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Full Name: Abdelhaleem Mohamed Ahmed Abdelaty
Born: June 01, 1980—Sohag, Egypt
Nationality: Egyptian

Current position

Assistant Professor, Department of Physics, Faculty of Science,
Al-Azhar University, Assiut, Egypt.

Areas of specialization

Quantum Information • Information Theory • Artificial Intelligence
and Optimization Techniques • Computational Physics

Appointments held

2012-Present Al-Azhar University, Assiut, Egypt
2011-2015 Universiti Teknologi Petronas, Perak, Malaysia
2005-2011 Egyptian Atomic Energy Authority, Cairo, Egypt
2004-2005 Central Metallurgical Research & Development Institute (CMRDI), Helwan, Egypt

Education

2015 PhD in Information Technology (Quantum Information), Universiti Teknologi Petronas, Perak, Malaysia
2009 M.Sc in Physics, Al-Azhar University, Cairo, Egypt
2004 B.Sc in Physics, Al-Azhar University, Assiut, Egypt

Grants, honors & awards

2011 PhD Scholarship, Universiti Teknologi Petronas, Perak, Malaysia
2004 The award of distinct student offered by Al-Azhar University for four years continuously

Publications & talks

BOOK CHAPTER

- [1] **Abdel-Haleem Abdel-Aty**, Lee Yen Cheong, Nordin Zakaria and Nasser Metwally, "Effect o the Spin-orbit Interaction on Entangled Quantum Network", *Lecture Notes in Electrical Engineering*, **285** (2014) 529-537
URL: <http://link.springer.com/chapter/10.1007/978-981-4585-18-7-59>
- [2] **Abdel-Haleem Abdel-Aty**, M. Abdel-Aty, A.-S. F. Obada and M. R. Wahiddin "Characteristics and distinctive features of entanglement in superconducting charge gubits" Book title: *Quantum Entanglement*, Nova Science Publishers Inc.2012, 199-243
URL: <http://www.gbv.de/dms/tib-ub-hannover/668960817.pdf>

JOURNAL ARTICLES

- [3] Elsayed Dahy, Afza Shafie, **Abdel-Haleem Abdel-Aty**, Noorhana Yahya and Tadiwa Elisha Nyamasvisva "Simulation of the Electromagnetic Field Response of a Horizontal Ring Electric dipole Antenna in Planarly Homogeneous Layered Media", *Journal of Computational and Theoretical Nanoscience*, "Accepted 2017"
- [4] Mohammad R. Bahloul, Mohd Z. Yussof, **Abdel-Haleem Abdel-Aty** and Mohd N. Saad "Efficient and Reliable Modulation Classification for MIMO Systems", *Arabian Journal for Science and Engineering*, "Accepted 2017"
- [5] Mohammad R. Bahloul, Mohd Z. Yussof, **Abdel-Haleem Abdel-Aty**, Mohd N. Saad and Lamis Kudsi "Spectrum Sensing for Cognitive Radio Systems Using Modulation Classification: A Review", *Applied Mathematics & information science*, "Accepted 2017"
- [6] Mustapha Abubakar, Low Tang Jung, Nordin Zakaria, **Abdel-Haleem Abdel-Aty** and Ahmed Younes "Quantum Circuit Optimiztion Using Genetic Programming with Dynamic Gate Libraries", *Quantum Information Processing*, "Accepted 2017"
- [7] Ali Homid, **Abdel-Haleem Abdel-Aty**, M. Abdel-Aty and A. Obada "Multi-Qubits Dynamical Quantum Search Algorithm with Dissipation", *Physical Review A*, "Submitted"
- [8] Ali Homid, **Abdel-Haleem Abdel-Aty**, M. Abdel-Aty, A. Badawi and A. Obada "Efficient realization of quantum search algorithm using quantum annealing processor with a dissipation", *Journal of Optical Society America B*, Vol **32** (2015) 2025-2033.
URL: <https://www.osapublishing.org/josab/abstract.cfm?uri=josab-32-9-2025>
- [9] Mohammad R. Bahloul, Mohd Z. Yussof, **Abdel-Haleem Abdel-Aty**, Mohd N. Saad and Marwan Al-Jemeli "Modulation classification for MIMO systems: State of the art and research directions", *Chaos, Solitons & Fractals*, Vol **89** (2016) 497-505.
URL: <http://www.sciencedirect.com/science/article/pii/S0960077916300601>
- [10] Mohammad R. Bahloul, Mohd Z. Yussof, **Abdel-Haleem Abdel-Aty** and Mohd N. Saad "An Efficient Likelihood-Based Modulation Classification Algorithm for Multiple-Input Multiple-Output Systems", *Journal of Computational and Theoretical Nanoscience*, Vol **13** (2016) 7879-7885.
- [11] **Abdel-Haleem Abdel-Aty**, Heba Kadry, Nordin Zakaria and Nasser Metwally, "Quantum Simulation of the 3-Qubits quantum annealing processor", Submitted to *Quantum Information Processing*.
- [12] **Abdel-Haleem Abdel-Aty**, Lee Yen Cheong, Nordin Zakaria and Nasser Metwally, "Quantum Network via Partial Entangled state", *Journal of Communications*, Vol **9** (2014) 379-384.
URL: <http://www.jocm.us/index.php?m=content&c=index&a=show&catid=132&id=668>

- [13] **Abdel-Haleem Abdel-Aty**, Lee Yen Cheong, Nordin Zakaria and Nasser Metwally, "Entanglement and Teleportation over Entangled Quantum Network", *Journal of Computational and Theoretical Nanoscience*, Vol **12** (2014) 2213-2220.
URL: <http://www.ingentaconnect.com/content/asp/jctn/2015/00000012/00000009/art00030>
- [14] **Abdel-Haleem Abdel-Aty**, Lee Yen Cheong, Nordin Zakaria and Nasser Metwally, "Effect of the Spin-orbit Interaction (Heisenberg XYZ Model) on Partial Entangled Quantum Network", *Journal of Quantum Information Science*, **4** (2014) 1-17.
URL: http://file.scirp.org/Html/1-1300099_42930.htm
- [15] **A-H. M. Ahmed**, Lee Yen Cheong, Nordin Zakaria and Nasser Metwally, "Dynamics of Information Coded in a Single Cooper Pair Box", *International Journal of Theoretical Physics*, **52** (2013) 1979-1988.
URL: <http://link.springer.com/article/10.1007/s10773-012-1399-9>
- [16] **A-H. M. Ahmed**, Lee Yen Cheong, Nordin Zakaria and Nasser Metwally, "Teleportation in the presence of technical defect in transmission stations", *Applied Mathematics & information science*, **6** (2012) 781-787.
URL: <http://www.naturalspublishing.com/files/published/535221oysy3q7h.pdf>
- [17] **A. M. Ahmed** and E. W. Ahmed, "Spatial dependence of moving atoms with a two-photon process", *JAAUBAS*, **10** (2011) 28-32.
URL: <http://www.sciencedirect.com/science/article/pii/S181538521100023X>
- [18] **A. M. Ahmed** and S. Abdel-Khalek, "Information entropy of a superconducting charge qubit interacting with two cavity fields", *Applied Mathematics & information science*, **5** (2011) 263s-273s.
URL: <http://www.naturalspublishing.com/files/published/535221oysy3q7h.pdf>
- [19] **A. M. Ahmed**, Kh. Hassan, H. E. Hassan, A. M. Khalaf and Z. Saleh, "Cross section for the formation of radioidines in proton bombardment of natural tellurium with particular reference to validation of data for the production of ^{123}I ", *Radiochemica Acta*, **99** (2010) 317-323.
URL: <http://www.degruyter.com/view/j/ract.2011.99.issue-6/ract.2011.1845/ract.2011.1845.xml>

CONFERENCES

- [20] Mustapha Abubakar, Low Tang Jung, Nordin Zakaria and **Abdel-Haleem Abdel-Aty**, "New Universal Gate Library for Synthesizing Reversible Logic Circuit Using Genetic Programming" International conference on computer and information science (ICCOINS2016), 15-17 August 2016, Kuala Lumpur, Malaysia, *IEEE Conf. Proc.*
URL: <http://usite.utp.edu.my/iccoins2016/>
URL: <http://ieeexplore.ieee.org/abstract/document/7783234/>
- [21] Mohammed Zidan and **Abdel-Haleem Abdel-Aty**, "Management of Quantum DataBases" 2016 Applied Mathematics and Information Science Conference (ICMIS 2016), 11-13 Feb 2016, Cairo, Egypt, *IEEE Conf. Proc.*
- [22] Mohammad R. Bahloul, Mohd Z. Yussof, **Abdel-Haleem Abdel-Aty** and Mohd N. Saad, "Efficient and Reliable Modulation Classification for MIMO Systems" 2015 IEEE 12th Malaysia International Conference on Communication (MICC 2015), 2-4 Nov 2015, Kuching, Malaysia, *IEEE Conf. Proc.*
- [23] Heba Kadry, **Abdel-Haleem Abdel-Aty**, Nordin Zakaria and Lee Yen Cheong, "Controlling of the Transmitted Information of a multi-photon interacting with a Single-Cooper Pair box", International conference on fundamentals and applied science (ICFAS2014), 2-6 June 2014, Kuala Lumpur, Malaysia, *American Institute of Physics Conf. Proc.*, **1621** (2014) 784-791.
URL: <http://scitation.aip.org/content/aip/proceeding/aipcp/10.1063/1.4898556>

- [24] **Abdel-Haleem Abdel-Aty**, Nordin Zakaria and M. Mabrok "Dynamics of the Entanglement over Noisy Quantum Networks" International conference on computer and information science (ICCOINS2014), 2-6 June 2014, Kuala Lumpur, Malaysia, *IEEE Conf. Proc.*
URL: <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6868409>
- [25] **A-H. M. Ahmed**, Lee Yen Cheong, Nordin Zakaria, Nasser Metwally and H. Eleuch, "Statistical properties of a Raman three-level atom interacting with a cavity field", International conference on fundamentals and applied science (ICFAS2012), 2-6 June 2012, Kuala Lumpur, Malaysia, *American Institute of Physics Conf. Proc.*, **1482** (2012) 373.
URL: <http://scitation.aip.org/content/aip/proceeding/aipcp/10.1063/1.4757497>
- [26] **Abdel-Haleem Abdel-Aty**, Elsayed K. Elmaghraby, Ibrahim M. A. Tag El-Din, Seham A. Said, Mona A. Allam, Ali M. Khalaf, "Nuclear medium effects in pre-equilibrium nuclear reactions" The 8th Conference on Nuclear and Particle Physics, Hurgada, Egypt 20-24 Nov 2012
URL: http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/44/104/44104855.pdf

Patents

- 2015 XXXXX/01-08-2015 (Malaysia)
Title: **Method for Efficient Modulation Classification for Multiple-Input Multiple-Output Systems**
Abstract: We proposed a novel feature-based modulation classification algorithm for multiple-input multiple-output (MIMO) wireless systems. The problem of the soft-decision fusion for the feature-based modulation classification algorithms is addressed in this novel; where an optimal soft-decision fusion scheme based on the Maximum-Likelihood (ML) criterion is introduced to improve the accuracy of the classification decisions. To the best of our knowledge, no previous work has addressed the problem of the soft-decision fusion in the context of the modulation classification for MIMO systems.

Workshops and Meetings

- 2006-2010 Attending the annual meeting of Egyptian Physical Society
- 27-30 Dec. 2007 Attending the second International Conference in Mathematics ICMTD07, Cairo, Egypt
- 12-17 July 2007 Attending and present talk in the German Egyptian Year for Science and Technology and presented a talk entitled "Production of Radioisotopes in Egyptian MGC-20 Cyclotron Facility"
- 28-29 June 2008 Attending the Radioisotope Production Workshop, Radioisotope Production Project, Second Research Reactor, EAEA, Egypt
- 05-06 Jan. 2009 Attending the BA-DAAD-ECTP Workshop on "Promotion and Role of Basic Science in Egypt and Germany", Cairo (ECTP) and Alexandria (BA), Egypt
- 13-15 Nov. 2009 Attending the 2nd International Conference on Mathematics and Information Security, Sohag University, Sohag, Egypt
- 23-24 June 2010 Attending the Mathematica Conference (Wolfram Co), Cairo, Egypt
- 02-06 June 2012 Attending and present talk entitled "Statistical properties of a Raman three-level atom interacting with a cavity field" in the 2nd International conference on fundamentals and applied sciences, Kuala Lumpur, Malaysia
- 25-24 Aug. 2012 Attending the Research and publication workshop, Sohag University, Sohag, Egypt
- 05 May 2013 Attending the Fundamentals of LaTeX Workshop, Universiti Teknologi Petronas, Perak, Malaysia

- 16-18 Dec 2013 Attending and present talk entitled: "Effect o the Spin-orbit Interaction on Entangled Quantum Network" the 1st International conference on data and information engineering, Kuala Lumpur, Malaysia
- 03-06 June 2014 Attending and present talk entitled: "Controlling of the Transmitted Information of a multi-photon interacting with a Single-Cooper Pair box", the 3rd International conference on fundamentals and applied sciences, Kuala Lumpur, Malaysia
- 03-06 June 2014 Attending and present talk entitled: "Dynamics of the Entanglement over Noisy Quantum Networks" the 2nd International conference on fundamentals and applied sciences, Kuala Lumpur, Malaysia
- 07-09 Feb. 2016 Attending the 5th International Conference on Mathematics and Information Sciences (ICMIS2016), Cairo, Egypt

Trainings and Courses

- 2016 **TOT (Training of Trainer Courses for Information Resources and Databases)**, Egypt Knowledge Bank, Digital Library, Cairo University, Cairo, Egypt.
- 2015 **TOT (Training of Trainer Courses)**, Institute of Development and Learning, Al-Azhar University, Cairo, Egypt.
- 2012 **Research Methodology Course**, Petronas University of Technology, Perak, Malaysia.
- 2009 **The Basic Program for Protection against Ionizing Radiations**, Training Center, Egyptian Atomic Energy Authority, Cairo, Egypt.
- 2009 **Basic Training Course on Accelerators and its Applications**, Training Center, Egyptian Atomic Energy Authority, Cairo, Egypt.

Computer skills

Basic: Microsoft Office, Adobe

Intermediate: PYTHON, HTML, \LaTeX , MATLAB, Mathematica, Linux, Microsoft Windows

Advanced: Computer Hardware

Teaching Experience and Skills

I have taught the following Mathematics, Computer Science and Physics courses:-

MATHEMATICS

Vector Calculus to the students in the second year at Mechanical, Electrical, Civil, Petroleum Engineering Departments, Faculty of Engineering, UTP, Malaysia

Calculus II to the students in the foundation year at the Faculty of Engineering, UTP, Malaysia

COMPUTER SCIENCE

Discrete Mathematics to the students in the second year at the Faculty of the Computer and Information Technology, UTP, Malaysia

Linear Programming to the students in the second year at the Faculty of the Computer and

Information Technology, UTP, Malaysia

Fundamentals Programming to the students in the third year at the Physics Department, Faculty of Science, Al-Azhar University, Egypt

MatLab to the students in the fourth year at the Physics Department, Faculty of Science, Al-Azhar University, Egypt

PHYSICS

Medical Physics to the students in the second year at the Biology Department, Faculty of Science, Al-Azhar University, Egypt

Thermal and Material Physics to the students in the first year at the Biology Department, Faculty of Science, Al-Azhar University, Egypt

Service to the profession

2014–present I am acting as the managing editor of the journal of Information Sciences Letters

2014–present I am acting as the managing editor of the International Journal of New Horizons in Physics

Languages

Arabic Mother tongue

English-Very Good-Conversationally fluent

Bahasa-Basic-Basic words and phrases only

Interests

Travel, Photography, Catching fish, Reading and Running

Referees

PROFESSOR **Hichem Eleuch**

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DR **Lee Yen Cheong**

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