

Maj. General Dr. Ahmed Salem

Tel: +2010 666 23 004 / +2011 282 08 194 | Fax: 03-4272880

E-mail: ahmed.salem@dmu.edu.eg / dr.ahmed.salem.5355.adc@alexu.edu.eg

Google Scholar: <https://shorturl.at/M4ARy>

LinkedIn: <https://shorturl.at/aLrpe>

Lecturer in the Department of Communications and Electronics Engineering, Faculty of Engineering, Damanhur University, with concurrent leadership roles as Director of the Quality Assurance Unit and Director of the Scientific and Engineering Innovations Unit. Responsible for teaching, academic supervision, quality enhancement initiatives, and fostering scientific and engineering innovation within the faculty. Previously served at the Egyptian Military Academy – Air Defense College (ADC) from 1994 to January 2021, including the role of Assistant Director for Educational Affairs. Currently serving as a part-time instructor at the Egyptian Military Academy, contributing to teaching and academic development in engineering and military education programs.

Education:

Doctor of Philosophy (Ph.D.), Electrical Engineering Department (EED), Alexandria University (AU), Egypt, 2006.

- Applied modern radar and antenna design techniques, including Constant False Alarm Rate (CFAR) with adaptive thresholding, frequency agility, Digital Moving Target Indication (DMTI), and Sensitive Moving Target Detection (MTD) processing. Experienced in pulse compression techniques, monitoring and fault detection circuits, phased-array antenna design for radar and communication systems, and electronic beam scanning technologies.

Master of Science (M.Sc.), EED, AU, Egypt, 2001.

- Applied advanced numerical techniques in electromagnetic and engineering analysis, including the Method of Moments (MoM), Finite-Difference Time-Domain (FDTD), Spectral Domain Methods, and the Transmission Line Matrix (TLM) method.

Bachelor of Science (B.Sc.), EED, AU, Egypt, 1993.

- Grade: Distinction with Honor – Rank: 1st in a class

Work Experience:

Lecturer & Director of Quality Assurance & Director of Scientific & Engineering Innovations

Faculty of Engineering, Damanhur University | 2022–Present

- Directs the Quality Assurance Unit, driving academic accreditation compliance and auditing course curricula.
- Oversees the Scientific & Engineering Innovations Unit, fostering applied engineering research and technology initiatives.
- Instructs undergraduate courses in the Communications and Electronics Electrical Engineering Department.

Lecturer (Part-Time)

Military Technological College, Cairo | 2026–Present

- Delivers advanced technical lectures and academic instruction in electrical engineering disciplines.

Lecturer (Part-Time)

Electrical Engineering Department, Egyptian Military Academy - ADC | 2021–Present

- Provides ongoing specialized instruction and subject matter expertise to engineering students on a part-time basis.

Lecturer

Electrical Engineering Department, Arab Academy for Science and Technology (AASTMT) | 2007–2023

- Educated undergraduate students in core electrical engineering concepts, managing curriculum delivery across academic semesters.

Lecturer

Institute of Graduate Studies and Environmental Research, Damanhur University | 2021–2022

- Conducted postgraduate-level lecturing and research advisement within specialized environmental and technical frameworks.

Head of Engineering Courses Development

Air Defense College (ADC) | 2020–2021

- Spearheaded the overhaul and modernization of engineering curricula to align with emerging defense and technological standards.

Chief of Engineering Sciences Branch

Air Defense College (ADC) | 2017–2020

- Commanded the engineering sciences division, leading academic administration, resource allocation, and faculty performance.

Lecturer

Electrical Engineering Department, Egyptian Military Academy - ADC | 2006–2020

- Instructed full-time courses in electrical engineering, developing academic materials and leading student assessments.

Deputy of Engineering Sciences Branch

Air Defense College (ADC) | 2016–2017

- Managed daily administrative and operational workflows of the department, supporting the Chief in strategic planning.

Lecturer

Electronics and Communications Engineering Department, Alexandria Higher Institute of Engineering and Technology (AIET) | 2006–2017

- Taught foundational and advanced electronics and communication courses, mentoring students through technical coursework.

Chief of Radar Branch

Egyptian Military Academy - ADC | 2010–2015

- Led the radar instruction division, overseeing specialized technical training, system analysis, and curriculum delivery.

Head of Engineering Education Department

Planning Branch, Egyptian Military Academy | 2003–2009

- Formulated strategic educational plans, scheduled resource allocation, and optimized academic delivery systems.

Instructor

Communication Department, Egyptian Military Academy - ADC / Faculty of Engineering, Alexandria University | 2000–2005

- Delivered tailored technical instruction and laboratory training across both military and public academic institutions.

Supervisor of Engineering Laboratories

Electrical Engineering Department, Egyptian Military Academy - ADC | 1994–1999

- Managed laboratory operations, directing the ongoing maintenance, troubleshooting, and repair of technical engineering equipment.

Software Skills:

- **Simulation & Engineering Analysis:** MATLAB (including Simulink), Mathcad
- **Electromagnetics & Antenna Design:** HFSS Antenna Solver, NEC (Numerical Electromagnetic Code) Antenna Solver
- **Circuit Design & Hardware Simulation:** Proteus, Multisim 14, Virtual Breadboard, Circuit Construction Kit (AC/DC)
- **Embedded Systems & Programming:** Arduino Programming, Code::Blocks (C/C++)
- **Productivity Applications:** Microsoft Office Suite (Advanced Excel, PowerPoint)

Courses:

- Alexandria University Community Development Center, 2015 – 2016
 - Crisis and disaster management.
 - Research team management.
 - Communication skills in Education.
 - Decision making and problem solving.
 - Student evaluation and examination techniques.
 - Using modern teaching techniques.
 - The ideal and effective teaching methods of mechatronics engineering courses.
- Higher Institute of Research, Alexandria University, 2001
 - Pollution course
- Supreme Council of Universities, FLDC Damanhour University and National Authority for Quality Assurance and Accreditation (NAQAA) 2025 – 2026
 - Managing a Research Team Competitive.
 - Scientific Writing & International Academic Publication
 - Effective Leadership and Decision –Making Skills.
 - Using Global Databases (Arab and Foreign)
 - Fundamental of Digital Transformation Certificate
 - Strategic Planning

Medals and Rewards

- Medal of Long Service and Good Example from Chairman of the Supreme Council of the Armed Forces of the Arab Republic of Egypt
- Medal of military duty, first class from the president of the Arab Republic of Egypt in recognition to duties during service, in recognition of performing duty with honesty and sincerity in the Armed Forces until promoting to major General (Dr.)
- Medal of Excellent Service from the president of the Arab Republic of Egypt With dedication and sincerity
- Air Defense Forces and College plaque in recognition to my duties and services in the College.

Laboratory Training & Equipment Preparation (Under USA/Canada Expert Supervision) | 1996 – 2020

Responsible for organizing, equipping, and preparing specialized training environments at the Air Defense College, including:

- Electric Circuits Analysis Laboratory – (May 2020)
- Satellite Communications Laboratory – (April 2019)
- Electric and Electronics Laboratory – (March 2018)
- Antenna Parameters Measurements Laboratory – (June 2010)
- Pulse Radar Parameters Measurements Laboratory – (August 2008)
- Microwave Devices Laboratory – (August 2000)

General supervision of scientific exhibition at the Faculty of Engineering, Damanhur University.

In accordance with the directives of His Excellency the President of the Republic, many innovations have been implemented in various specializations in line with Egypt's Vision 2030 in the halls of sustainable development, artificial intelligence, robotics, medical engineering, agriculture, smart irrigation, electronic platforms, and people of determination.

- The First Scientific exhibition was implemented in the presence of the University President, 2022.
- The Second Scientific Exhibition in honor of the Minister of Higher Education and Scientific Research and the President of Damanhur University.

Supervising the Following Graduation Projects for Air Defense College (ADC) / Alexandria Higher Institute of Engineering and Technology (AIET):

- Design and implementation of Robotic Arm using Arduino.
- Analysis, Design, and implementation of helical antennas with non-uniform helix diameter.
- Design and implementation of synchronization circuit for Decoys.
- Analysis, Design and implementation of helical antenna array for satellite communication.
- Analysis, Design and implementation of Inset fed rectangular micro strip patch antenna for S-band applications.
- Design and implementation of CA-CFAR Processor.
- Analysis, Design and simulation of switched mode power supply regulators.
- Design of Switched mode power supply buck regulator using 8051 microcontroller.
- Study of renewable energy systems (solar cell and wind turbine) with emphasis on inverter implementation and SMPS regulator design.

Academic Teaching & Course Delivery

- Faculty of Engineering, Damanhur University

Electromagnetic Field Theory | Digital Signal Processing | Signals & Systems

Microwave & Optical Transmission Media | Instruments & Measurements

Electrical Engineering Fundamentals | Engineering Physics I & II

- Air Defense College (ADC)

Radar Theory | Antenna Theory & Design | Microwave Devices & Circuits

Microwave & Optical Transmission Media | Signals & Systems

Electrical & Electronic Circuits | Electric Circuits Fundamentals

Engineering Mathematics | Engineering Physics | Graduation Project Supervision

- Arab Academy for Science, Technology & Maritime Transport (AASTMT)

Electrical Circuits I & II | Electrical Engineering for Marine Engineering

Instruments & Measurements

- Alexandria Higher Institute of Engineering and Technology (AIET)

Antenna Theory Analysis & Design | Graduation Project Supervision

- Institute of Graduate Studies & Environmental Research, Damanhur University

Early Warning Systems | Industrial Sociology | Environmental Architecture Course

Publications:

- [1] Ahmed Salem, Elbaz, M., Khalil, H.M. et al. SQUID-COMM: a Colossal Squid-inspired distributed communication framework for real-time multi-node aquaculture monitoring networks with adaptive bioluminescent signaling and neuromorphic edge intelligence. Sci Rep 16, 16982 (2026). <https://doi.org/10.1038/s41598-026-54545-6>
- [2] Ahmed Salem, Mostafa Elbaz “, Novel Quantum-Inspired Hybrid Flamingo-Pangolin Algorithm With Deep Reinforcement Optimization Of Reconfigurable Intelligent Surface Assisted 6g , MIMO Antenna Systems,’ Journal of machine learning and noise extraction , MAKE MDPI, 2026 under review .
- [3] Ahmed Salem, Mostafa Elbaz “, Neuromorphic Federated Edge Intelligence with Cuttlefish Chromatophore optimization and biologically-clocked semantic communication for climate-Resilient 6G IoMT Telehealth , Bars,’ Journal of Springer Nature, 2026 under review .
- [4] Asmaa Mohamed, Ahmed Salem, Ashraf Morsy “, Bio-Fiber reinforced high-Density Polyethylene Composites- A Sustainable Approach to improve flame retardancy, biodegradation and water resistance ’ Journal of Thermoplastic Composite Materials, Sage.,11 Nov 2025, pp. 1-19.
- [5] Hadeer Mahmoud, Ahmed I. Salem, Yasmeen Elkony “, Polydopamine modified with Ag and Cu nanoparticles electrode for glucose sensor’ Journal of Thermoplastic Composite Materials, Sage.,14 July 2025, pp. 1-21.
- [6] Ahmed I. Salem, ahmed gamal abd-elatif “, Power Amplifier Design Filtering Matching Network for Sub -6-GHz 5G/6G Applications ,’International Conference on Telecommunications Conference ITC, Air Defense College., 96-99, 2023, Alexandria Egypt. 2025
- [7] Ahmed I. Salem, Alaa Hafez “, Radar Waveform Generator with Fuzzy Frequency Control ,International Journal of Telecommunications IJT .,2025
- [8] Ahmed I. Salem, Norah Alsaif “, Synthesis, structural, optical properties and dielectric spectroscopy of nickel-doped lead borate glasses ’ Journal of Optical and Quantum Electronics , Springer.,Jan 2024, pp. 383-398.
- [9] Ahmed I. Salem, Alaa Eid “, UWB Antenna Array for Breast Cancer Early Detection’ ’International Conference on Telecommunications Conference ITC, Air Defense College., 26-28, 2023, Alexandria Egypt. pp. 177-182.
- [10] Ahmed I. Salem, Ali Sherbini, Abdelaziz-Atef “, An Exhaustive Review of the literature internet of things (IOT) Security, ’International Conference on Telecommunications Conference ITC, Air Defense College., 26-28, 2023, Alexandria Egypt. pp. 195-199.
- [11] Ahmed I. Salem, Ali Sherbini, Abdelaziz-Atef “, A Circularly-Polarized Patch Antenna Design for 3.6 GHZ Applications in 5G Systems,’International Conference on Telecommunications Conference ITC, Air Defense College., 96-99, 2023, Alexandria Egypt. 2023

- [12] Hamed Shawky Zied , Ahmed Gamal Abdellatif, Ahmed Ibrahim Salem “, S- box Modification for Block Cipher Algorithm, PRZEGLĄD ELEKTROTECHNICZNY, ISSN 0033-2097, R. 99 NR 4,2023, pp. 278-281
- [13] Ahmed I. Salem, Alaa Hafez “, A High-Gain Dual-Polarized Horn Antenna for Sub 6 GHz Mobile Communications” International Conference on Telecommunications Conference ITC, Air Defense College., July 26-28, 2022, Alexandria Egypt. pp. 75-80.
- [14] Ahmed I. Salem, Alaa Hafez “, Enhanced Efficiency GAAS/INXGA1- XAS QWSC” International Conference on Telecommunications Conference ITC, Air Defense College., 26-28, 2022, Alexandria Egypt. pp. 85-90.
- [15] Ahmed I. Salem, Alaa Hafez “, Optimum Electrostatic Actuated Cantilever Type MEMS Capacitor’ International Conference on Telecommunications Conference ITC, Air Defense College., 26-28, 2022, Alexandria Egypt. pp. 95-100.
- [16] Ahmed I. Salem, Alaa Hafez “, Intelligent Adoptive CFAR for Radar Signal Processing” International Conference on Telecommunications Conference ITC, Air Defense College., July 13-15, 2021, Alexandria Egypt. pp. 55-60.
- [17] Ahmed I. Salem, Mostafa Mohamed “Performance Enhancement of Inset Fed Microstrip Patch Antenna Array” proceedings of the IJSER International Journal of Scientific and Engineering Research in Electrical and Electronics Engineering, Antenna and Propagation Society, July 404-415, 2017.
- [18] Ahmed I. Salem, Alla Eid “Performance Enhancement of Inset Fed Microstrip Patch Antenna” proceedings of the IJSER International Journal of Scientific and Engineering Research in Electrical and Electronics Engineering, Antenna and Propagation Society, July 404-415, 2015, pp.150- 155.
- [19] Ahmed Ibrahim Salem, Amgad A. Salama, Alla M. Eid, “, Performance Enhancement of Fabricated and Simulated Inset Fed Microstrip Rectangular Patch Antennas”, 31st National Radio Science Conference (NRSC2014), Ain Shams University, Egypt, April 2014.
- [20] Ahmed I. Salem, Alla Eid “Performance Enhancement of Microstrip Patch Antenna”, proceedings of the IJSER International Journal of Scientific and Engineering Research in Electrical and Electronics Engineering, Antenna and Propagation Society, July 11- 15, 2014,pp. 150-155.
- [21] Ahmed I. Salem, Mohamed Zakaria, Alaa Hafez, “, Design and Implementation CFAR Processor with Programmable Timer”, The twenty ninth International Conference NRSC Cairo., Egypt, April. 10-12, 2012.
- [22] H. M. Elkamchouchi and Ahmed I. Salem “Design, Implementation and Optimization of Helical Antennas using Genetic Algorithm”, fourth International Conference of the military technical college Cairo.,Egypt, May. 27-29, 2009.
- [23] Ahmed I. Salem, Alaa Hafez “Adaptive Threshold Mapping Technique for Moving Target Detector (MTD) in Modern Radar”, IEEE Trans., AES, Montana, USA, March 1-8, 2008.
- [24] Ahmed I. Salem “Fabrication and Simulation of Optimized Loaded Helical Antennas”, fourth International Conference of the military technical college Cairo., Egypt, May. 27-29, 2008.
- [25] Ahmed I. Salem, Alaa Hafez, Ahmed k., Abolished “Simulation and Characterization of III-V Quaternary Semiconductor”, IEEE Trans., AES, Montana, USA, March 1-8, 2008.
- [26] Nour Ismail, Ahmed I. Salem, Sherif Hanafy “A Novel Simulation and Analysis Scheme for Human Eye Ablation”, International Conference on computer engineering and systems”,Ain-SHAMS Univ., pp. 262–265, Egypt, Nov., 27-29, 2007.
- [27] Alaa Hafez, Ahmed I. Salem, “Design and Simulation of Electrostatic Actuated Tunable Mems Capacitors”, International Co_nference on Computer and Communication Engineering, Arab Academy for Science and Technology. pp 53–57, Sep 11-13, 2007,Alexandria Egypt.

- [28] Nema M. El-Faramawy, El-Sayed A. El-Badawy, and Ahmed I. Salem “Hardware Implementation of CA-CFAR Processor”, International Conference on Computer and Communication Engineering”, ICCCE-06, International Islamic University Malaysia (IIUM), Kuala Lumpur, Malaysia, May 11-13, 2006.
- [29] Ahmed I. Salem, Nema El-Faramawy, and El-Sayed A. El-Badawy “A Robust Censoring Two-Dimensional CFAR Detector Based on Ordered Data Variability”, Proceedings of “The 9th World Multi-Conference on Systemics, Cybernetics, and Informatics, SCI– 2005,” vol. X, pp. 81–87, Orlando, Florida, USA, July 10-13, 2005.
- [30] Ahmed I. Salem, Nema M. El-Faramawy, and El-Sayed A. El-Badawy “CFAR Different Schemes Behavior and Detection Performance of Moving Targets”, Proceedings of “The 8th World Multi-Conference on Systemics, Cybernetics, and Informatics, SCI–2004,” vol. XI, pp. 295–300, Orlando, Florida, USA, July 18-21, 2004.
- [31] H. M. Elkamchouchi and Ahmed I. Salem “Effects of Geometrical Parameters Loading and Feeding on Non-Uniform Helical Antennas”, 1st Scientific Symposium in Communications and Electronics (RTEC), Air Defense College, Alexandria, Egypt, 2003.
- [32] H. M. Elkamchouchi and Ahmed I. Salem “Tools for Demonstration of Antenna Pattern and Radar Coverage”, 1st Scientific Symposium in Communications and Electronics (RTEC), Air Defense College, Alexandria, Egypt, 2003.
- [33] H. M. Elkamchouchi and Ahmed I. Salem “Effects of Geometrical Parameters Loading and Feeding on Uniform and Non-Uniform Helical Antennas”, 19th National Radio Science Conference (NRSC’2001), Alexandria Univ. March, Egypt, 2002.
- [34] H. M. Elkamchouchi and Ahmed I. Salem “Helical Antennas with Uniform Helix Diameter”, 18th National Radio Science Conference (NRSC’2001), Mansoura Univ., Egypt, 2001.