #6: Dr. Sherif Hammouda, Siemens EDA, Egypt “IC Physical Verification in the Nanometer Era”</p>		
11:30 – 12:15	Coffee Break		
12:15 – 13:00	<p style="text-align: center;">Keynote Session 7 Room: E-JUST Campus (Prof. Abo-Ismael Theater) Chairs: Prof. Mohamed E. Nasr, Tanta Uni., Egypt, and Prof. Mohamed El-Banna, Alexandria Uni., Egypt Keynote #7: Dr. Ahmed Shalaby, Alamein International University, Egypt “Hardware Security: Statically-Scheduled NoC for Secure SoCs”</p>		
13:00 – 14:30	<p style="text-align: center;">Special Session: Innovation Online Learning Algorithms for 6G Wireless Networks Room: E-JUST Campus (Prof. Abo-Ismael Theater) Chairs: Prof. Moawad Dessouky, Menoufia Uni. Egypt, and Dr. Sherief Hashima, RIKEN-AIP, Japan, 13:00 – 13:30: “Online Learning Algorithm-Based Optimization of Smart UAV Wireless Networks,” Dr. Khanh Tran Gia Institute of Science Tokyo, Japan 13:30–14:00: “Machine learning-Aided Downlink Resource Management for UAV-NOMA Systems,” Dr. Ahmad Gendia Kyushu University, Japan 14:00 – 14:30: “Unlocking the Power of AI in Wireless Communication: Harnessing Real-World Data for Next-Gen Solutions,” Dr. Ahmed Nasser KAUST, KSA</p>		
14:30 – 15:30	Lunch Break		
15:30 – 17:00	Technical Session #7 Selected Topics in Artificial Intelligence Room: 201	Technical Session #8 Selected Topics in Internet of Things and Cybersecurity Room: 209	
17:00 – 17:15	Coffee Break		
17:10 – 18:45	Technical Session #9 Selected Topics in Artificial Intelligence Room: 201	Technical Session #10 Selected Topics in Microwave Engineering Room: 209	Technical Session #11 Selected Topics in Biomedical Engineering Room: 210

Day 3: Wednesday, December 18, 2024

At EUI Campus

Room: EUI Campus (Auditorium)

Times	Activity\Session
09:00– 10:00	Registration and Reception
10:00 – 10:45	Keynote Session 8 Chair: Prof. Amr Elsherif, EUI, Egypt Keynote #8: Prof. Tamer ElBatt, American University in Cairo, Egypt “Machine Learning over Networks: From Fundamentals to Applications”
10:45 – 11:30	Keynote Session 9 Chair: Prof. Hoda Mokhtar, EUI, Egypt Keynote #9: Prof. Ahmed Khattab, National Telecommunications Institute, Egypt “Accelerating Success: Scaling Through ICT Training”
11:30 – 12:15	Coffee Break
12:15 – 13:00	Keynote Session 10 Chair: Chair: Prof. Mohamed Saleh, EUI, Egypt Keynote #10: Prof. Haruichi Kanaya, Kyushu University, Japan “Wireless Energy Harvester and its Applications”
13:00 – 13:45	Keynote Session 11 Chair: Dr. Mohamed Ismail, EUI, Egypt Keynote #11: Prof. Adel B. Abdelrahman, E-JUST, Egypt “H-Slot Sensing Antenna System for Termites Detection”
13:45 – 15:15	Workshop: “Graph Theoretic Algorithms” Chair: Prof. Amr Elmasry, EUI, Egypt Prof. Mohamed Saleh – EUI Dr. Ayman Khalafallah – Alexandria University Dr. Ahmed Kosba – Alexandria University
15:15 – 15:30	Closing Session
15:30 – 16:30	Lunch

OPENING SESSION

Day 1, December 16, 2024, Time: 10:00-10:45

Hosts by: TBD, E-JUST, Egypt

Times	Activity
10:00– 10:05	National Anthems of Egypt and Japan
10:05 – 10:10	Prof. Haruichi Kanaya, Conference Co-Chair, Kyushu University, Japan
10:10 – 10:15	Prof. Amr Elmasry, Conference Co-Chair, EUI, Egypt
10:15 – 10:20	Prof. Mohammed S. Sayed, Conference Chair, E-JUST, Egypt
10:20 – 10:25	Prof. Toshio Fukuda, IEEE Fellow, E-JUST Vice President of Research
10:25 – 10:30	Prof. Reem Bahgat, EUI President
10:30 – 10:35	Prof. Amr Adly, IEEE Fellow, E-JUST President

TECHNICAL SESSION 1

Day 1, December 16, 2024, Time: 15:30-17:00

Selected Topics in Artificial Intelligence,

Room: 201

Chair: Dr. Ahmed H. Fares, E-JUST, and Dr. Rami Zewail, E-JUST, Egypt

Order	Paper No.	Authors	Paper Title
1	9	M. Abdallah, M. Lashin, A. El-Awamry, and W. Gabr	Reinforcement Learning-Based Optimal Path Planning for Mobile Robot with Obstacles Avoidance
2	20	M. Khamis and W. Gomaa	LLM based Emotion Analysis of Arabic Songs: Shadia as a Case Study
3	30	N. A. W. Abdul Hamid, M. R. Rezaee and Z. Ismail	Federated Multi-Agent Reinforcement Learning for UAV Collision Avoidance in Dense Smart City Environment
4	49	A. Awad, M. Hegazy, and S. A. Aly	Early Diagnosis of Acute Lymphoblastic Leukemia Using YOLOv8 and YOLOv11 Deep Learning Models
5	64	M. Robaa, M. Balat, R. Awaad, E. Mamdouh, and S. A. Aly	Explainable AI in Handwriting Detection for Dyslexia Using Transfer Learning

TECHNICAL SESSION 2

Day 1, December 16, 2024, Time: 15:30 - 17:00

Selected Topics in Selected Topics in Biomedical Engineering,

Room: 209

Chair: Prof. Mohammed Abo-Zahhad, E-JUST, Egypt, and Prof. Elsayed Elrabie, Menoufia University, Egypt,

Order	Paper No.	Authors	Paper Title
1	28	E. Abdalaziz, M. Selim, and M. Abd Elnaby	Evaluation and Prediction of X-ray Tube Failure in Medical Imaging Systems
2	51 [Virtual]	T. Nagatomo and T. Sato	Impact of Approximate Addition on Arrhythmia Identification Accuracy
3	57	S. N. Gitau, A. H. Abd El-Malek, M. S. Sayed, M. Abo-Zahhad	Surgical Tools Localization and Detection using YOLO Models for Minimization of Retained Surgical Items
4	78 [Virtual]	K. Youssef, A. H. Abd El-Malek, H. Kanaya, and M. Abo-Zahhad	Machine Learning-based Classification for Unifocal and Multifocal Breast Cancer
5	46	O. John and M. Abo-Zahhad	Innovative Deep Learning Approaches for Early Detection and Classification of Brain Tumors: A Comprehensive Review

TECHNICAL SESSION 3

Day 1, December 16, 2024, Time: 15:30-17:00

Selected Topics in Microwave Engineering/Circuits and Systems, Room: 210
Chair: Prof. Fathi Farag, Zagazig University, Egypt, Prof. Mohamed El-Banna, Alexandria University, Egypt, and Dr. Anwer S. Abd El-Hameed, Electronics Research Institute, Egypt

Order	Paper No.	Authors	Paper Title
1	12	M. H. Elarabawy, K. R. Mahmoud, M. M. El-Dakrouy, and A. M. Saleh	Design of 76-80 GHz On-Chip Dipole Antenna for mmWave Radar Applications
2	18	I. Gharbia, A. Lashin, A. Aldelemy, F. Elmegri, A. S. Ismail, S. A. Khaleel, E. K. I. Hamad, C. H. See, R. A. Abd-Alhameed, and M. I. Shehata	A Noval RFID Tag's Antenna for Mounting on Metallic Objects
3	19	I. Ahmed, A. Lashin, A. Aldelemy, A. S.I. Amar, S. A. Khaleel, E. K. I. Hamad, C.-H. See, R. Abd-Alhameed, and M. I. Shehata	Novel Aperture Antenna Array Design for Indoor Localisation UWB Radar Technologies
4	59	M. Emad, A. Wahba, and A. Reda	Design of VGA for 10 Gbps Optical Receiver for XG(S)-PON ONU
5	62	A. Saeed, M. Mousa, M. Salah, M. Abouelatta, A. Shaker, and Y. Ismail	Simulated ETL-Free Perovskite/CIGS-GeTe Two-Terminal Tandem Cell with 39.7% Efficiency

TECHNICAL SESSION 4

Day 1, December 16, 2024, Time: 17:15-18:45

Selected Topics in Big Data and Signal Processing, Room: 201
Chair: Prof. Amr Elmasry, EIU, Egypt, and Dr. Moataz Abdelwahab, E-JUST, Egypt

Order	Paper No.	Authors	Paper Title
1	100	A. Shokry, A. Elmasry, A. Khalafallah, and A. Aly	Verifying Shortest Paths in Linear Time
2	35	O. Elgalaly, A. Mohamed, A. Ali, and R. Gharieb	Stuttering Classification by KNN Model: Study of Dimension Reduction, Distance Metrics and Number of Neighbors
3	56	B. K. Linh, N. D. Hieu, T. H. Duong, N. Nam, P. M. Tuan, B. H. Kien, N. V. Thang, and D. M. Hieu	Non-destructive Maturity Measurement of Durian Using Acoustic Signal
4	52	M. Hassanain, N. Shehata, A. Mohamed, M. Hammad, S. Alqasaby, and A. Zaky	Enhancing Arabic Speech Emotion Recognition with Deep Learning
5	89	A. M. Elshaer, O. Abdelrazek, M. Khaled, M. El Sayed, H. Medhat, B. Sameh, I. Negm, S. Ahmed, and A. Khaled	Teleoperation of Pepper Robot with VR/AR Integration and AI-Driven Insights

TECHNICAL SESSION 5

Day 1, December 16, 2024, Time: 17:15-18:45

Selected Topics in Internet of Things,

Room: 209

Chair: Prof. Mohammed Abo-Zahhad, E-JUST, Egypt, and Prof. Mohamed E. Nasr, Tanta, Egypt

Order	Paper No.	Authors	Paper Title
1	74 [Virtual]	Adel Barakat	High-Efficiency Triode-Mode CMOS Rectifier with Center-Tap Inductor for Low-Power Applications
2	76	M. M. Abo-Zahhad and M. Abo-Zahhad	Precision Agriculture Using IoT and Machine Learning-Driven Irrigation and Subsurface Drainage for Sustainable Water Management
3	77	M. Abo-Zahhad and M. M. Abo-Zahhad	AI-Enhanced Smart Waste Management Employing IoT, GPS, and GSM Technologies for Improved Efficiency
4	83	M. S. Elbakry, A. M. Mahmoud, S. Hashima, and B. M. Elhalawany	Autonomous Navigation for Mobile Robots in Dynamic Environments: A Comprehensive Study Using Deep Learning Algorithms
5	87	N. Bondok, Y. Ayman, E. M. Eid, O. El-Gaml, and O. Elnahas	Design and Development of Smart Textile-based Wearable Shirt for Epilepsy Patients

TECHNICAL SESSION 6

Day 1, December 16, 2024, Time: 17:15-18:45

Selected Topics in Communications,

Room: 210

Chair: Prof. Maha Elsabrouty, E-JUST, Egypt, and Dr. Osama Elnahass, Borg ElArab Technol. University, Egypt

Order	Paper No.	Authors	Paper Title
1	29	A. M. Mahmoud, A. H. M. and Y. A. Fahmy	Covariance Estimation in Massive MIMO System with Semi-blind Channel Estimation
2	79	Z. Li, O. Muta, and Y. Jitsumatsu	Performance of RSS-Based Indoor Cooperative Positioning with Weighted User-Terminal Collaboration
3	82	Y. Khalifa, M. Bahnassy, A. Alasmar, A. Ismaiel, M. Hefnawy, A. Hamza, H. Sakr, and A. Elashry	Enhancing Vehicular Ad-hoc Networks (VANETs) Security: A Comprehensive Analysis of Emerging Threats and Countermeasures
4	88	A. Kamal, S. Adel, M. Abdelmoneim, M. Khalil, and A. Nasser	Blockchain Enabled Interference Management for UAV Borne RIS Aided HetNets
5	11 [Virtual]	M. Seddiki, A. Safou, and H.Neche	Dynamic deployment for full disaster area coverage with a limited number of UAV

TECHNICAL SESSION 7

Day 2, December 17, 2024, Time: 15:30-17:00

Selected Topics in Artificial Intelligence,

Room: 201

Chair: Dr. Ahmed Shalaby, Benha University, Egypt, and Dr. Ahmed Fares, E-JUST, Egypt

Order	Paper No.	Authors	Paper Title
1	93	E. Mansour, A. Al-Mahmoud, M. Shatin, M. I. Ahmed, A. Allam, R. K. Pokharel, and A. B. Abdel-Rahman	Utilizing Various Deep Neural Network Technologies to Evaluate FCCSRR Sensor Performance In Biomedical Appl
2	44	M. Elmeligy, A. Ezzat, M. Mobtasem, S. Moustafa and M. S. Darweesh	An Efficient Hybrid Infrastructure for AI Healthcare System: Skin Cancer Classification
3	45	M. Madany, A. Khalafallah, M. Ahmed, and A. Shoukry	Diagnosis of Parkinson's disease using Kolmogorov-Arnold Networks
4	48	S. Kamal, H. Nayel, and A. Shalaby	Enhancing Hadith Classification using Statistical and Semantic Feature Fusion and Dimension Reduction
5	4	S. Amer, O. Youssef, S. Zakzouk, S. Mahmoud, A. Ezzat, K. Moussa, and M. S. Darweesh	Lightweight Plant Leaf Classification Based on Transfer Learning: A Comparative Study

TECHNICAL SESSION 8

Day 2, December 17, 2024, Time: 15:30-17:00

Selected Topics in Internet of Things and Cybersecurity,

Room: 209

Chair: Prof. Mohammed Abo-Zahhad, E-JUST, Egypt, Dr. Samir Elzagheer, E-JUST, Egypt, and Dr. Ehab ElShazly, E-JUST, Egypt

Order	Paper No.	Authors	Paper Title
1	94	A. Elgalaly, A. Fahmy, A. Ahmed, M. Youssif, M. Essam and S. Elzagheer	Blockchain-Driven Defense Against Deepfakes on Social Media Platforms
2	95	H. Abdelrahman, K. Shaban, M. Hany, M. Omara, O. Wael, P. Nasr, Z. Gaber, and S. Elzagheer	Design and Architecture of a Cloud-based Malware Analysis Sandbox
3	98	Ali Abdelaziz	Vulnerability Assessment and Remediation Using Advanced AI Analysis
4	40	N. M. Mohamed, M. M. Elmesalawy, and A. M. Abd El-Haleem	Geofencing-Based AR/VR System for Connecting and Monitoring Workplaces in the Metaverse Using Machine Learning (MetaWMS)
5	58	S. N. Gitau, A. H. Abd El-Malek, M. S. Sayed, and M. Abo-Zahhad	Integrating Internet of Medical Things and Deep Learning for Reducing Retained Surgical Items: A Comprehensive Survey

TECHNICAL SESSION 9

Day 2, December 17, 2024, Time: 17:15-18:45

Selected Topics in Artificial Intelligence, Room: 201

Chair: Prof. Mohamed Shehata, University of British Columbia, Canada, Dr. Ahmed Zaky, E-JUST, Egypt, and Dr. Ahmed Gomaa, E-JUST, Egypt

Order	Paper No.	Authors	Paper Title
1	80	W. Badawy and M. Tawfik	Automatic Underwater Plastics Detection Using YOLOv9
2	50 [Virtual]	O. Abdelaziz and M. Shehata	SkipTrack: Learning Essential Skip Connections for Robust Single Object Tracking
3	31 [Virtual]	W. M. Guo, Y. Du, and M. Shehata	3D2SMILES: Translating Physical Molecular Models into Digital DeepSMILES Notations Using Deep Learning
4	53	A. Almorsi, M. Ahmed, and W. Gomaa	Guided Code Generation with LLMs: A Multi-Agent Framework for Complex Code Tasks
5	73	A. Mashaal, O. Helmy, O. Ashor, A. Mahmoud, and W. Medhat	Evaluation of GPT 4o for mobile applications code conversion
6	60	A. Khaled, M. Mamdouh, R. Mahmoud, E. Hassan, and A. Elashry	Empowering Random Forest to predict operation of Dual axial and fixed tilt PV panel

TECHNICAL SESSION 10

Day 2, December 17, 2024, Time: 17:15-18:45

Selected Topics in Microwave Engineering, Room: 209

Chair: Prof. Abdelhamied Shalan, Zagazig University, Egypt, Prof. Adel B. Abdelrahman, E-JUST, Egypt, and Dr. Ahmed Allam, E-JUST, Egypt

Order	Paper No.	Authors	Paper Title
1	66	P. Odong, W. Moyo, A. H. Abd El-Malek, A. Allam, A. Tanemasa, and A. B. Abdel-Rahman	Resonance Cavity-Based Detection of Micro-Holes in Gas Pipes Using a Metasurface-Integrated Ultrawideband Antenna
2	67	P. Odong, W. Moyo, A. H. Abd El-Malek, A. Allam, A. Tanemasa, and A. B. Abdel-Rahman	Design and Analysis of a Compact Dual-Wideband Rectifier for Energy Harvesting in Low-Power IoT Applications
3	90	A. A. Zakaria, A. Allam, T. Asano, and A. B. Abdel-Rahman	Improved Non-Invasive Blood Glucose Monitoring
4	91	A. A. Zakaria, T. Asano, O. Muta, H. Kanaya, A. Sabry, A. Allam, and A. B. Abdel-Rahman	Effectiveness of Microwave Irradiation for Soil Disinfection: A Study on Sandy Soil
5	92	E. Mansour, M. Shahin, A. Al-Mahmoud, A. Atta, M. I. Ahmed, A. Allam, R. K. Pokharel, and A. B. Abdel-Rahman	A Simulation Study on Non-Invasive Glucose Sensor Based on Four-Concentric Ring Resonator

TECHNICAL SESSION 11

Day 2, December 17, 2024, Time: 17:15-18:45

Selected Topics in Biomedical Engineering,

Room: 210

Chair: Dr. Ahmed H. Abd El-Malek, E-JUST, Egypt, and Dr. Sameh Sherif, E-JUST, Egypt

Order	Paper No.	Authors	Paper Title
1	14	H. S. Abuelmakarem, M. E. Ibrahim, M. A. S. Aly, and S. Mahdy	Preventing Neuron Atrophy using Brain Photobiomodulation Therapy at 810 nm: Prototype and Laser Fluence Rate Simulation
2	26	N. Abdelgawad, R. Abdelbaset, M. Hadhoud, and M. El Wakad	Validation of Ankle Foot Orthosis Designs Using Finite Element Method
3	36	N. Salah, M. Moufaddal, P. Zakaria, A. Allam, and S. Sherif	EEG-Based Brain-Computer Interface (BCI) Controlled Robotic Arm
4	39	M. Moufaddal, N. Salah, P. Zakaria, A. Allam, and S. Sherif	Brain-Computer Interface (BCI) Controlled Virtual Keyboard Using EMOTIV EPOC+ Headset
5	32	N. Elnady, A. Adel, and W. Badawy	Enhancing Dental Caries Detection with YOLOv9: A Comprehensive Analysis and Validation of an Automated Object Detection Model