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**International Conference on
Future Telecommunications
and Artificial Intelligence**
IC-FTAI'2024



CH08903 IEEE EGYPT
AP-S/MTT-S Joint Chapter

December 31, 2024, to January 2, 2025
Alexandria, Egypt



WELCOME

We are grateful to each and every one of you for your attendance today. We are delighted to extend a warm welcome to both our long-standing guests and those who are new to The International Conference on Future Telecommunications and Artificial Intelligence (IC-FTAI'2024), which will take place at the Grand Plaza Hotel in Alexandria, Egypt, from December 31, 2024, to January 2, 2025.

We are honored to have the opportunity to organize and host our conference today at this exceptional location, with the participation of all attendees.

Before we commence, we would like to extend our heartfelt gratitude to all those who generously contributed to the success of this event.

SPECIAL THANKS

Honorary Chair

Hassan M. Elkamchuchi, Faculty of Engineering, Alexandria University

General Chair

Yasser M. Madany, Founder and Chair of the IEEE Egypt AP-S/MTT-S Joint Chapter & FCAI,
Al Ryada University for Science and Technology

Technical Program Co-Chair

Mohamed Fouad, Faculty of Engineering, Zagazig University

Workshops Co-Chair

Sally Elghamrawy, Head of Comm. & Computers Engineering Depart. – Vice Dean of MET

Tutorials Co-Chair

Mervat M. El-Seddek, Head of Communications Engineering Depart., Horus University

Wageda I. Elsobky, Faculty of Engineering, Benha University

Demonstrations and Young Professional Co-Chair

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Publicity Chair

Ahmad Mahmoud Taha, University of Glasgow, UK

Mohamed Fathy Abo Sree, Arab Academy for Science and Technology, AAST

Publication Chair

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Project Poster Chair

Ahmed A. Kabeel, Faculty of Engineering, Delta University for Science and Technology

SPECIAL THANKS

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Ayman Almahallawy, Vice Chair of the IEEE Egypt AP-S/MTT-S Joint Chapter

HONORARY CHAIR



Prof. Dr. Hassan M. A. Elkamchouchi (Life Senior Member, IEEE) is currently a Professor Emeritus of wireless communications, antennas and wave propagation with the Electronics and Electrical Communications Department. He was given the Encouragement State Award in 2002 from the Faculty of Engineering, Alexandria University. He has a demonstrated history of working in antennas and wave propagation, data security in computer and communication networks, cryptography and steganography, electrical and electronic manufacturing industry, and biomedical engineering.

Hassan M.A. Elkamchouchi is a distinguished academic and researcher with a prolific career spanning several decades in the fields of engineering and telecommunications. He has been affiliated with Alexandria University in Egypt since 1996, where he has contributed significantly to the Faculty of Engineering. His expertise also extends to various institutions, including a notable tenure at the Faculty of Engineering in Libya and involvement with IEEE in the United States, reflecting his international collaboration and influence in the engineering community.

Elkamchouchi's research interests primarily focus on advanced antenna design, cryptography, and biometric security frameworks. His recent publications highlight innovative contributions to wireless communications and Internet of Things (IoT) applications, showcasing his commitment to addressing contemporary challenges in technology. Noteworthy works include the development of high-gain pixel patch antenna arrays and novel encryption algorithms aimed at enhancing secure image transmission.

Throughout his career, Elkamchouchi has received sponsorship from esteemed organizations such as the Science and Technology Development Fund and the Academy of Scientific Research and Technology, underscoring his active engagement in research initiatives that push the boundaries of engineering and technology. His work continues to inspire and influence both academic and practical applications in the field.

GENERAL CHAIR



Prof. Dr. Yasser M. Madany, Senior member, IEEE, and URSI Senior Member, is a professor (Ph.D. in Electrical Engineering | ECE) at Faculty of Computers and Artificial Intelligence, Director and CEO of the Excellence, Innovation, and Entrepreneurship Center, ALRyada University for Science and Technology, Egypt. He is member of the Association of Egyptian Engineers (AEE) [since 1994], Institute of Electrical and Electronics Engineers (IEEE) [since 2001], IEEE Antennas and propagation Society (IEEE AP-S) [since 2001], IEEE Microwave theory and Technology (IEEE MTT-S) [since 2002], IEEE Computer Society (IEEE CS), IEEE Computational Intelligence Society (IEEE CIS), European Association on Antennas and Propagation (EurAAP) [since 2014], Asian Advanced Materials Congress (ASAMC) Advisory / Organizing Committee Member [since 2016], Arab Experts Network (AEN) [since 2020], International Union of Radio Science (URSI) [since 2021], The IEEE Consumer Technology Society Technical Member (CTSoc) [since 2021]. IEEE Consultants Network, IEEE Special Interest Group on Humanitarian Technology (IEEE SIGHT), IEEE Nanotechnology Council (IEEE NANO), IEEE Systems Council (IEEE SYS) [since 2022], IEEE Computer Society (IEEE CS) [since 2023] and IEEE Computational Intelligence Society (IEEE CIS) [since 2023]. Dr. Madany is Former Dean of Engineering Education and Assistant Director of the College for Developments and Scientific Research at the Air Defense College (ADC), and currently Founder & Chair of the IEEE Egypt AP-S / MTT-S Joint Chapter, Founder and Counselor of the IEEE Al Ryada University Student Branch (IEEE-RUSB).

Dr. Madany received the B.Sc., M.Sc., and Ph.D. degrees in Electronics and Communications Engineering (ECE), specialization in Antennas and Wave Propagation from Alexandria University, Alexandria, Egypt, in 1994, 2002 and 2005, respectively. He has published more than 90 research papers. He has supervised numerous graduation projects and M.Sc. and Ph.D. postgraduate degrees. He was a technical program committee member in many international conferences, journals. He was an engineering laboratory consultant for many fields. Dr. Madany has served as the Exhibition Manager of the IEI'2024, Competition Manager of the IC-SIT'2024 and IC-ESI'2024 for Intelligence sustainability, Forum General Chair of the IF-FTT'2023, Competition Manager of the IC-SIT'2023, Executive Co-Chair for the ITC-Egypt'2022, Technical Program Chair for the ITC-Egypt'2021, Competition Manager of the ISEIC'2022 and Editor-in-Chief of the IJT journal (Term 2021-2022). Dr. Madany was included in Who's Who in the World, published in 2009, 2011, 2012, 2013, 2015, 2016, 2018 and 2019 editions, respectively, included in Who's Who in Science and Engineering in the 2011-2012 and 2016-2017 editions and included in the 2017, and 2018 Albert Nelson Lifetime Achievement Award from Marquis Who's Who.

ABOUT IC-FTAI'2024

The **IEEE Egypt AP-S/MTT-S Joint Chapter** is organizing the **International Conference on Future Telecommunications and Artificial Intelligence (IC-FTAI'2024)**. The **IEEE AP-S** and **IEEE MTT-S** societies are providing technical support for the conference. The IEEE Egypt Section and IEEE Alexandria Subsection and other IEEE Egypt OUs are technically supporting the IC-FTAI-2024 conference.

The **IC-FTAI'2024 conference** will take place at *the **Grand Plaza Hotel, Alexandria, Egypt***, from **December 31, 2024**, to **January 2, 2025**, offering a hybrid format that allows for both in-person attendance and online participation. In addition to contributed sessions, the conference program will include invited sessions on selected tracks. **The conference committees** expect the technical sessions and invited talks to provide in-depth coverage of the most recent advances in the conference tracks. The conference's scope necessitates that all submitted papers describe original work and undergo a double-blind review process. **IEEE Xplore** will judge papers based on their scope and quality.

The **IC-FTAI'2024 conference** indexed in **IEEE Xplore digital library** content, and IEEE has active partnerships with the following abstracting and indexing (A&I) **providers**:

- Scopus (Elsevier)
- Web of Science (Clarivate Analytics)
- ProQuest
- IET (The Institution of Engineering and Technology)
- NLM (US National Library of Medicine)
- CrossRef

IC-FTAI'2024

LOCATION: Pearl Hall

DATE: December 31, 2024

TIME: 09:00 - 18:10 CLT (GMT+2)

1st DAY AGENDA

I. 09:00 - 11:30 **Registrations Open (Tanzanite Hall)**

II. 11:30 - 11:50 **Introduction and Opening Ceremony**

by **Prof. Yasser M. Madany**, the Founder and Chair of the IEEE Egypt AP-S/MTT-S Joint Chapter, **Chair of the IC-FTAI'2024 Conference**

III. 11:50 - 12:00 **Speech** by **Eng. Tarek El-Nabrawy**, head of the Egyptian Engineers Syndicate, **The Egyptian Engineers Syndicate**

IV. 12:00 - 12:30 **Keynote Speech** "The Future of Education in the Era of Artificial Intelligence" by **Prof. Dr. Reda Hegazy**, Former Minister of Education and Technical Education of Egypt. **President of the Al Ryada University for Science and Technology, Egypt**

V. 12:30 - 12:40 **Refreshments / Coffee Break**

VI. 12:40 - 13:10 **Keynote Speech** "Cloud/Fog Automation: The New Paradigm of Industrial Automation Demands Control-Computing-Communication Co-Design" by **Prof. Zhibo Pang**, KTH Royal Institute of Technology, Sweden, **Senior Principal Scientist, ABB Corporate Research, Sweden**

VII. 13:10 - 13:40 **Keynote Speech** "Using Machine Learning Transformers for Medical Diagnosis and Prognosis" by **Prof. Sabah Mohammed**, Chair of the Department of Computer Science, **Lakehead University, Canada**

VIII. 13:40 - 14:40 **Lunch with Table Discussion (Majestic Hall)**

IX. 14:50 - 16:30 **Oral Session I: Artificial Intelligence and Computer Architecture**

X. 16:30 - 18:10 **Oral Session II: Electromagnetic Field, Devices, and Circuits**

IC-FTAI'2024

LOCATION: Conference Halls

DATE: January 1, 2025

TIME: 09:00 - 18:30 CLT (GMT+2)

2nd DAY AGENDA

I. 09:00 - 10:40 **Oral Session III:** Antennas and Emerging Technologies

II. 10:40 - 11:10 **Keynote Speech** "Towards Connecting the Remaining 3-Billion" by **Prof. Mohamed-Slim Alouini**, King Abdullah University of Science and Technology, KUST, Kingdome of Saudi Arabia

III. **Oral Session IV:** Artificial Intelligence and Computer Architecture

11:10 - 12:50

IV. **Oral Session V:** Computer Systems, Security and Robotics

V. 12:50 - 13:00 **Refreshments / Coffee Break**

VI. 13:00 - 13:30 **Keynote Speech** "Quantum Cybersecurity" by **Prof. Ahmed A. Abd El-Latif**, Prof. at Menoufia University, Egypt, **Prince Sultan University, Saudi Arabia**

VII. **Oral Session VI:** Systems, Applications and Emerging Technologies

13:30 - 15:10

VIII. **Tutorial I:** Design and Implementation of Frequency Estimator Using Filter Bank

IX. 15:10 - 16:10 **Lunch with Table Discussion (Majestic Hall)**

X. 16:20 - 16:50 **Keynote Speech** "Space-Time-Coding Digital Reconfigurable Intelligent Surfaces for Wireless Communications" by **Prof. Saber H. Zainud**, Faculty of Electronic Engineering, **Menoufia University, Egypt**

XI. **Oral Session VII:** Computer Systems, Security and Robotics
Bioinformatics & Computational Biology
Systems, Applications and Emerging Technologies

16:50 - 18:30

XII. **Oral Session VIII:** Electromagnetics and Materials
Computational, Propagation and Scattering

IC-FTAI'2024

LOCATION: Conference Halls

DATE: January 2, 2025

TIME: 09:00 - 16:00 CLT (GMT+2)

3rd DAY AGENDA

I.		Oral Session IX: Communications Engineering, Networking and Technology
	09:00 - 10:40	
II.		Oral Session X: Communications Engineering, Networking and Technology Power Management and Control
III.	10:40 - 11:10	Keynote Speech <i>Beamforming and Localisation with Compact Antennas of Sub-wavelength Size</i> by Prof. Adam Narbudowicz , Tyndall National Institute, Dublin, Ireland, Assoc. Prof. at Wroclaw University of Science and Technology, Wroclaw, Poland
IV.	11:10 - 11:40	Keynote Speech <i>"Sustainable Development and Electric Vehicles"</i> by Dr. Consult. Hassan El-Shoubashy , Head of the Mechatronics Engineering Department, Alexandria Higher Institute of Engineering and Technology, Egypt
V.		Tutorial II: CARLA: An Advanced Platform for Autonomous Vehicle Simulation
	11:40 - 12:50	
VI.		Student Project Posters
VII.	12:50 - 13:00	Refreshments / Coffee Break
VIII.	13:00 - 14:00	Closing Ceremony and Awards by Prof. Yasser M. Madany , the Founder and Chair of the IEEE Egypt AP-S/MTT-S Joint Chapter, Chair of the IC-FTAI'2024 Conference
IX.	14:00 - 15:00	Lunch with Table Discussion (Majestic Hall)
X.	15:00 - 16:00	End of the IC-FTAI'2024 Conference

KEYNOTE SPEAKERS



Prof. Dr. Reda Hegazy holds the position of President of Al Ryada University for Science and Technology in Sadat City. He has held several key positions, starting as Director of the Adult Education Center in Sirs Al-Layyan, Vice President of the General Authority for Adult Literacy, Deputy Director of the Professional Academy for Teachers, then Head of the General Education Sector from 2015 to 2019, and held the position of Head of the General Secondary Examinations for a period of 3 years, Deputy Minister of Education and Technical Education for Teachers' Affairs, Minister of Education and Technical Education.

Reda Hegazy contributed to a real breakthrough in managing the file of the General Secondary Examinations, as he was one of the members of the committee that took over the development of the booklet system after the events of the General Secondary School Leaks in 2016, which achieved a breakthrough in exams, prevented leaks, and reduced electronic cheating.

Reda Hegazy is a research professor in the Training and Media Department at the National Center for Examinations and Educational Evaluation. He holds a PhD in Curriculum Management and Teaching Methods from Mansoura University. He worked as a preparatory science teacher at the Dakahlia Education and Generalization Directorate, then as a secondary chemistry teacher at the Dakahlia Education Directorate, an assistant teacher at the National Center for Examinations and Educational Evaluation, and a teacher at the National Center for Examinations and Educational Evaluation. Reda Hegazy held several leadership positions, most notably Head of the General Education Sector at the Ministry of Education and Technical Education from November 2, 2015, Deputy Director of the Professional Academy for Teachers, Deputy Head of the General Authority for Literacy and Adult Education, Director of the Regional Center for Adult Education in Sirs El-Layyan until 2012, Head of the Planning Unit in the Training and Media Department at the National Examinations Center, and Head of the Training Materials Production Unit in the Training and Media Department at the National Examinations Center, in addition to other educational and scientific positions in various fields. He also wrote many educational scientific theses in Egyptian universities.

KEYNOTE SPEAKERS



Prof. Dr. Mohamed-Slim Alouini was born in Tunis, Tunisia. He received the Ph.D. degree in Electrical Engineering from the California Institute of Technology (Caltech) in 1998. He served as a faculty member at the University of Minnesota then in the Texas A&M University at Qatar before joining in 2009 the King Abdullah University of Science and Technology (KAUST) where he is now the Al-Khawarizmi Distinguished Professor of Electrical and Computer Engineering and Holder of the UNESCO Chair on Education to Connect the Unconnected.

Prof. Alouini is a Fellow of the IEEE and OPTICA (Formerly the Optical Society of America (OSA)). He is currently particularly interested in addressing the technical challenges associated with the uneven distribution, access to, and use of information and communication technologies in rural, low-income, disaster, and/or hard-to-reach areas. Throughout his 30-year academic career has developed analytical and simulation tools for evaluating the performance of radio-frequency and optical wireless communication systems. He has also designed and optimized innovative technologies for emerging wireless networks.

Professor Alouini, a co-founder of KAUST's ECE program, inspires future engineers through his pioneering work in wireless communications. His integrated space-air-ground networks, spectrum sharing schemes, and optical wireless communication systems research shape connectivity's future and embody KAUST's scientific excellence and global impact.

Professor Alouini has published numerous conference and journal papers and co-authored the textbook *Digital Communication over Fading Channels*, published by Wiley Interscience. A former editor of *IEEE Transactions on Communications* and *IEEE Transactions on Wireless Communication*, he also served as an editor for *IEEE Transactions on Mobile Computing* and the *Wireless Communications and Mobile Computing* journal. He was also a series editor for the *IEEE Communication Magazine's Optical Communications and Networks Special Series* and the founding field chief editor for the *Frontiers in Communications and Networks* journal. He is now an editor for the *IEEE Transactions on Aerospace and Electronics Systems* (since 2022).

KEYNOTE SPEAKERS



Prof. Dr. Zhibo Pang, MBA & PhD, is currently a Senior Principal Scientist at ABB Corporate Research Sweden and Adjunct Professor at KTH Royal Institute of Technology. He is a Member of IEEE IES Industry Activities Committee, Steering Committee Member of IEEE IoT Technical Community, Vice-Chair of IEEE TC on Cloud and Wireless Systems for Industrial Applications, and Co-Chair of IEEE TC on Industrial Informatics. He is Associate Editor of IEEE TII, IEEE JBHI, IEEE TCE, IEEE TSUSC, IEEE JESTIE, and IEEE IoTM.

Dr. Zhibo was awarded “Inventor of the Year Award” by ABB Corporate Research Sweden, three times in 2016, 2018, and 2021 respectively. He works on embodied intelligence, robotics, control, computing, communication, and electronics for Industry 4.0 and Healthcare 4.0. He has many productized research results and 22 granted patents in US, Europe, or Japan.

Dr. Zhibo is a passionate innovator and research leader in digital transformation of industry with 20+ years of experiences at universities, large company, and start-ups. Spanning the entire innovation cycle, I have been playing the roles of visionary leader, concept creator, resource investigator, cross-organizational coordinator, technical mentor, hardcore coder, product manager, and customer communicator. I work on enabling technologies in robotics, artificial intelligence, control, computing, communication, and electronics for Industry 4.0 and Healthcare 4.0.

KEYNOTE SPEAKERS



Prof. Dr. Sabah Mohammed is full Professor at the department of Computer Science at Lakehead University (Ontario Canada) since 2002. He is currently the Chair of the department. He is also a Professional Engineer of Ontario (PEng), Information Processing Professional with CIPS and Senior Member of IEEE. Dr. Sabah Mohammed research interest is in intelligent systems that have to operate in large, nondeterministic, cooperative, highly connected, survivable, adaptive or partially known domains.

His continuous research is inspired by his PhD work back in 1981 from Brunel University (UK) on the employment of the Brain Activity Structures for decision making (planning and learning) that enable processes (e.g. agents, mobile objects) and collaborative processes to act intelligently in their environments to timely achieve the required goals. Having trained in medicine with a computer science PhD in Artificial Intelligence (AI), his research is focused on Smart, Translational, Generative and Connected Health. Prior to his work at Lakehead University, Dr. Mohammed was the chair of three computer science departments at HCT, Philadelphia and Applied Science University. He is the founder and Editor-In-Chief of two journals (Emerging Technology of Web Intelligence (JETWI)-2008-2012 and the International Journal of Extreme Automation and Connectivity in Healthcare (IJEACH)-2018-2021). Currently he is the chair of the special interest research group on Smart and Connected Health with the IEEE ComSoc eHealth TC. Dr. Mohammed active research on connected healthcare through translational medicine is funded by both NSERC and MITACS.

KEYNOTE SPEAKERS



Prof. Dr. Ahmed A. Abd El-Latif, SMIEEE, graduated with distinction from the Harbin Institute of Technology, China, in 2013, earning a Ph.D. Since then, he has led and participated in several successful research projects and secured grants in Egypt, the Russian Federation, Saudi Arabia, China, Malaysia, and Tunisia. Currently, Dr. Abd El-Latif holds staff positions at Menoufia University, Egypt, and Prince Sultan University, Saudi Arabia. With over 18 years of professional experience, he has published over 320 papers in journals and conference proceedings, including 18 books, with over 12400 citations.

Since 2022, he has served as Head of the MEGANET 6G Lab Research in the Russian Federation. Dr. Abd El-Latif holds several leadership positions, including Vice Chair of the EIAS Research Lab, Founder and Deputy Director of the Center of Excellence in Quantum & Intelligent Computing (Prince Sultan University, Saudi Arabia). He has received several awards, including the State Encouragement Award in Engineering Sciences from the Arab Republic of Egypt in 2016, the Best Ph.D. Student Award from the Harbin Institute of Technology, China, in 2013, and the Young Scientist Award from Menoufia University, Egypt, in 2014.

Dr. Abd El-Latif actively participates in the scientific community, serving as Chair/Co-Chair of several Scopus/EI conferences. He also holds editorial positions, including Editor-in-Chief of the International Journal of Information Security and Privacy, Series Editor of Quantum Information Processing and Computing, and Series Editor of Advances in Cybersecurity Management. Additionally, he serves as an academic editor or associate editor for many indexed journals in the Web of Science (WoS) and Scopus, covering various quartiles. Dr. Abd El-Latif's research interests span quantum communications and cryptography, cybersecurity, artificial intelligence of things (AIoT), AI-based image processing, information hiding, and applications of dynamical systems (discrete-time models: chaotic systems and quantum walks) in cybersecurity.

KEYNOTE SPEAKERS



Prof. Dr. Adam Narbudowicz is a Senior Scientist with Wireless Communications Laboratory, Tyndall National Institute, Dublin, Ireland and also an Associate Professor at Wroclaw University of Science and Technology, Wroclaw, Poland. He received his MSc in 2008 from Gdansk University of Technology, Gdansk, Poland and PhD in 2013 from Dublin Institute of Technology, Ireland (now TU Dublin). He was also a Post-Doctoral Fellow (twice) of Marie Skłodowska-Curie Action co-funded projects, including two-year research stay at RWTH Aachen University, Aachen, Germany.

Dr. Adam has co-authored some 100 scientific publications in journals and peer-reviewed conference proceedings. Among various distinctions, he was awarded IEEE AP-S Young Professional Ambassadors in 2023, the Scholarship for the Outstanding Young Polish Scientists in 2019 and the Inaugural Prof. Tom Brazil CONNECT Excellence in Research Award in 2018. His research interests include antenna miniaturisation and electrically small antennas, machine learning for remote sensing and sustainable antenna technology.

His research interests include wireless physical-layer security, remote sensing, electrically small antennas, and microwave circuitry for full-duplex radios. He was a recipient of the 2012 DIT Inventor Competition Award for the Best Postgraduate and Staff Invention and the Best Paper Award (Third Prize) at the 2017 International Symposium on Antennas and Propagation.

KEYNOTE SPEAKERS



Prof. Dr. Saber Helmy Zainud-Deen received the B.Sc. (Hons.), M.Sc., and Ph.D. degrees from Menoufia University, Menoufia, Egypt, in 1978, 1982 and 1988, respectively.

Since 1988, he has been a teaching staff member with the Department of Electronics and Electrical Communications, Faculty of Electronic Engineering, Menoufia University. He is a coauthor of about 300 papers in international conference proceedings and journals, and twelve textbooks. His current research interests include reconfigurable intelligent surfaces, Frequency diverse array, holographic surfaces, time modulated arrays, reflectarray and transmitarray, RFID, finite-difference frequency-domain, landmine detection, breast cancer detection, fractal antenna arrays, and applications of microwave vortex beams.



Dr. Hassan Ahmed Rashad El-Shoubashy is an Assistant Professor in the Mechatronics Engineering Department at Alexandria Higher Institute of Engineering & Technology (AIET). He also lectures at the Air Defense College and is a Consultant Engineer in Mechanical Engineering. Dr. El-Shoubashy holds a Ph.D. and M.Sc. in Mechanical Power Engineering from Menoufia University, and a diploma in Combustion and Combustion Engines from Alexandria University.

He has published several papers on topics like gas burners, natural gas treatment, methane generation, and renewable energy. His recent publications include investigations into smart farms powered by solar energy and the impact of ergonomics on productivity. Dr. El-Shoubashy teaches various subjects such as Thermodynamics, Fluid Mechanics, Heat Transfer, and Machine Design. Moreover, his research interests span combustion, internal combustion engines, heat transfer, renewable energy, and green hydrogen generation.

Dr. El-Shoubashy has also completed numerous training courses, including a TOEFL certification, and is proficient in Microsoft Office. He is involved in multiple international conferences and is committed to advancing sustainable energy technologies. His work emphasizes the integration of innovative technologies like electric cars and renewable energy systems in the mechanical engineering field.

IC-FTAI'2024

LOCATION: Pearl Hall

DATE: December 31, 2024

TIME: 14:50 - 16:30 CLT (GMT+2)

Oral Session I: **Artificial Intelligence and Computer Architecture**

Chairs: Prof. Dr. Moawad Ibrahim Dessouki

Prof. Dr. Abdelhamid A. Shaalan

- I. **14:50 - 15:10** **Multimodal Machine Learning for Evidence Base Medicine**
Jinan Fiaidhi and Sabah Mohammed

- II. **15:10 - 15:30** **A Deep Learning Framework Based on Novel Hierarchical-LSTM Model for Enhanced Machinery Prognostics**
Ahmed Ayman, Omneya Attallah, Ahmed Onsy, Hadley Brooks, and Iman Morsi

- III. **15:30 - 15:50** **Hybrid Iris Recognition: Leveraging HOG Features and Dense Networks for Enhanced Biometric Accuracy**
Esraa Tarek, Shawkat Guirguis, and Magda Madbouly

- IV. **15:50 - 16:10** **The Efficiency of Medical Diagnostic Robots in The Light of Legal Liability**
Yara H. El-Gendy and Mohammed K. Hassan

- V. **16:10 - 16:30** **Early Lung Cancer Detection with a Fusion of InceptionV3 and Vision Transformers: A Binary Classification Study**
Marwa El-geneedy, Abdelrahman T. Elgohr, Mohamed S. Elhadidy, and Shimaa Akram

IC-FTAI'2024

LOCATION: Pearl Hall

DATE: December 31, 2024

TIME: 16:30 - 18:00 CLT (GMT+2)

Oral Session II: **Electromagnetic Field, Devices, and Circuits**

Chairs: Prof. Dr. Saber H. Zainud-Deen

Prof. Dr. Mohamed Fouad

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- I. **16:30 - 16:50** **A Compact Design of Phased Array Antenna with Folded Dipole Radiators for THz Communications and 6G Networks**
N. O. Parchin, A. S. I. Amar, Y. M. Madany, and M. Shen
-
- II. **16:50 - 17:10** **Monopole Antenna Design with Dual Notch Bands and Ultra-Wideband properties for Wireless Communications**
A. S. I. Amar, N. O. Parchin, M. Boumalkha, and Y. M. Madany
-
- III. **17:10 - 17:30** **Low-Profile/Dual-Band Planar Phased Array Patch Antenna for THz Communications**
H. J. Basherlou, N. O. Parchin, C. H. See, A. S. I. Amar, Y. M. Madany, and M. Shen
-
- IV. **17:30 - 17:50** **A New Design of MIMO Smartphone Antenna Array for 3.6 GHz Cellular Applications**
A. S. I. Amar, N. O. Parchin, H. J. Basherlou, M. Boumalkha, and Y. M. Madany
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- V. **17:50 - 18:10** **Digital Frequency Meter with Automatic Range Switching Using FPGA Technology**
Youssef Raouf, Zoubida Benmamoun, Hanaa Hachimi, and Ikhlef Jebbor
-

IC-FTAI'2024

LOCATION: Pearl Hall

DATE: January 1, 2025

TIME: 09:00 - 10:40 CLT (GMT+2)

Oral Session III: **Antennas and Emerging Technologies**

Chairs: Prof. Dr. Abdelhamid A. Shaalan
Prof. Dr. Saber H. Zainud-Deen

-
- I. **09:00 - 09:20** **CPW-Fed Monopole Antenna Design with Extended Operation Ultra-Wideband Band for Breast Cancer Detection**
Shaza M. EL-Nahass, Sherif K. EL-Diasty, Ahmed S. I. Amar, and Mohamed A. Aboul-Dahab
-
- II. **09:20 - 09:40** **Comprehensive Study of Fractal Antenna Performance Characteristics through SRR Superstrate Integration for Next-Generation Wireless Communication Systems**
Rayan Hamza Alsisi and Arshad Karimbu Vallappil
-
- III. **09:40 - 10:00** **Time-Modulated of Fractal Sierpinski Carpet Array with Reduced Sidelobe levels**
Anas S. Zainud-Deen, Saber H. Zainud-Deen, Hend A. Malhat, Mona M. Badawy, Hadeer El-Hemaily, and Shaymaa. M. Gaber
-
- IV. **10:00 - 10:20** **A Double-Fed Slot Antenna with WLAN Band Filtering and Polarization Diversity for UWB Systems**
Naser Ojaroudi Parchin, Ahmed S. I. Amar, Yasser M. Madany, and Ming Shen
-
- V. **10:20 - 10:40** **A Broadband MIMO Antenna Array with Low-Profile Slit Resonators for Sub-6-GHz 5G Mobile Communications**
Naser Ojaroudi Parchin, Ahmed S. I. Amar, Yasser M. Madany, and Ming Shen
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IC-FTAI'2024

LOCATION: Tanzanite Hall

DATE: January 1, 2025

TIME: 11:10 - 12:50 CLT (GMT+2)

Oral Session IV: **Artificial Intelligence and Computer Architecture**

Chairs: Prof. Dr. Mohamed Fouad
Prof. Dr. Mohammed Al Amir Atalla

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- I. **11:10 - 11:30** **Comparative Evaluation of Neural Network Models for Optimal Computational Offloading in MEC**
Zara Shahid, Zaiwar Ali, Nazia Shahzadi, Ziaul Haq Abbas, Ghulam Abbas, and Haris Khan
-
- II. **11:30 - 11:50** **Lung Cancer Detection: The Role of Transfer Learning in Medical Imaging**
Noor S. Jozi and Ghaida A. Al-Suhail
-
- III. **11:50 - 12:10** **A Novel Approach to Speech Emotion Recognition Using Wav2Vec2**
Alaa A. Khalifa, Khaled O Abdulghani, Rowayda A. Sadek, and Marwa M.A. Elfattah
-
- IV. **12:10 - 12:30** **An Approach Using Deep Neural Networks for the Binary Classification of Mild Cognitive Impairment in Alzheimer's Disease: Early and Late Stages**
Marwa Elgeneedy, Shimaa Akram, and Samah A. Gamel
-
- V. **12:30 - 12:50** **Optimizing Medical Image Classification: Leveraging Advanced Segmentation Models for Enhanced Object Detection in Real-World Scenarios**
Nora Elrashidy, Alaa Hussien, Nourhan Mohamed Elsabawy, Mai Saeed Menisy, Alaa Ebraheem Elnakeeb, and Abdelkareem Elkhateb
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IC-FTAI'2024

LOCATION: Pearl Hall

DATE: January 1, 2025

TIME: 11:10 - 12:50 CLT (GMT+2)

Oral Session V: **Computer Systems, Security and Robotics**

Chairs: Prof. Dr. Wageeh El Askary
Prof. Dr. Hassan El-Shoubashy

-
- I. **11:10 - 11:30** **Reconfigurable Soft Robot Based on Fluidic Elastomer Actuators**
Nadin A. Geies, Omar A. Altwahy, Ahmed H. Abbas, and Omar Salah
-
- II. **11:30 - 11:50** **Enhance AES S-Box with Tinker-bell Chaotic Map**
Amira S. El Batouty, Marwa Samara, and Mohamed E. ELBouridy
-
- III. **11:50 - 12:10** **Orange Disease Detection Using Pretrained ResNet50 and LIME for Explainable AI**
Wael Badawy and Mohamed Tawfik
-
- IV. **12:10 - 12:30** **6G-Enabled IoT Networks Cyber Threat Prevention Using Generative AI**
Wael Badawy
-
- V. **12:30 - 12:50** **A Miniature Radar for Critical Mission Application**
Mohamed Assem, Farah Abdelmoneim, Alaa T.El-maria, Sama Tarek, and Wael Badawy
-

IC-FTAI'2024

LOCATION: Pearl Hall

DATE: January 1, 2025

TIME: 13:30 - 15:10 CLT (GMT+2)

Oral Session VI: **Systems, Applications and Emerging Technologies**

Chairs: Prof. Dr. Moawad Ibrahim Dessouki
Prof. Dr. Mohamed E. Nasr

-
- I. **13:30 - 13:50** **Analysis and Mitigation of Phase Noise Effects in Linear Frequency Modulated Radar Systems**
Amgad A. Salama, Samy H. Darwish and Hayman El-Sayed Hassan
-
- II. **13:50 - 14:10** **Comparative Study of Heart Disease Classification Based on Traditional and Ensemble Models**
Samah Mohamed and M. Saeed Darweesh
-
- III. **14:10 - 14:30** **Smart IoT-based Shared Bike System**
Sara Said Mahmoud, Habiba Walid Samy, Ibrahim Raafat Mostafa, Salma Zakzouk, Bishoy Wasfey, and M. Saeed Darweesh
-
- IV. **14:30 - 14:50** **Intelligent Smart Home System: Secure Solution for Enhanced Efficiency and Comfort**
Mohaned Raafat Asker, Hana Mohammed Nassef, Amro Hussam Elshenawy, Sara Abdelnasser Ahmed, Salma Zakzouk, and M. Saeed Darweesh
-
- V. **14:50 - 15:10** **Lane Detection Using Computer Vision Techniques in ADAS Systems**
Youssef A. Mahmoud, Abdelrahman B. Badran, Mohamed K. Mohamed, Yahya A. Zitoon, and Amgad A. Salama
-

IC-FTAI'2024

LOCATION: Tanzanite Hall

DATE: January 1, 2025

TIME: 13:30 - 15:10 CLT (GMT+2)

Tutorial I: Design and Implementation of Frequency Estimator Using Filter Bank

Chairs: Prof. Dr. Saber H. Zainud-Deen
Prof. Dr. Fathi A. Farag

- I. **13:30 - 15:10** **Design and Implementation of Frequency Estimator Using Filter Bank**
Amgad A. Salma and Abdalmaged Radwan
-

IC-FTAI'2024

LOCATION: Pearl Hall

DATE: January 1, 2025

TIME: 16:50 - 18:30 CLT (GMT+2)

Oral Session VII: **Computer Systems, Security and Robotics Bioinformatics & Computational Biology Systems, Applications and Emerging Technologies**

Chairs: Prof. Dr. Mohamed E. Nasr
Prof. Dr. Mohammed Al Amir Atalla

-
- I. **16:50 - 17:10** **Enhancing Dental Caries Detection with YOLOv9: A Comprehensive Analysis and Validation of an Automated Object Detection Model**
Norhan Elnady, Aya Adel, and Wael Badawy
-
- II. **17:10 - 17:30** **Hybrid Approach Using LSTM Neural Networks and Whale Optimization Algorithm for Enhancing Depression Diagnosis**
Alwan Atta, Dina El Sayad, Doaa Ezzat, Safaa Amin, and Mahmoud El Gamal
-
- III. **17:30 - 17:50** **Low Cost High Accuracy Moving Target Detection Filter Bank**
Amgad A. Salama, Abdalmaged M. Radwan, A. A. Shaalan and Nirmin M. Abdelwahab
-
- IV. **17:50 - 18:10** **MIMO Smartphone Antenna with Compact Hook-Shaped Monopole Elements for 5G Handheld Devices**
Babak Ojaroudi Parchin, Mohamed Boumalkha, Yasser M. Madany, Naser Ojaroudi Parchin, and Ahmed S. I. Amar
-
- V. **18:10 - 18:30** **Structure for QCA-based Optimal Demultiplexer Circuit**
Vijay Kumar Sharma
-

IC-FTAI'2024

LOCATION: Tanzanite Hall

DATE: January 1, 2025

TIME: 16:50 - 18:30 CLT (GMT+2)

Oral Session VIII: **Electromagnetics and Materials, Computational, Propagation and Scattering**

Chairs: Prof. Dr. Abdelhamid A. Shaalan
Prof. Dr. Mohamed Fouad

-
- I. 16:50 - 17:10 **Microstrip-Fed Monopole Antenna with Dual Notch Bands and Ultra-Wideband Features**
Naser Ojaroudi Parchin, Ahmed S. I. Amar, Yasser M. Madany, and Ming Shen
-
- II. 17:10 - 17:30 **Beam-Steerable Antenna Array with Broadband and Compact Resonators for MM-Wave Communications**
Naser Ojaroudi Parchin, Ahmed S. I. Amar, Yasser M. Madany, and Ming Shen
-
- III. 17:30 - 17:50 **Enhanced Multiple-Object Tracking in Video Using Hierarchical Kernel-Based Localization and Directional Histograms**
Sajjad Ojaroudi Parchin, Ahmed S. I. Amar, Naser Ojaroudi Parchin, and Yasser M. Madany
-
- IV. 17:50 - 18:10 **Dual-Band MIMO Antenna with S-Shaped Monopole Resonators for 2.5/3.5 THz 6G Communications**
H. J. Basherlou, N. O. Parchin, L. Manjakkal, C. H. See, A. S. I. Amar, Y. M. Madany, and M. Shen
-
- V. 18:10 - 18:30 **A Compact Design of High-Gain Phased Array Antenna for THz and 6G Communication Networks**
H. J. Basherlou, N. O. Parchin, L. Manjakkal, C. H. See, A. S. I. Amar, Y. M. Madany, and M. Shen
-

IC-FTAI'2024

LOCATION: Pearl Hall

DATE: January 2, 2025

TIME: 09:00 - 10:40 CLT (GMT+2)

Oral Session IX: **Communications Engineering, Networking and Technology**

Chairs: Prof. Dr. Mohamed E. Nasr
Prof. Dr. Moawad Ibrahim Dessouki

- I. **09:00 - 09:20** **Effect of Adopting Indoor Positioning on Wi-Fi System Performance**
Samar Ayman, Ihab A. Ali, and Samy El-Hennawy

- II. **09:20 - 09:40** **Relay Satellites for High Throughput Transmission in Earth Observation Missions**
Ahmed Alhashemi, Ramy Samy, Ahmed T. Hafez, and Ibrahim Sh. Sanad

- III. **09:40 - 10:00** **Dynamic Channel Reservation in Cognitive Radio Networks Using AI Driven SDN Approach**
Mai M. Abdelgalel, Hassan Nadir Kheirallah, and Mohamed R. M. Rizk

- IV. **10:00 - 10:20** **Performance Analysis of LCMV Beamforming for GNSS Anti-Spoofing in Multiple Interference Scenarios**
Amgad A. Salama, Walid M. Saad and Mohamed Mabrouk

- V. **10:20 - 10:40** **Resource Allocation in Cognitive Radio Networks: A Comprehensive Review**
Akram M. A. Khalifa and Roshdy A. Abdelrassoul

Oral Session X: **Communications Engineering, Networking and Technology Power Management and Control**

Chairs: Prof. Dr. Fathi A. Farag
Prof. Ahmed Abdallah Mohamed

-
- I. **09:00 - 09:20** **Speed Sign Detection Using Computer Vision Techniques in ADAS Systems**
Youssef A. Mahmoud, Abdelrahman B. Badran, Mohamed K. Mohamed, Yahya A. Zitoon, and Amgad A. Salama
-
- II. **09:20 - 09:40** **Performance Analysis of Rectangular Microstrip Patch Antenna on Varied Substrates for RF Energy Harvesting Systems**
Hams Hany, Heba Abdelatty, Rania Abdallah, and Ahmed Kabeel
-
- III. **09:40 - 10:00** **Enhanced Binary Chimp Optimization for Multiple Topology Error Detection and Identification in Power Systems**
Ahmed A. Hossam-Eldin, Emtethal N. Abdallah, Amr Nasr A.E. Gaber, and Ahmed H. Kassem
-
- IV. **10:00 - 10:20** **Microstrip-Fed Monopole Antenna with Dual Notch Bands and Ultra-Wideband Characteristics for Wireless Communications**
Babak Ojaroudi Parchin, Mohamed Boumalkha, Yasser M. Madany, Naser Ojaroudi Parchin, and Ahmed S. I. Amar
-
- V. **10:20 - 10:40** **A Compact Phased Array with Bow-Tie Resonators for Terahertz and 6G Wireless Communications**
Naser Ojaroudi Parchin, Ahmed S. I. Amar, Yasser M. Madany, and Ming Shen
-

IC-FTAI'2024

LOCATION: Pearl Hall

DATE: January 2, 2025

TIME: 11:40 - 12:50 CLT (GMT+2)

Tutorial II: **CARLA: An Advanced Platform for Autonomous Vehicle Simulation**

Chairs: Prof. Dr. Mohamed Fouad
Prof. Dr. Mohammed Al Amir Atalla

- I. **11:40 - 12:50** **CARLA: An Advanced Platform for Autonomous Vehicle Simulation**
*Youssef A. Mahmoud, Abdelrahman B. Badran, Mohamed Kamel,
Yahya A. Zitoon and Amgad A. Salama*
-

IC-FTAI'2024

LOCATION: Tanzanite Hall

DATE: January 2, 2025

TIME: 11:40 - 12:50 CLT (GMT+2)

Student Project Posters

Chairs: Dr. Ahmed Abdelnaby Kabeel
Dr. Nagla Elgazar

I. **Cell Damage Disease Revolution Device (CDDRC)**

Shams Mohammed Farouk, Faculty of Science, Alexandria University

II. **Design and Fabricate Lower Limb Exoskeleton**

Aalaa Abd El Nasser Ali, Delta Technological University

III. **Artificial Intelligent Based- Real Time Monitoring System in Medical Manufacturing**

Ahmed Mosaad, Ahmed Alaa, Mohamed Wael, Youssef Fathy, Ahmed Anas, Ahmed Nagy, Mahmoud Reda, Mahmoud Reda, Wael Mohamed, Youssef Khaled, Misr Higher Institute of Engineering & Technology (MET)

IV. **AI Robot Arm & Special Flex Sensor Controller**

Mahmoud Shawki, Youssef Ahmed, Youssef Mohamed, Mohamed Osama, Omar Abdelfatah, Ahmed Hussien, Alhasan Ayman, Hamed Abdelaziz, Obour Higher Institute for Engineering and Technology (OHI)

V. **Agri Guru App**

Ahmed Tarek Elframawy, Delta College International School, Menoufia

VI. **Khedr**

Youssef Ashraf, Qena STEM School

IC-FTAI'2024

LOCATION: Tanzanite Hall

DATE: January 2, 2025

TIME: 11:40 - 12:50 CLT (GMT+2)

Student Project Posters

Chairs: Dr. Ahmed Abdelnaby Kabeel
Dr. Nagla Elgazar

VII. Eye Spy

*Malak Ahmed Shawky Ebaid, Nour Ahmed Nabawy Elmasah, **Menoufia STEM School***

VIII. Polio Cure

*Sedra Saeed, Basem Mohamed, Tasneem Walid, Shahd Mohamed, Ashmawy Elsayed, **Qena STEM school***

IX. AuraTrack

*Mona Gamal, Malak Ibrahim, **Menoufia STEM School***

X. FlameEye

*Remas Ahmed, Sandy Sedhom, Mariam Mohamed, **Menoufia STEM School***

XI. Vision Aid

*Abdulrahman Yasser, Habiba Ahmed, Safwa Abdulgawad, Sondos Ahmed, Sara Beshoy, Sama Ehab, Salma Yahia, Yousef Mohamed, **Qena STEM School***

XII. A Novel Language-Agnostic Speech-Based Classifier for Early Dementia Detection

*Eyad Ahmed, Omar Beshir, **Obour STEM School***

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