

Dr.-Eng. Mohamed Zied CHAARI
IEEE Senior Member #94011410

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MAIN ACHIEVEMENT

- Grand prize of the Arab Tunisian Bank "ATB startup challenge", Season 3 held on December 10, 2010.
- Winner in Stars of Science Season 3 in 2011 placed fourth (Qatar Foundation), held in Doha Qatar from January to December 2011.
- Winner of the trophy in 27th INPEX Show, INPEX, America's largest Invention, USA- Pittsburgh, International Awards, June 13-15, 2012.
- Winner of the trophy in European -Romanian inventor's, INPEX USA-Pittsburgh International awards, June 13-15, 2012.
- Winner of the Gold medal in the "EUROINVENT" organized by "EUROPEAN EXHIBITION OF CREATIVITY AND INNOVATION", IASI-ROMANIA, MAY 2013.
- Winner of world inventor order of merit in the "WIAF" organized by "KOREA INVENTION NEWS," Seoul, December 2013.
- Grand prize of the 7th International Invention Fair in the Middle East-IIFME. Under the Patronage of His Highness, the Emir of Kuwait Sheikh Sabah Al-Ahmad Al-Jabber Al-Sabah, Kuwait, December 02–05, 2014.
- Gold medal at the 7th International Invention Fair in the Middle East-IIFME, Kuwait December 02-05, 2014.
- Gold medal from Association "Russian House for International Scientific and Technological Cooperation," December 02-05, 2014.
- Winner of the Gold medal in the "EUROINVENT" organized by 'EUROPEAN EXHIBITION OF CREATIVITY AND INNOVATION,' IASI-Romania, May 2015.
- Awarded certificate of achievement of Qatar university annual research Forum and exhibition, held in Doha, Qatar, during 23-24 April 2019.
- Winner of the prize of QDB' 'hackathon' to tackle corona-19, held in Doha Qatar during 16-19 April 2020.
- Awarded the gold medal with the Jury's congratulations at the 14th International Invention Fair in the Middle East-IIFME, held in KUWAIT, during 12-15 February 2023.
- Two scientific books have been published. I have published more than 60 scientific papers in high-indexing journals and IEEE conferences.
- Four patents have been granted.

RESEARCH INTERESTS

Robotics with a concentration on oil and gas pipelines, Specialist in drone design and implementation, Electronics Design and Microwave wireless power technology, wireless power charging, Real-time Antenna Design, Certified cybersecurity analyst with military standard, Drone, Anti-drone solution, PCB design, RF harvesting energy, Prototyping, and manufacturing, Reverse engineering.

EDUCATION

- ✓ **Ph.D.** in Wireless Power Transfer Technology, University of Sfax, 2015

Dissertation title: Design and production of a system for wirelessly charging the battery of a robot Crawler.

- ✓ **A Master's Degree** in Electronics and Telecommunication, University of Sfax, July 2010.

Thesis title: Design an integrated system using the RF energy for charging the battery of the robot Crawler inside the Oil truck line.

- ✓ **Engineer degree in Electrical & Electronics**, National School of engineers, ENIS, June 2009.

INDUSTRIAL EXPERIENCE FROM 2009 TO CURRENT DAY (More than 12 'years' experience)

I. **Qatari Emiri Maintenance department - Manufacturing Technical Development Center**

Technical Expert - From November 2016 to current

- Utilized internal administrative procedures to manage and implement a maintenance team. In addition to performing organizational and intermediate maintenance, diagnosing technological malfunctions and ground system malfunctions, preparing readiness reports, and providing training, I also provided equipment repair and maintenance training. Effective team leader,
 - Expertise in maintenance repair,
 - Exceptionally organized,
 - Radiofrequency specialist,
 - Radar and IR thermal camera troubleshooting and repair,
 - Electronics & Electrical Schematics and Diagrams,
 - A VHF&UHF antenna and a patch antenna.
- Creating many prototypes related to the military field.

II. **Fab-Lab Qatar (Qatar Scientific Club) - (<http://qsc.org.qa/en/>)**

II.1. Technical expert - From July 2015 to December 2016 (Full Time)- Since 2017 to December 2022 (part-Time)

In October 2017, we established Qatar's first FAB lab at the Qatar scientific club as part of our efforts.

The goal is to catalyze STEM learning in formal educational environments through digital fabrication technologies and practices found in a Fab Lab or Makerspace. Conception prototyping for Hardware and software.

- Reverse engineering and prototyping.
- 3D design, 3D printing (FDM & Resin), and 3D scanning technologies.
- CNC router and milling machine.
- CO2 laser cutting and engraving machine.
- Utilize a Voltera machine and PCB engraving machine to design and make PCB circuits.
- Assist inventors in making prototypes.

II.2. Head of the Research and development: Since January 2023 to current (Part-time)

Head of the Research and development center we work on many projects in Drones and high advance technologies. Currently, I am the head of the research and development center where we work on many high-tech and reverse engineering projects.

III. Baderoya Oilfield Company Bu-Attifel Oil Field- A100/ Libya (www.baderoya.com)

Deputy Project Manager (from March 2014 to June 2015)

- 12" oil pipeline Replacement Project/ A100 Bu-Attifel Oil Field Project contract number KMOG/574/AGIP -Libya. Preparation of all documentation, materials tools, and procedures for the startup of the project.

Maintenance & QA/QC engineer (from December 2012-March 2014)

- Inspect documents and reports on surface and submarine facilities for coating and metal loss anomalies using all relevant NDT methods that include Ultrasonic wall thickness measurements and Magnetic Particle Testing of exposed structures and maintenance. Collects and reports inspection data relating to the LCM-Replacement old 6", 8", 10" truck line.
- Recovery of the hot oil piping 4" and 2".
- The hot oil piping 4" and 10" survey by high technology inspection (A-SCAN) at NGL-Gas Plant A/100 Bu-Attifel (Mellitah Oil & Gas Company).
- Prepare Hydro test pipeline 10" between M1- Oil Center A/100 of the LCM Project- A/100 Bu-Attifel.

IV. Technical Inspection & Control Company (www.tic.com.tn)

NDT Engineer (From August 2009 to December 2012)

- Non-destructive Testing (NDT Engineer) and inspection pressure vessel,
- Internal and external inspection of boilers and pressure vessel,
- Perform and follows the NDT applications,
- QA/QC Electrical Engineer in BG Hannibal Gas plant,

- Shutdown QA/QC Electrical Engineer BG-Tunisia total oil plant shutdown, from March 10 to April 04, 2012,
- Shutdown NDT coordinator PETROFAC-Tunisia total oil plant shutdown, from June 01 to June 15, 2010,
- Using a C-scan robot (Scorpion) for pipeline and vessel inspection.

UNIVERSITY TEACHING AND SUPERVISION

Lecturer of Computer Engineering, College of Engineering (Qatar University): QU ID Number: 18929

Fall 2019 (Part-time)

- Computer Engineering Practicum - 14849 - CMPE 370 - L02.

Introduction to hands-on broad hardware techniques and specific hardware skills useful for computer engineers. Circuit construction through soldering; personal computer hardware troubleshooting; project implementation using digital signal processing kits or advanced controller kits; embedded reverse engineering approaches; discrete component-based analog/digital circuits; programmable hardware designs.

Spring 2020 (Part-time)

- Digital Signal Processing (??) - CMPE476.

Practical implementation of digital signal processing algorithms using standard kits. Audio signal filtering; spectral analysis of signals, de-convolution of composite signals, spectral shifting of audio signals, channel equalization for communication signals.

Consultant at Qatar University

- "Automated Classification and Diagnosis of Tissue Patterns in Colorectal Tumours Using Non-Visible Multispectral Imagery," NPRP 6 - 249 - 1 - 053, Qatar National Research Fund, 10/11/2013- 1/4/2017, Computer Science & Engineering Department. (11/2017 - 01/2018).
- "Unsupervised feature selection method for improved human gait recognition," NPRP 7 - 442 - 1 - 082, Intelligent System to Digitally Support Paleographic Analysis of Ancient Manuscripts in Qatar. (04/2018 - 06/2018).
- "Crowd Counting Using Image Processing And Mmwave Radar Sensor," NPRP 8-140-2-065, Qatar National Research Fund, 10/11/2013- 1/4/2017, Computer Science & Engineering Department. (03/2019 - 05/2019).

Associate Professor, International Institute of Technology (IIT), 2014-2015.

- Educational Instrumentation and Engineering.
- Directed two undergraduate students' research and supervised their engineer projects.
- We have conceptualized and designed a prototype of the oil field level indicator.

PUBLICATIONS

Journal articles

1. Mohamed Zied Chaari, Hamadi Ghariani, Mongi Lahiani. Wireless Energy Harvesting System for Charging Battery of Robot Crawler inside Oil Pipeline. *International Journal of Applied Engineering Research*, ISSN 0973-4562 Volume 9, Number 23, 2014 pp. 21433-21448. (<https://www.ripublication.com/Volume/ijaerv9n23.htm>)
2. Mohamed Zied Chaari, Hamadi Ghariani, Mongi Lahiani. Design and construction of a system for wirelessly charging the battery of a robot. *WSEAS TRANSACTIONS on POWER SYSTEMS*, ISSN 2224-350X Volume 10, 2015 pp. 27-34. (<http://wseas.org/wseas/cms.action?id=10187>)
3. Mohamed Zied Chaari, Mohamed Dhieb, Hamadi Ghariani, Mongi Lahiani. Comparison test the difference between rectangular patch antenna and conical antenna for harvesting energy inside the pipeline. *WSEAS TRANSACTIONS on POWER SYSTEMS* ISSN 2224-350X Volume 10, 2015 pp. 198-203. (<http://wseas.org/wseas/cms.action?id=10187>)
4. Mohamed Zied Chaari, Hamadi Ghariani, Mongi Lahiani. Energy harvesting from electromagnetic radiation emissions by a compact fluorescent lamp. Ninth International Conference on Advanced Computational Intelligence (ICACI), February 4-6, 2017, held on Doha, Qatar. (10.1109/ICACI.2017.7974520)
5. Mohamed Zied Chaari, Rashid Rahimi, Hamadi Ghariani, Mongi Lahiani. Microwave Energy Harvesting Using Rectangular Micro-Strip Patch Array Antenna. International Conference on Sensors, Networks, Smart, and Emerging Technologies (SENSET) held on September 12-14, 2017 Beirut, Lebanon. (10.1109/SENSET.2017.8125041)
6. Mohamed Zied Chaari, Rashid Rahimi. Light LED Directly Lit up by the Wireless Power Transfer Technologies. International Conference on Radar, Antenna, Microwave, Electronics, and Telecommunications (ICRAMET) held on Oct 23-24, 2017, Jakarta- Indonesia. (10.1109/ICRAMET.2017.8253162)
7. Mohamed Zied Chaari, Mohamed Al-Kuwari, Rashid Al-Rahimi, Mongi Lahiani, Hamadi Ghariani. Acquiring Wi-Fi Energy to Charge a Mobile Phone, *Advances in Science, Technology and Engineering Systems Journal (ASTESJ)* Volume 3, Issue 5, Page No 28-35, 2018. (10.25046/aj030505)
8. Mohamed Zied Chaari, Rashid El-Rahimi, and Hareb Aljabri, harvesting microwave energy from WiMAX bands based on a Dual-Band Antenna, Publishing Ltd IOP Conference Series: Earth and Environmental Science, Volume 227, 4 Energy and scientific research, held on November 19-21, 2018 in Sanya, China. (10.1088/1755-1315/227/4/042044)
9. Mohamed Zied Chaari, Harb Aljabri, Rashid AL-Rahimi, Mohamed. Acquiring Energy from the Harmful Radiation Emitted by Compact Fluorescent Lamps, *Advances in Science, Technology and Engineering Systems Journal (ASTESJ)* Volume 4, Issue 2, Page No 314-318, 2019. (10.25046/aj040240)
10. Mohamed Zied Chaari, Sumaya Ali Al-Maadeed, Spiral Antenna Mounted on the t-Shirt to Harvested RF Energy, 2019 1st International Conference on Electrical, Control, and Instrumentation Engineering (ICECIE), held on November 25-26, 2019 in Kuala Lumpur, Malaysia. (10.1109/ICECIE47765.2019.8974756)
11. Mohamed Zied Chaari, Somaya Al-maadeed. Wireless Power Transmission for the Internet of Things (IoT). International Conference on Informatics, IoT, and Enabling Technologies (ICIOT), February 2-5, 2020, held on Doha, Qatar. (10.1109/ICIOT48696.2020.9089547)
12. Amena Jassim Al-Haider, Sakina Mansour Al-Sharshani, Hamean Salem Al-Sheraim, Nandhini Subramanian, Somaya Al-maadeed, and Mohamed zied chaari. Smart Medicine Planner for Visually Impaired People. International Conference on Informatics, IoT, and Enabling Technologies (ICIOT), February 2-5, 2020, held on Doha, Qatar. (<https://doi.org/10.1109/ICIOT48696.2020.9089536>)
13. Chaari, M. Z. Al-maadeed, S (2020). Testing the efficiency of laser technology to destroy the rogue drones. *Security and Defence Quarterly*. (<https://doi.org/10.35467/sdq/127360>)
14. M. Z. Chaari, R. Al-Rahimi, M. Abdelfatah, and A. S. Khamis, "Use of reverse engineering method for respirator devices in COVID-19 crisis," in 2020 2nd International Conference on Electrical, Control and Instrumentation Engineering (ICECIE), Kuala Lumpur, Malaysia, Nov. 2020, pp. 1–4, (doi: 10.1109/ICECIE50279.2020.9309686).
15. Chaari, M. Z. and Al-Maadeed, S. (2021) 'The game of drones/weapons makers' war on drones', in *Unmanned Aerial Systems*. Elsevier, pp. 465–493. (doi: 10.1016/B978-0-12-820276-0.00025-X).
16. Chaari, M.Z., and Al-Maadeed, S. (2020) Testing the efficiency of laser technology to destroy the rogue drones. *Secur. Def. Q.*, 32 (5), 31–38.
17. Chaari, M.Z. (2021) High power microwave for knocking out programmable suicide drones. *Secur. Def. Q.*, 33 (2), 68–84.
18. Chaari, M.Z., Abdelfatah, M., Lorenzo, C., and Al-Rahimi, R. (2021) Development of Air Conditioner Robot Prototype That Follows Humans in Outdoor Applications. *Electronics*, 10 (14), 1700.

20. Chaari, M.Z., and Al-Maadeed, S. (2021) Increase the Efficiency of IoT Devices by Using the Wireless Power Transmission in the Industrial Revolution 4.0. Int. J. Online Biomed. Eng. IJOE, 17 (07),

Scientific book

1. Transfert d'énergie électrique pour charger les batteries d'un robot : "Transmission d'énergie", Presses Académiques Francophones (French Edition), **ISBN-13: 978-3-8381-4975-2**, August 11, 2015.
2. Design and Production of a System For Wireless Charging The Battery: "The wireless power transmission device." It was published on the Scholar's Press member of Omniscryptum Publishing Group, **ISBN: 978-613-7-99919-6**, December 2018.

PATENTS LIST

1. Mohamed Zied Chaari, "Determining the power failure and sends SMS without using AT command," Patent N°. 19423, January 16, 2008.
2. Mohamed Zied Chaari, "Design and implementation of wireless charging of batteries," WIPO Patent N°. WO/2012/026895 A3, April 26, 2012.
3. Mohamed Zied Chaari, "Design and implementation of wireless charging of batteries," USA Patent N°. US20130147430 A1, June 13, 2013.
4. Mohamed zied chaari, "RF energy harvesting for charging a mobile phone," TN Patent N°. 2014000399 December 2015.

MEMBER of SCIENTIFIC COMMITTEE

- Member of reviews team at the American Journal of Applied Scientific Research (AJASR), (ISSN: 2471-9722), Since 2018, NEW YORK, NY 10018, USA.
- Member of reviews team, at ASTES journal, (ISSN: 2415-6698), Since 2018, USA.
- Member of reviews team at the scientist committee of the 2nd International Workshop on Materials Science and Mechanical Engineering (2nd IWMSME 2018) held in Qingdao, Shandong Province during October 26th - 28th, 2018, China,
- Member of reviews team at the scientist committee of the international conferences "ICRAMET 2017" in the following topic: "The 2017 International Conference on Radar, Antenna, Microwave, Electronics and Telecommunications", Oct 2017, Indonesia.
- Member of the scientist committee of the international conferences "SETIT 2016" in the following topic: "Sciences of Electronics, Technologies of Information and Telecommunications," December 2016, Tunisia.
- Board Member in International Journal of Electrical and Electronics Engineering IJEEE Journal, ISSN (Print): 2278-9944; ISSN(Online): 2278-9952, since 2016, INDIA.

OIL & GAS RESEARCH PROJECTS

- [CHAARI, Boston/USA- ISC 2012] "PowerWave.NDT ": Applied to charge wirelessly the batteries of Gas and Petroleum Pipes Crawlers Crawlers JEC composites technical poster ISC -BOSTON-US, November 7- 9, 2012, Jec Composites Magazine.
- [CHAARI, 6th MENDT 2012] Chaari Mohamed Zied, "NDT Wireless charging batteries of the pipeline X-ray Robot Crawler," 6th Middle East Nondestructive Testing Conference & Exhibition, Kingdom of Bahrain, E-journal of Nondestructive Testing- ISSN 1435-4934, Oct 7-12, 2012.
- PowerWave's first product is a wireless charging device for pipeline crawlers that allow their batteries to charge without being brought out of the pipeline. Inspections can be performed quickly.
- As proved during the previous phases of the "Stars of Science-Qatar Foundation," 'PowerWave's device can inspect up to 6 kilometers per day. It also solves the problem of discharged crawlers being blocked inside the pipeline while investigating since charging can be made wireless.
- Research and development of a new autonomic robot, Magnetic flux leakage methods for pipeline inspection. This technology is used for long-distance.

LIST OF MILITARY PROJECTS THAT WE HAVE MADE IT

- The design and construction of a border protection system constitute the gun, radar, and IR camera, to protect the border from any infiltration (Remote-controlled weapon station).
- Design and construction Anti rogue drones with laser gun technology.
- Design a system of an RF Anti-drone jammer long distance from 433 MHz up to 12 GHz.

HIGHLIGHTS OF QUALIFICATIONS

- Laser cutting and engraving training was held in November 2018 in Jinan city, Shandong, China.
- CNC router and mailing 5^{axis} training was held in November 2018 in Shanghai city, China.
- Level 2 Cathodic Protection, CP2, NACE International.
- Eddy Current Tube Heat-exchanger Inspection, RINA-Italy, Certificate ID.10D600029PO2, Level 02.
- Eddy Current Weld Inspection, RINA-Italy, certificate ID. 10D600029PO2, Level 02.
- Guided Wave Ultrasonic pipe testing (GUL), CETIM-France, certificate ID. HH30/11S03/130262, Level 01.
- Electrical Inspection and Testing equipment (Onshore & Offshore), CETIME, certificate ID. 609/10.
- Inspection and Control of the Lifting 'equipment's and device (onshore & offshore), CETIME, Certificate ID. 601/10.
- Advanced Ultrasonic Testing A-B-C Scan,
- TBOSIET: Tropical Basic Offshore Safety Induction & Emergency Training OPITO, Certificate ID.165/2009.
- Recent Innovation in pipeline Seam Weld Integrity Assessment Ted, Quest Integrity Group, USA.
- Ultrasonic Examination of SCC and SWC in Ageing Pipe systems and Pipelines, Inspection Department, Saudi Aramco, KSA.
- Ultrasonic Multi-Skip Tomography for Pipe Inspection, TNO Science and Industry, Delft Netherlands.

- RTP piping failure and inspection in YRD, Yanbu Refinery department, Saudi ARAMCO, KSA.
- Electrical Inspection

INVITED AS A GUEST SPEAKER IN THE R&D INNOVATION CONFERENCE

- Speaker at IEEE-QATAR University, "How to turn an Idea into A Successful invention," Doha-Qatar, October 2017.
- Speaker at the 4th IEEE TN CEDA'S, "Success Stories," Sfax, Tunisia, October 2015.
- Speaker at the Empower 2016, Innovation in Youth social entrepreneurship, 3D printing in action, Doha-Qatar, March 2016.
- Speaker at the 4th Arab Robotics Associations, Doha-Qatar, October 14-16, 2016.
- Speaker at the VIIIth International Workshop NDT in Progress, Prague-Czech Republic, October 12-14, 2015.
- CHIEF ADVISORY BOARD in the 5th Global Pipeline Integrity & Technology Summit 2015 in Abu Dhabi, United Arab Emirates, April 20-22, 2015.
- Speaker at the 27th INPEX Show, America's largest Nondestructive Testing Invention Trade Show, features inventors from across the country and internationally, Pennsylvania-USA, June 13-15, 2012.
- Speaker at the AHLIA University, conference touching the Non-destructive Testing and piping robotic inspection, Kingdom of Bahrain Manama, October 10, 2012.
- Under ARAMCO-Saudi team speaker at the 6th Middle East NDT Conference & Exhibition-ASNT-Saudi Arabian Section, Kingdom of Bahrain, October 07-10, 2012.

PROFESSIONAL MEMBERSHIPS

- NACE International middle east section (NACE). Membership Number #571722.
- American Society for Nondestructive Testing (ASNT-SAS). Membership Number #213419.
- IEEE Antennas and Propagation Society Membership
- IEEE Electromagnetic Compatibility Society Membership, Qatar section #94011410.

LANGUAGES

- Arabic: Native
- French: Fluent
- English: Fluent

TECHNICAL SKILLS

- Software Conception: COSMOS Works, AutoCAD, Solid Works, Eagle, Autodesk, Portus Electronics, Electrical, Radiofrequency, Workbench, Mach3, Visual Studio.
- Computer Simulation Software: MATLAB, C++, C#, UNIX, LINUX, SQL, Multisim, ADS.

CV: Dr.-Eng. Mohamed Zied Chaari

- Office Automation: Word, Excel, PowerPoint, Access, MS Project, Primavera P6.

REFERENCES

Prof. Dr. Somaya Al-maadeed

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Dr. Andrei Victor SANDU

"Gheorghe Asachi" Technical University of Iasi, Romania.

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