Heba M. Abd El-Atty Ahmed

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PERSONAL PROFILE

- **IEEE Senior member.**
- **Top manager of Huawei Academies in Egyptian universities in 2020,2021and 2022**
- **Manager of Quality and Accreditation Center of Port Said University.**
- **Manager of Training and Education center of Faculty of Engineering.**
- **Top instructor of 5G in Egypt, Huawei academy in 2021**
- **Member in Sustainability committee of Port Said University.**
- **Vice manager of E-club and Entrepreneurship, Innovation and Sustainability at faculty of Engineering, Port Said University.**
- **The Founder and the Counselor of the IEEE Student Branch at Port-Said University.**
- **Member of IoT Egypt Forum at Body of knowledge work group**
- **Founder and the leader of Port-Said Engineering Day team from 2009 until now.**

She got her MSc (2007) from Suez Canal University, Egypt and Ph.D. (2012) from Port Said University, Egypt. She is working as a professor in the Electrical Engineering department from 2023 until now. She had got training in Embedded Control Engineers from Microchip Technology Inc, Arizona, USA,2015. She got training in big data science at the National Telecommunication Institute (NTI), December 2017 and Blockchain in IoT" ITIDA, April 2019. She got online Courses related to Smart Cities and Co-creating Sustainable Cities. and she had attended several training programs and workshops.

Since 2012, she taught seven undergraduate and four graduate courses in the Faculty of Engineering, at Port Said and Suez Canal Universities. She had advised ten graduation projects covering all applications of Smart Cities and the internet of things. She is the supervisor of the communication Laboratory, Faculty of Engineering, Port Said University.

Her current research interests are in wireless communication systems, multimedia processing, cognitive radio, the security of wireless networks, artificial intelligence (AI), Internet of Things (IoT), Smart cities technologies, Sustainable development, and Field Programmable Gate Array. She published 33 papers in international journals and conferences: and one book chapter. She is a reviewer in IEEE Access, Springer, and ETT Wiley Journal, and a referee in IEEE Global Communications Conference.

PERSONAL INFORMATION

- **Date and Place of Birth**: 5 July 1976, Ismailia, Egypt
- **Nationality**: Egyptian
- **Marital Status:** Married, Mother of three Children

- **Occupation: Associate Professor** Electrical Engineering Dept. (communications and electronics), Port said University, Egypt

EDUCATION

- **Ph.D in Electrical Engineering – Electronics and Communications**
  Faculty of Engineering, Port Said University, Egypt, May 2012
  Thesis Title: "*Development of Mobile WiMAX Systems Using Field Programmable Gate Arrays*".

- **M.Sc. in Electrical Engineering and Communications**
  Faculty of Engineering, Suez Canal University, Egypt, July 2007.
  Thesis Title: "*The Performance of Asynchronous DS-CDMA Satellite System Using Different Chip Wave Forms*".

- **B.Sc. in Electrical Engineering (Communications & Electronics)**
  Faculty of Engineering, Suez Canal University, Egypt, Egypt, *May 1998.*
  Graduation Project Title: "*Frequency Synthesizer Using 8085 Microprocessor*"

ACADEMIC POSITION

[1] Professor in Communication and Electronics Engineering Dept., Faculty of Engineering, Port Said University. *March 2023 till now.*

[2] Associate Professor in Communication and Electronics Engineering Dept., Faculty of Engineering, Port Said University. *February 2018 – February2023*

[3] Assistant Professor in Communication and Electronics Engineering Dept., Faculty of Engineering, Port Said University. *August 2012 –December2018.*

[4] Assistant Lecturer in Communication and Electronics Engineering Dept., Faculty of Engineering, Port Said University. *October 2010–2012.*

DOMAIN OF RESEARCH

Wireless communication systems, mobile communication, 5G, Artificial Intelligence (AI), multimedia processing, cognitive radio, security of wireless networks, Internet of things IoT, Smart cities technologies, Sustainable development, and field programmable gate array (FPGA) applications.

PUBLICATIONS

[1] Heba M. Abdel-atty, sally Hansen and Heba Y. M. Soliman "VHDL Implementation of Circular Shifting- Partial Transmit Sequence in MIMO-OFDM SYSTEMS" International **Journal of Communication Systems, Wiley,** 17 October 2022.

[2] T. E. Ahmed, W. A. Raslan, A. Ghouniem and **Heba. M. Abdel-Atty**, "Proposed HCDNA for Enhancing the Security of Marine Environment IoT Systems," 2022 10th International Japan-Africa Conference on Electronics, Communications, and Computations (**JAC-ECC**), Alexandria, Egypt, 2022, pp. 169-174,

[3] A. Hammad, M. A. Mohamed, and **Heba. M. Abdel-Atty**, "Enhancement of the performance of wireless sensor networks using the multihop multiantenna power beacon

path selection method in intelligent structures," **PLoS One**, vol. 17, no. 11, p. e0276940, Nov. 2022.

[4] A. Eldemiry, A. A. Abdelsalam, H. M. Abdel-Atty, A. Azouz, A. E. Gaafar and W. Raslan, "Overview of the Orthogonal Time-Frequency Space for High Mobility Communication Systems," **2022 5th International Conference on Communications, Signal Processing, and their Applications (ICCSPA),**

[5] A. Hammad, M. A. Mohamed, and **Heba. M. Abdel-Atty**, "An Optimized Distributed Routing Protocol for Energy Management Systems Based on Wireless Sensor Networks in Intelligent and Smart Structures," **International journal of electrical and computer engineering systems**, vol. 13, no. 4, pp. 269–277, Jun. 2022.

[6] Heba Y. M. Soliman, Mohamed Imam and **Heba M. Abdel-atty**, "Machine Learning Based Mobile Applications for Cardiovascular Diseases (CVDs)", published in the the 8th International Conference on Advanced Machine Learning and Technologies and Applications (AMLTA 2022), Egypt, May 2022.

[7] Mohamed Imam, Heba Y. M. Soliman and **Heba M. Abdel-atty**, "Future Applications of Artificial Intelligence for the Egyptian Universal Health Insurance UHI System", accepted for publication in Journal of Healthcare Management.

[8] N. A. Ezz-Eldien, M. F. Abdelkader, M. I. Abdalla and **H. M. Abdel-Atty**, "Handover Performance Improvement in Heterogeneous Wireless Network," 2020 11th **IEEE Annual Information Technology, Electronics and Mobile Communication Conference** (IEMCON), Vancouver, BC, Canada, 2020, pp. 0821-0830.

[9] W. A. Raslan, M. A. Mohamed and **Heba. M. Abdel-Atty**, " Deep Learning Based Channel Estimation Algorithm for MIMO-FBMC System,", vol 51, 101592, 2022

[10] A.N. Gamal, **Heba.M.Abdel-Atty,** and M. A. Mohamed, "Improved Heart Disease Detection Using Artificial Intelligence Methods," in Journal of Communications and Networks, under review.

[11] R. M.Mokhtar, **Heba M.Abdel-Atty** and K. R. Mahmoud "Optimization of the Deployment of Relay Nodes in Cellular Networks" IEEE Access, vol.8, pp. 136605–136616, 9146529, , 2020

[12] **Heba M. Abdel-Atty**, W. A. Raslan and A. T. Khalil, "Evaluation and Analysis of FBMC/OQAM Systems Based on Pulse Shaping Filters," in IEEE Access, vol. 8, pp. 55750-55772, 2020.

[13] R. M. Mokhtar, **Heba M. Abdel-Atty** and K. R. Mahmoud, "Cell Planning based on Relay-Nodes Positions and Power using Particle Swarm Optimization," IEEE7[th] International Japan-Africa Conference on Electronics, Communications, and Computations, (**IEEE JAC-ECC),** Alexandria, Egypt, 2019, pp. 168-173.

[14] W. A. Raslan, M. A. Mohamed and **Heba M.Abdel-Atty**, "Complementary FBMC/OQAM for Future Internet of Things Wireless Communications," IEEE7[th] International Japan-Africa Conference on Electronics, Communications, and Computations, (**IEEE JAC-ECC),** Alexandria, Egypt, 2019, pp. 22-27.

[15] **Heba M. Abdel-Atty**, Eman A. Anowr, Raad S. Alhumaima, Sherif M. Abuelenin "Performance analysis of Fog Based Radio Access Networks" **IEEE Access**, pp:106195:106203, August 2019

[16] Noura A.El-Alfi, **Heba.M.Abdel-Atty,** and M. A. Mohamed "SubNyquistCyclostationary Detection of GFDM for Wideband Spectrum Sensing" **IEEE Access**, pp99:10, June 2019.

[17] A.Salah, **Heba M. Abdel-Atty**, and Rawya Y. Rizk "Joint Channel Assignment and Power Allocation Based on Maximum Concurrent Multicommodity Flow in Cognitive Radio Networks" Wireless Communications and Mobile Computing, **Hindawi,** July 2018.

[18] S. Elaraby, H. Y. Soliman, **Heba. M. Abdel-Atty**, and M. A. Mohamed, "Joint 2D-DOA and carrier frequency estimation technique using nonlinear Kalman filters for cognitive radio," **IEEE Access**, vol.5 pp. 25097-25109, December 2017.

[19] S. Elaraby, H. Y. Soliman, **Heba. M. Abdel-Atty,** and M. A. Mohamed, "Joint angular and spectral estimation technique using nonlinear Kalman filters for cognitive radio," **AEU International Journal of Electronics and Communications**, vol. 83, pp. 359-365, Jan 2018.

[20] Noura A.El-Alfi, **Heba. M. Abdel-Atty,** and M. A. Mohamed "Cyclostationary detection of 5G GFDM waveform using time smoothing algorithms in cognitive radio transmission" 17th **IEEE International Conference on Ubiquitous Wireless Broadband ICUWB'**, Salamanca, Spain September 2017

[21] Mohamed Selim, Ahmed E. Kamal, Khaled Elsayed, **Heba M. Abdel-Atty**, and Mohammed Alnuem "Fronthaul Cell Outage Compensation for 5G Networks" **IEEE Communications Magazine**, pp.169-175, August 2016

[22] Ahmed Salah, **Heba Abd El-Atty**, and Rawia Y. Rizk "Cross-layer Routing Optimization for Centralized Multi-hop Cognitive Radio Networks" 11TH International Computer Engineering Conference **ICENCO** PP.25-29, December 2015

[23] M.A. Mohamed, **Heba.M. Abdel-Atty**, A.M Aboutaleb, M.G. Abdel-Fattah, A.S. Samrah, "Hybrid Watermarking Scheme for Copyright Protection using Chaotic Maps Cryptography" **International Journal of Computer Applications** (0975 – 8887) Vol. 126 – No.4, PP.13-26,September 2015

[24] M. A. Mohamed, **Heba. M. Abd-El-Atty**, M. Abo-El-Seoud and W. M. Raslan "Fast Implementation of Different LTE Physical Downlink Control Channels Using FPGA" **Wireless Personal Communications Journal, Springer**, vol.83,no.1, pp.1525-1559, July 2015.

[25] M. Selim, A. Kamal, K. Elsayed, **Heba M. Abd-El-Atty**, M. Alnuem, "A Novel Approach for Back-haul Self-Healing in 4G/5G HetNets". proceeding of the **IEEE ICC**,PP.3927-3932, June 2015

[26] M.A.Mohamed, **Heba.M.Abd-El-Atty,** M.Abo-El-Seoud and W.M.Raslan "Field Programmable Gate Array Implementation of Long Term Evolution Physical Downlink Control Channel Under Multiple Input Multiple Output Technique" The 2nd International Conference on Advances Technology in Telecommunication, Broadcasting, and Satellite 2014 (TelSaTech 2014), Bali Indonesia and published in Adv. Sci. Lett. , Vol.21, pp29-35, January 2015, ISSN: 1936-6612.

[27] M.A.Mohamed,**Heba.M.Abd-El-Atty**,M.Abo-El-Seoud and W.M.Raslan "Performance Analysis of LTE-Advanced Physical Layer" **IJCSI** International Journal of Computer Science, Vol.11, Issues 1, No 1, pp80-87, January 2014, ISSN:1694-0814.

[28] M.A.Mohamed, **Heba.M.Abd-El-Atty** and M.S.Abo-El-Seoud "New Encryption Techniques for Mobile WiMAX Nertworks" accepted from **The Mediterranean Journal of Electronics and Communications,** United Kingdom, Vol. 7, No. 4, 2011.

[29] M.A. Mohamed, **Heba.M. Abd-El-Atty** and M.S. Abo-El-Seoud"New Proposed Encryption Techniques for WiMAX-802-16e MAC Layer"**The Mediterranean Journal of Computers and Networks, Vol. 7, No. 3, 2011.**

[30] M. A. Mohamed, M. S. Abo-El-Seoud , and **Heba. M. Abd-El-Atty**," Performance and Efficiency of WiMAX-MAC-Layer: IEEE-802-16e." **IJCSNS I**nternational of Computer Science and Network Security, December 2010.

[31] M. A. Mohamed, M. S. Abo-El-Seoud , and **Heba. M. Abd-El-Atty**, "Performance Simulation of IEEE 802.16e WiMAX Physical Layer," 2[nd]IEEE International Conference on Information Management and Engineering **IMEC**, Chengdu, China, April 2010.

[32] M. S. Abo-El-Seoud, A. M. Ghumeim and Heba**. M. Abd-El-Atty**," The Performance of Asynchronous DS-CDMA System Using Different Chip Wave Forms ", Port Said Journal, Port Said University, Marc 2006.

BOOK CHAPTER PUBLICATION

Mohamed Selim, Ahmed E. Kamal, Khaled Elsayed, **Heba M. Abdel-Atty**, and Mohammed Alnuem "**Self-Healing in 5G HetNets" in   Opportunities in 5G Networks**:
A Research And Development Perspective book, 2016 by Taylor & Francis Group, LLC

RESEARCH PROJECT

- ERASMUS project "Technology-based Entrepreneurship for Supporting Sustainability in Suez Canal Region".
- STDF project "Smart Solar Driven Desalination System for Maximizing Water Productivity under Climate Change Using Artificial Intelligence".

TEACHING EXPERIENCES

- Teaching experience involves the following courses:
  - Undergraduate courses:
    - Communication Theory & Systems I
    - Mobile communication.
    - Digital Communication.
    - Wireless communication.
    - IoT
    - Presentation skills.
  - Post graduate courses:
    - Mobile communication.
    - Information and Coding.
    - Data ccommunication.
    - Advanced Electronic and communications

WORK EXPERIENCES

[1] Manager of quality and accreditation center of Port Said University, 2021 till now.
[2] Manager of Huawei Academy, Port Said University, 2019 till now.
[3] Director of Quality and Accreditation Unit, Faculty of Engineering, Port Said University 2018 till now.
[4] Vice manager of E-club 2020 till now.
[5] Vice director of the Entrepreneurship, Innovation and sustainable unit, Faculty of Engineering, Port Said University 2018 till now
[6] Director and Member of the Board of Directors, Training, Courses and Learning Center, Faculty of Engineer, Port Said University, *July 2007 till now*.

[7] Coordinator of Alumni committee of Port Said University.

[8] Member in Sustainability committee of Port Said University.

[9] Member of Ranking committee of Port Said University.

[10] Coordinator of the Commission training and awareness of the quality assurance and accreditation unit, Faculty of Engineer, Port Said University, *July 2012 till now*

[11] Coordinator standard societal participation of the quality assurance and accreditation unit, Faculty of Engineer, Port Said University, *July 2011 till now*

[12] Teaching the Summer Training in Electronics Labs, Faculty of Engineering, Suez Canal University, 2001 –2006

[13] Teaching MATLAB, Faculty of Engineering, Suez Canal University,2008-2011

[14] Teaching VHDL & FPGA, Jelecom Company,2009 -2010

[15] Teaching GSM, CDMA, UMTS, Jelecom Company,2009 -2011

[16] Supervision of the protocol between the faculty of engineering and training Companies (Jelecom Training Company, MAZ Training Solution, TouchLine for Soft Skills and SCCT (Suez Canal Container Terminal) Company. 2007 **till now**

[17] Organizing OSHA (Occupational Safety and Health Administration) courses.2008

[18] Organizing ICDL courses and preparing the ICDL laboratory,2011.

[11] Technical supervisor on sponsorship that has been provided from any Company to graduation projects and member of committee that chooses the projects which win the sponsorship chance. 2009 till now.

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PROFESSIONAL ACTIVITIES

[1] **Senior of IEEE**, 2019 till now

[2] Member of **IoT Egypt forum** at Body of knowledge work group,2017 till now

[3] Member of the technical committee of IoT challenge competition, 2017 till now

[4] Students communicate official, Faculty of engineering, Port Said University, 2014 till now

[5] Founder and counselor of IEEE Port Said University Student Branch,2013 till now

[6] Member of IEEE, 2012 till now.

[7] Member of IEEE Communications Society, 2012 till now.

[8] Co-Founder of Port Said Engineering Day (PSED) which hold in the Faculty of Engineering in PortSaid.2009 till now

[9] Member of organization team of RDI Project "The Links between Research Sector and Industry", industrial field in Suez Canal Area, 2010.

[10] Shared in the preparation of both undergraduate and postgraduate syllabus, electronic and communications Eng. Dept., Faculty of Engineering Port Said University.

[11] Supervision of many graduation projects.

TRAINING COURSES

- HCIA "**5G"** instructor certified from Huawei International.
- "**Blockchain in IoT Security**" ITIDA, April 2019
- "**Big data National Telecommunication Institute**" NTI, December 2017
- "Scientific Research Writing", Suez Canal University, November 2017
- "Credit Hours System" Port Said University, October 2017

- Training in **Embedded Control Engineers from Microchip Technology Inc**, Arizona, USA in 2015.
- "Strategic Planning Course", Port Said University, September 2013.
- "Student Examination Techniques Course", Port Said University, September 2013.
- "Effective Communication Skills Course", Port Said University, April 2012.
- "Using Technology in Education Cours*e*", Port Said University, April 2012.
- "International publishing of research cours*e*", Port Said University, March 2012
- "Effective presentation skill*s* course", Port Said University", March 2012.
- "Time Management Cours*e",* Port Said University, February 2012.
- "Competitive Research Projects Cours*e*", Port Said University, December 2011
- *"*TOT (Training of trainers) *Course,* December 2010
- Electronics and Communications Training, technical training center of Canal Electric Company, Ismailia, August 1996.

MASTERS SUPERVISION

[1] Walid Raslan "**Implementation of LTE Physical Layer Using FPGA"**, Mansoura University, September 2014.

[2] Samar El Araby "**Spectrum Sensing Spectrum Sensing for Cognitive Radio**", Port Said University, December 2017.

[3] Ahmed Salah" **Routing in Cognitive radio Network**" Port Said University, May 2018,

[4] Noura Ali EL_Alfy "**Enhancement of Spectrum Sensing Techniques in Fifth Generation Systems**". Port Said University, January 2019.

[5] Mahmoud El_Banna "**Development of Heterogeneous Networks in LTE-Advanced"** Port Said University.

[6] Heba Zaghloul "**Coexistence in Heterogeneous Networks**" Port Said University.

[7] Eman Abd EL_Naby Anwar "**Power Modeling of Fog Radio Access Network**" Port Said University.

[8] Rana Mohsen Mokhtar "**Optimization of the Relay Nodes Deployment in the Cellular Networks**", Port Said University.

[9] Rawia harown "**Enhanced Steganography Technique in IoT Applications**" Port Said University.

[10] Tokka Elsayed "**Enhancement of Security for the Internet of Things**" Suez Canal University.

PhD SUPERVISION

[1] Walid Raslan "**Implementation of New Waveforms for Next Generation Wireless Networks**", Port said University.

[2] Mohamed Amen "**A Novel Approach for D2D in 5G System**" Port Said University.

[3] Saleh Okby "**Development of 5G Physical Layer Using FPGA**" Port Said University.

[4] Nada Ahmed "**Novel Approach for Self-optimization in 5G Networks**" Port Said University.

[5] Ahmed Khairt "**Energy Management Systems Based on Wireless Sensor Networks in Intelligent Structures**" Mansoura University.

[6] Ahmed Eldemiry **"New Sidelobe reduction technique for PAPR reduction in OFDM**"
Ismailia University.

[7] Abd El Azzem Gamal **"development of IoT system based on broadband wireless technology**" Mansoura University.

PROFESSIONAL SERVICES

- Reviewer, IEEE Access Journal.
- Reviewer, Transactions on Emerging Telecommunications Technologies ETT Journal, Wiely.
- Reviewer, IEEE Global Communications Conference.
- Reviewer, ECC'15 "The Second Euro-China Conference on Intelligent Data Analysis and Applications" June 29 - July 1, 2015, Ostrava, Czech Repubic

ENGINEERING SOFTWARE SKILLS

- Excellent in following Engineering Programs:
  - [1] MATLAB (Programming &Simulink).
  - [2] ORCAD (SPICE, LAYOUT).
  - [3] ELECTRONIC WORKBENCH.
  - [4] Xilinx ISE.
  - [5] FPGA Advantage, ModelSim (VHDL Simulator).