Curriculum Vitae

OMER ABDEL RAZAG SHARIF ABUBAKER

To be a member of a reputable Academic, R&D or industrial organization where I can realign myself with their staff and partners who are contributing to achieve its strategic goals, and concurrently further enhancing and broadening my knowledge and experiences. Such true passion is supported by self-motivation, enormous dedication & enthusiasm, remarkable intellectual and academic ability with more than 17 years of different accumulated experiences in various Electronics Engineering areas, with genuinely likable and pleasant personality that is going the extra mile to work with and support colleagues.

Personnel Data

- **Gender**: Male   **Date and Place of Birth**: 30 June 1978, Omdurman, Khartoum, Sudan
- **Nationality**: Sudanese.   **National Number:** 118-1146-3758.
- **National ID:** No.0056643963, issued on 14th of April 2018 at Khartoum Complex, Khartoum, Sudan, Expired by 13th of April 2023.
- **Passport Number:** P05602874, issued on 19th of March 2019 at Khartoum Complex, Khartoum, Sudan, Expired by 18th of March 2023.
- **Registered at the Sudan Engineering Council (SEC)** as an Electronics Graduate Engineer under the registration No: **8011** since the 3rd of July 2006.
- **National Service**: Completed Since 22 January 2000.
- **Marital status**: Married and have three children.

Address

- **Current Address**
  ALGAREEN ENGINEERIN, "Innovation for the Nation"
  Office No. 5, 4th Floor, Old-Taxation Tower, West of AlWaha Mall, Khartoum, Sudan.
  Mobile: +249-125291011.
  E-mail: algareen.eng@gmail.com, **Facebook**: algareen engineering.
- **Permanent Address**
  Home No.: 172, Block No.: 1, Al-Kalaklah AlGalaa, Khartoum, Sudan.
  Mobile: +249-912695534; +249-117778848,
  E-mail: omer.a.sharif@hotmail.com;
- **In Case of Emergency, Please contact:**
  Eng. MURWAN ABDEL RAZAG SHARIF ABUBAKER (Brother)
  Home Address: Home No. 67, Block No. 11, Al-Safiah, Al-Kadarow Pilot Street, North of Al-Safiah Police Station, Khartoum North, Khartoum, Sudan.
  Mobile: +249-122223064.
  E-mail: giant883@gmail.com; giant883@hotmail.com

Academic Qualifications

- **Master of Engineering (Electrical- Electronics and Telecommunications), GPA: 3.81/4.0, Universiti Teknologi Malaysia (UTM), Malaysia.**
  Duration: 21st July 2005- 6th December 2006:
  Date of award: 22nd December 2006.
  Certificate No.:2007M-000131, *Date*: 24 March 2007.

Student No.: ME041097

University Address: Universiti Teknologi Malaysia, 81310UTM Skudai, Johor Bahru, Malaysia. Tel: +607-5533333 ext.37815, Fax: +607-5569511/ +607-5537800, E-mail: pps@utm.my/graduate@utm.my

Thesis Title: Determination of the Melting Layer from Meteorological Radar Data.

- **Bachelor of Electronics Engineering (Communications), Class of Award: First Class, Honor, Sudan University of Science and Technology (SUST), Sudan.**
  Duration: 8th August 1998- 5th June 2003
  Date of award: 8th July 2003.
  Certificate No.: 0001290, *Date*: 9th December 2003
  Student No.: B97430
  University Address: Sudan University of Science and Technology, Khartoum, Sudan. P.O. Box: 407 Khartoum, Tel: +249-183-771514, Fax: +249-183-778639, E-mail: acad@sustech.edu
  Graduation Project: Central Processing Unit Design with Hardwire Control Unit

- **Sudanese Higher Secondary School Certificate (86.7%), Additional Mathematics and Geography, Basher Mohamed Saeed Model Secondary School, Omdurman, Khartoum, Sudan.**
  Duration: 4th June1994-3rd April 1997
  Higher Secondary School:
  Student No.: 12134, *Exam. Date*: April 1997
  Recipe No.: 42590, *Date*: 18 May 1998.

Professional Experiences

- **September 2016- Up to Date**: Founder and General Director of ALGAREEN ENGINEERING "Innovation for the Nation".
  Responsibility: Directing Algareen Engineering (AE) which was established in September 2016 (Registration Certificate No. 104924) as a designer, developer and manufacturer of low cost and innovative-technology solutions focusing on educational training boards, laboratory and scientific equipment; to effectively participate in the evolving of information and communication technology (ICT) and electro-mechanics industry in Sudan.

- **May 2016- December 2020:** Part time Lecturer (as Assistant Professor), Aeronautical Engineering Department, Faculty of Engineering, Sudan University of Science and Technology, Sudan.
  Responsibility: Lecturer of the following subjects:
  1. Analogue Electronics (B.Sc. level)
  2. Communications Principles (B.Sc. level)
  3. Digital Communications (B.Sc. level).
  4. Advanced Digital Signal Processing (M.Sc. level)

- **September 2014- 31st October 2015:** Coordinator of the Research Programmes, Engineering Research and Industrial Technologies Council, Sudan Academy of Sciences at Industrial Research and Consultancy Centre (IRCC), Sudan.
  Responsibility: Coordinating the research programmes (M.Sc. and Ph.D.) at the Council through developing, implementing and evaluating the annual plan of the research programmes which include but not limited to enhance: the proposal evaluation procedure, follow-up methods, research environment, and utilize the research outcomes.

- **1st September 2013- 31st August 2014:** Full time Researcher and Director of Research Department, Nile Centre for Technology Research (NCTR), Sudan.

Responsibility: Directing the research Dept. at Nile Centre for Technology Research (NCTR) through developing, implementing and evaluating the strategic and relative annual plan of the research at the Centre.

- **1ˢᵗ September 2012- 31ˢᵗ December 2012:** Full time Researcher, Research Department, Nile Centre for Technology Research (NCTR), Sudan.
  Responsibility: Assist the Director of the Research Dept. by managing the Funded Researches Section.
- **1ˢᵗ June 2008- 30ᵗʰ November 2008:** Part time Researcher, Electronic Systems Research Centre (ESRC), College of Engineering, Sudan University of Science and Technology, owned by Nile Centre for Technology Research (NCTR), Sudan.
  Responsibility: Directing the R&D activities and providing the needed technical support.
- **2ⁿᵈ January 2007- 31ˢᵗ July 2008:** Part Time Lecturer, Electrical Engineering Dep., Garden City University of Science and Technology (GSUST), Sudan.
  Responsibility: Lecturer of the following subjects at the B.Sc. level:
    1. Communication Electronics
    2. Data Acquisition and Measurements
    3. Probability and Statistics
    4. Encoding and Data Encryption
    5. Electrical Measurements.
    6. Digital Communications
- **2ⁿᵈ January 2007- 2ⁿᵈ January 2009:** Part time Lecturer, Network and Computer Systems Dep. Collage of Computer Science and Information Technology, Sudan University of Science and Technology (SUST), Sudan.
  Responsibility: Lecturer of the following subjects at the B.Sc. level:
    1. Data Communication Systems
    2. Modern Communications.
- **10ᵗʰ July 2006- 5ᵗʰ November 2006:** Part time Teaching Assistant, Faculty of Electrical Engineering, Universiti Teknologi Malaysia (UTM), Malaysia.
  Responsibility: Conducting the labs. of Electronics and Microprocessors courses for the 1st and 4th year Electrical Engineering B.Sc. respectively.
- **22ⁿᵈ December 2006- 31ˢᵗ October 2015**: Full time Researcher, Industrial Research and Consultancy Centre (IRCC), Khartoum North, Sudan.
  Responsibility:
  o Conduct applied R&D, maintaining & calibrating various electronic systems such as scientific equipment, and,
  o Provide consultancy services in the relevant fields such as asset evaluation, feasibility study, and technical evaluation (i.e. Quality Control and Standardization) and enhancement.
  o Provide industrial training services in relevant fields such as applied communication, automatic control using modern control techniques (i.e. microcontroller), and ICT for industrial sector.
- **4ᵗʰ January 2004-21ˢᵗ December 2006**: Full time Researcher Assistant, Industrial Research and Consultancy Centre (IRCC), Khartoum North, Sudan
  Responsibility:
  o Conduct applied R&D, maintaining & calibrating various electronic systems such as scientific equipment, and,
  o Provide consultancy services in the relevant fields such as asset evaluation, feasibility study, and technical evaluation (i.e. Quality Control and Standardization) and enhancement.

o Provide industrial training services in relevant fields such as applied communication, automatic control using modern control techniques (i.e. microcontroller), and ICT for industrial sector.

Training Courses

- **10-14 December 2017**: Training Course on Business Analysis, at Baselines for training and human development Centre, Khartoum, Sudan
- **13-21 November 2017**: Training Course on Contract Management based on contract management body of knowledge (CMBOK) version 4-USA, at Baselines for training and human development Centre, Khartoum, Sudan
- **18-29 October 2015**: Training Course on Primavera Project Planner, The Central Laboratory for Technical Services and Calibration (CLTSC), Sudanese Electricity Distribution Company (SEDC), Ministry of Water Resources and Electricity, Sudan.
- **17-18 December 2013**: International Telecommunication Union (ITU) Regional Workshop on Transition to Digital Broadcasting and Digital Dividend: Current Deployment and Regulatory Issues, Khartoum, Sudan.
- **8-12 February 2009**: Training Course on: Energy and Safety Environment, Faculty of Engineering, University of Khartoum, Sudan
- **19-20 July 2006**: Short course on Teaching Preparation for Teaching Assistant in UTM, Malaysia.
- **15-21 December 2004**: Short Training Course in Design, Operation and Maintenance of Water Treatment Planets, UNESCO Chair in Water Resources, Sudan.
- **4-30 April 2004**: Course on Malaysian Technical Cooperation Programme on Electronics and Computer Application for Sustainable Industrial Development, SIRIM Berhad, Malaysia.
- **1-22 July 2001**: Training on Transmission Station and Studios, National Broadcasting Corporation, Sudan.

Publications

1. Sharif, O. A. R., "Determination of the Melting Layer from Meteorological Radar Data," the Digital Library of Universiti Teknologi Malaysia, Malaysia. Master of Engineering Thesis. December 2006.
2. Khamis, N. H., Sharif, O. A., Hanzaz, Z. Baharom, A., "Month-To-Month Variability of the Melting Layer Boundaries," Asia-Pacific Conference on Applied Electromagnetics (APACE 2007), Melaka, Malaysia, Page(s): 1-4, ISBN: 978-1-4244-1434-5, December 4-6, 2007.
3. Khamis, N.H.H., Sharif, O. A. R., Hanzaz, Z. and Baharom, A., "Determination of the Melting Layer from Meteorological Radar Data in Malaysia," Proceeding of International IEEE Symposium on Microwave, Antenna, Propagation and EMC Technologies for Wireless Communications, Hangzhou, China, Page(s): 1467-1470, ISBN: 978-1-4244-1045-3, August 14-17, 2007.
4. Nor Hisham Khamis, Omer Abdel Razag Sharif, Zakaria Hanzaz, and Ameruddin Baharom, "Analysis of the Melting Layer from Metrological Radar Data in Malaysia," Proceeding of International Conference on Robotics, Vision Information and Signal Processing, Park Royal Penang, Malaysia, November 28-30, 2007.
5. Chapter 3 in Special Topics in Propagation and Communication Engineering Edited by Nor Hisham Khamis *et al*., index ISBN 978-983-52-0663-4, 2008.
6. Omer Abdel Razag Sharif and Watit Benjapolakul "On Asynchronous MIMO-OFDMA System Performance," The 2nd International Workshop on Internet Architecture,

Chulalongkorn University, Bangkok, Thailand, October 28-29, 2010. (Award for Students Studies by Technical Committee).

7. Sharif, A., O., "Dream for IEICE Section in Sudan**,"** Proceeding of IEICE Global Plaza, No.34, 2011.

8. Shabour, H.M.; Daffalla, M. M.; and Sharif, O. A. R., "Performance enhancement of the controller area network protocol using Reed-Solomon codes," Proceeding of International IEEE Conference on Computing, Electrical and Electronics Engineering (ICCEEE), pp.512-517, August 26-28, 2013.

9. Muzamil Eltejani. Mohammed Ali and Omer Abdel Razag Sharif "Temperature Compensation in pH meter-A Survey," Journal of Engineering and Computer Science (JECS), Sudan University for Science and Technology, Vol. 16, No. 2, 2015.

10. Omer Abdel Razag Sharif, "On the Use of Information and Communication Technology for Sustainable SMEs' Development in Sudan," In the Proceeding of the 7th Arab International Conference on Information Technology, 19-21 May 2015 Rabat, the Kingdom of Morocco. (Written in Arabic language)

11. Omer Abdel Razag Sharif and Watit Benjapolakul, "SIR Analysis on Uplink MIMO-OFDMA Fading Channel System in Presence of Time Offset," [Under Reviewing]

12. Omer Abdel Razag Sharif and Watit Benjapolakul, "Effect of Boundaries of the Time Offset on the Performance of Asynchronous Uplink OFDMA Systems," [Under Reviewing]

13. Tamador Alkhanssa M., K., and Omer A. Sharif, "A Greenhouse Monitoring and Control System Based on Wireless Sensor Network", [Under Reviewing]

14. Nasreen Ahmed Mekki, Omer A. Sharif, and Amin B. A. Alnabi, "A survey on Cryptography Algorithms in Cloud Computing Environment", In the Proceeding of the Graduate College Scientific Journal, Al Neelain University, Sudan, Vol. 16, 2021.

15. Nasreen Ahmed Mekki, Omer A. Sharif, and Amin B. A. Alnabi, "Enhanced Data Encryption Algorithm for Secured Data in Cloud Computing using Parallel Computing Environment", In the Proceeding of the Graduate College Scientific Journal, Al Neelain University, Sudan, Vol. 16, 2021.

16. Fawaz Fathi Taha Mohamed, Sharif Fadul, Omer Abdel Razag Sharif, and Osman Hassan, "Universal Integrated Wi-Fi Controller for Smart Buildings Applications", In the Proceeding of the University of Khartoum Engineering Journal (UofKEJ), Vol.: , 2022.

Reports and Papers in Workshops & Training Programmes

1. Sharif, O. A. R., "Electronics & Information Industry in Sudan," Country paper in International Training Programme on Electronics & Computer Application for Sustainable Industrial Development. SIRIM, Shah Alam, Malaysia, April 2004.

2. Einas Elmugira Hamed, Omer Abdel Razag Sharif., and Abu Baker Obied. "The Automation in Industrial Research and Consultancy Centre (IRCC), The Current Situation and the Horizons of the Development," A detailed report in Automation workshop organized by IRCC and MATS Company (Sudan). Ustaz. Bader Eldeen Sulaiman Conference Hall, IRCC, May 2008. (Written in Arabic language).

3. Sharif, O.A.R., "The Contribution of the Industrial Research and Consultancy Center in Industrial Transfer and Localization of the Technology (2002 -2012)-A Report," In the Proceeding of the workshop on Localization of Engineering Industries in Sudan organized by IRCC Sudan. Ustaz. Bader Eldeen Sulaiman Conference Hall, IRCC, 17-21 March 2013. (Written in Arabic language).

Engaging in Applied Research and Development Projects:

- **Reactivate (Reuse) the Filament-broken Fluorescent Lamp Using Radio Frequency (RF)**, May 2004 (Team member where the total number of the Team is THREE researchers i.e. Research leader and TWO researchers) at IRCC:
  - o The main objective of this project is to recycle the filament-broken (dead) fluorescent lamp which are the most common lamps in lighting purposes by externally activates the fluorescent material by induction using the generated electromagnetic filed from any general purpose low cost radio frequency (RF) sources with sufficient power. The starter and the blast in the fluorescent lamp circuit can be replaced by this RF source. The theoretical concept was proved by using RF source followed by an RF power amplifier where the minimum required power to let the lamp be active was determined.
- **Design and implementation of Acid Battery Tester,** November 2003 (Team member where the total number of the Team is TWO researchers i.e. Research leader and ONE researcher) at IRCC:
  - o One of the main purposes of IRCC is to provide the quality control services according to the standards such as British Standard, ISO Standard, Indian Standard, and Sudanese Standards for the manufacturers or importers. The acid battery is a core component (source of power) in vehicles, generators and many others applications such as UPS (uninterruptable power supply), and storage bank in the solar cell system. To control the quality of any acid battery, two tests are taking place: the high discharge test and low discharge test to investigate the ability of the battery to provide a high and low DC current respectively according to the operating conditions. In this project a reliable low cost Acid Battery Tester was designed, implemented using elementary electric components i.e. resistors (loads), switches, and current-voltage measures. The implemented prototype was shown a competitive performance comparable to the other tester.
- **Design and Implementation of Automated Acid Battery Tester**, June 2007 (Proposal writer and Team member where the total number of the Team is TWO researchers i.e. Research leader and ONE researcher) at IRCC.
  - o This project is the second phase of the previous project where an automation technique was introduced. The required load is built using wound resistor with a motor which is responding to a control signal from the personal computer (PC) to determine the suitable load for both the high discharge and low discharge tests. The value of the voltage-current drawn from the acid battery is acquisitioned to the PC with an 8-bit analogue to digital converter (ADC) through the parallel port. The designed prototype was successfully simulated and partially implemented.
- **Design and implementation of Basic and Advanced Electronics Laboratory Experimental Boards**, June 2007 (Proposal writer and Team leader where the total number of the Team is TWO researchers i.e. Research leader and One researcher) at IRCC.
  - o Much time and effort has been spent attempting to discover the best approach to the problem of electronics education. Unfortunately, in many curricula, the student of electronics is may be only introduced to analogue and digital circuitry due to the pressures of time, lack of sufficient laboratories, lack of teaching assistants, and the increased number of students. This project attempts to compile a low cost solution to allow a student/hobbit to be well versed in basic and advance electronics engineering. A prototype printed circuit board (PCB) for basic electronics has been assembled where the beneficiary student/hobbit is required to make the connections necessary for a fully-functional experiment, as opposed to the method of using a pre-fabricated

experiments development board, looking for a more complete understanding of electronics engineering.

- **Design and Implementation of a low cost Microcontroller-based Furnace Control System**, February 2015 (Proposal writer and Team member where the total number of the Team is FOUR researchers i.e. Research leader and THREE researchers) at IRCC.
  - o The furnace or general purpose oven is essential equipment at any analysis and development laboratory. The conventional electro-mechanical control system of this equipment is susceptible to malfunctions due to unavailability of costly spare of the legacy parts as well as less precision and high consumption of power where there are many malfunction ovens at the IRCC laboratories. In this project a low cost and reliable microcontroller-based control system is proposed to refurbish the malfunction ovens. The simulated and implemented prototype has shown a more reliable performance and easy operation.
- **End-To-End Secure Voice Communications Over GSM Voice Channel (Conceptual prove Project)**, 2014 (Proposal Writer and Team leader) at NCTR.
  - o Secure speech communication over GSM is essential where the speech is secured up to the points where it enters the GSM core network, but over the core network it has no security. So to provide end-to-end security, the speech should be encrypted before it enters the core network. The encrypted speech would be randomized and it would not possess the required speech characteristics. GSM line is sensitive to human speech and so the encrypted speech could not have fed into GSM network. The objective of this research is to design and implement an algorithm that codes the encrypted speech signal to be speech-like. This can be achieved where the speech signal is digitized, encrypted and then coded as synthetic speech signal to be transmitted over the GSM network. At the receiver end, the synthetic speech is decoded to bit stream and decrypted to get the original digital speech.
- **Design and Implementation of Algareen Engineering (AE) AVR DEVELOPMENT BOARD (PADA'),** 2017 (Proposal Writer and Team leader) at AE.
  - o Development boards allow a quick development and implementation of a prototype design and successive downloads of the program directly in circuit. This enables the design to be tested quickly and necessary modifications made easily, improving the project and product development times considerably. An ALGAREEN ENGINEERING AVR Microcontroller Development Board (AE-AVRDB "PADA") is a low cost easy-to-use generic embedded application development board, which shares a one common application platform for AVR ATmega16/32 high performance microcontroller, through TEN modules, for students, faculties, hobbyists and research and development engineers. Including microcontroller module, the stand alone modules are DC power supply, USBASP programmer, 8-LED Display, 4×4 keypad matrix, 16×2 LCD display, 7-Segement display, dual 5VDC relay, dual Sensor and Buzzer module. All input/output modules pins can be easily accessed through standard male/female Berge connection headers. This low cost innovative development board is designed and implemented to help the user in learning, developing, testing and prototyping embedded applications where a full TWO years' parts and labour warranty on this board is offered.
- **Design and Implementation of Vehicle Tracking Device,** 2020 (Proposal Writer and Team leader) at AE.
  - o Nowadays our country is opining up and developing technologically, so that Algareen engineering as local Sudanese designer, developer and manufacturer of electromechanical systems decides to initiate the contribution at this development by designing and implementing a low cost and real time vehicle tracking device, which

will be very beneficial for many field such as transportation, police, routing emergency vehicles and commercial fleet management. In this project, a vehicle tracking device can be designed and implemented based on microcontroller where the geolocation of the vehicle is determined by the global positioning system GPS and swapped to the dispatch centre (user) through general Mobile GSM/GPRS technology. In addition, a tele-control requests by the dispatch centre can be handled by the device such as turn off/on the engine, conditions of vehicle's auxiliary power supply, and record/listen to the steering cabinet conversations, and send SOS alarm. An incremental development approach (Agile) is selected where there are some constrains in time, knowhow and specifications. The developed system can be implemented using a low cost PCB fabrication technology and tested in the real life.

- **Design and Implementation of Towered Evaporative Air Cooler Control System (TEACCS)- AMEL,** 2020 (Proposal Writer and Team leader) at AE.
  - AMEL is a low cost embedded based system controls easily and effectively the operation of an evaporative air cooler of various capacities which contains a 2-3 speed motor, water pump, drain, air distributor and water level sensor.The system consists of two main units: the Control and Processing Unit (CPU) and the Power and Driving Unit (PDU). Moreover, the system has equipped with ATmega8 microcontroller for processing, Triacs (silicon bidirectional thyristors) for controlling and 5.0VDC- 1.0A switched mode power supply (SMPS), as well as opto-sound guiding algorithm for ease operation. The two 8×8cm2 printed circuit boards of the system are stacked compactly and enclosured externally at the ordinary plastic electrical distribution box. The system can be managed manually and/or remotely using smart phone with any Bluetooth terminal HC-05 application.

Involving in Consultancy Services: *(i.e. Assets Evaluation, Feasibility Study and Technical evaluation)*

1. Assets Evaluation of the SEDIC's Survey Equipment (Trimble type), May 2005. (Team leader, IRCC, Sudan).
2. Feasibility Study for Launching a Power Saving Fluorescent Lamps for The Al-Shagarah Complex for Military Industries, June 2007. (Team member, IRCC, Sudan).
3. Technical evaluation, performance test and originality tracing for MPEG4 Play labeled with "SONY made in Japan", August 2007. (Team leader, IRCC, Sudan).
4. Assets evaluation of the Production of Magnetic Card System (SCP 5600) and its Raw Material, Job No. 32/A32/2013, February 2013. (Team leader, IRCC, Sudan).
5. Technical evaluation, performance test and originality tracing for imitated Samsung Galaxy III, September 2014. (Team leader, IRCC, Sudan).
6. Technical evaluation, performance test and originality tracing for different smartphone types such as Samsung GT-N7000, SONY and Samsung Galaxy II, during 2015. (Team leader, IRCC, Sudan).

Extra Academic, Scientific and R&D Activities:

- Supervision of **NINE (9)** Complementary M.Sc. Research in area of Wireless communication, Signal processing, Automation and Embedded Systems:
  1. "Embedded pH Data Acquisition and Logging with Temperature Compensation" by Eng. Muzamil Eltejani M.A, College of Graduate Studies, Neelain University, Sudan, 2013.
  2. "Smart Parking System Based on Wireless Sensor Network and Light Emitting Diode Technology" by Eng. Nagwa Awad Elyas Abdalla, College of Graduate Studies,

Faculty of Engineering, Sudan University of Science and Technology (SUST), Sudan, January 2015.

3. "Greenhouse Monitoring and Control System Based on Wireless Sensor Network" by Eng. Tamador Alkhanssa Mahmoud Khalil, College of Graduate Studies, Faculty of Engineering, Sudan University of Science and Technology (SUST), Sudan, February 2015.

4. Anti-Theft (And Anti-Forget) System for Personal Belonging Using Embedded System and Wireless Sensor Network," by Eng. Nadeen Yassen Jafer Osman, College of Graduate Studies, Faculty of Engineering, Sudan University of Science and Technology (SUST), Sudan, February 2015.

5. "Performance Evaluation of Hierarchical Routing Protocols in Wireless Sensor Network," by Eng. Marwa Omer Ahmed Awad Elkarim, College of Graduate Studies, Faculty of Engineering, Sudan University of Science and Technology (SUST), Sudan, April 2016.

6. "An Embedded Remote Monitoring System for Cathodic Protection" by Eng. Ehab Ali Hassan Alhaj, College of Graduate Studies, Faculty of Engineering, Sudan University of Science and Technology (SUST), Sudan, July 2018.

7. "Design and Implementation of Printed Circuit Board Computer Numerical Control Machine with path planning Algorithm" by Eng. Mustafa Elzain Hamad Balla, College of Graduate Studies, Faculty of Engineering, Sudan University of Science and Technology (SUST), Sudan, July 2018.

8. "Implementation of a Remote Monitoring and Control System for Watching Tower (Turret Tower)" by Eng. Rashid Eldirdiri Mohamed Abdelrahman, College of Graduate Studies, Neelain University, Sudan, March, 2019.

9. "Implementation of Denoising MEMS Accelerometer Using Wavelet Transformation" by Eng. Mohammed Abd Elmonim Mohammed, Faculty of Engineering, Sudan University of Science and Technology (SUST), Sudan, March 2019.

- Supervision of **FOUR (4)** B.Sc. Graduation Projects in the area of Wireless communication, Signal Processing, Unmanned Aerial Vehicle (UAV) and Embedded Systems:

  1. "Design and Implementation of an Arduino-based Automatic Dependent Surveillance-Broadcast (ADS–B) Message Generator," Aeronautical Engineering Department, Faculty of Engineering, Sudan University of Science and Technology, Sudan., Academic Year 2015/2016. (Four Students).

  2. "Design and Implementation of an MEMS-based Inertia Navigation System (INS)," Aeronautical Engineering Department, Faculty of Engineering, Sudan University of Science and Technology, Sudan., Academic Year 2015/2016. (Four Students).

  3. "Design and Implementation of Kalman Filter in MEMS-based Inertia Navigation System (INS)," Aeronautical Engineering Department, Faculty of Engineering, Sudan University of Science and Technology, Sudan., Academic Year 2016/2017. (Four Students).

  4. "Digital Audio Filter for Small Unmanned Aerial Vehicle," Aeronautical Engineering Department, Faculty of Engineering, Sudan University of Science and Technology, Sudan., Academic Year 2016/2017. (Four Students).

- Member of Examination Committee for B.Sc. Graduation Projects as **External Examiner** at Communications Division, Electric and Electronic Engineering Department, College of Engineering, International Africa University, Sudan, August 2014.

- Member of Examination Committee for M.Sc. by Research as Internal Examiner for **3** Committees at Engineering Research and Industrial Technologies Council, Sudan Academy of Sciences (SAS), Sudan.
- Member of Examination Committee for M.Sc. (Complementary) Research as External Examiner for more than **30** Committees at:
  - School of Electronics Engineering, College of Graduate Studies, Sudan University of Science and Technology (SUST), Sudan.
  - School of Electrical and Nuclear Energy Engineering, College of Graduate Studies, Sudan University of Science and Technology (SUST), Sudan.
  - Aeronautical Engineering Department, College of Graduate Studies, Sudan University of Science and Technology (SUST), Sudan.
  - Electrical Engineering Department, College of Engineering, College of Graduate Studies, Elneelain University, Sudan.
  - Electrical Engineering Department, College of Graduate Studies, Alzaiem Alazhary University (AAU), Sudan.
- **Scientific/Academic** Reviewer of more than **TWENTY-SEVEN (27)** MSC. and PhD. Scientific Research Proposals at Engineering Research and Industrial Technologies Council, Sudan Academy of Sciences (SAS), Sudan.
- **One of the Scientific Reviewers of:**
  - International IEEE Conference on Computing, Electrical and Electronics Engineering (ICCEEE), 2013, Sudan.
  - Journal of Engineering and Computer Science (JECS), Deanship of Scientific Research, Sudan University of Science Technology, Sudan.
  - Industrial Research Journal (Biannual Refereed Scientific Journal), Industrial Research and Consultancy Centre (IRCC), Sudan.
- **Member of Steering/Organizing/Technical Committee of:**
  1. A conference on: "Industrial Management in Sudan," Organized by Industrial Research and Consultancy Centre (IRCC), Al-Sharqa Hall, Khartoum, 8 March 2004, Sudan.
  2. A workshop on: "Launching of the Water Technology Society in Sudan, Khartoum, Sudan, 2005.
  3. A workshop on: "Condition Based Maintenance," Organized by Industrial Research and Consultancy Centre (IRCC) in collaboration with SFK Company (South Africa), Ustaz. Bader Eldeen Sulaiman Conference Hall, IRCC, 2004.
  4. A workshop on: "Predictive Maintenance," Organized by Industrial Research and Consultancy Centre (IRCC) in collaboration with SFK Company (South Africa), Ustaz. Bader Eldeen Sulaiman Conference Hall, IRCC, 2005.
  5. A workshop on "Safety and Loss Prevention in Industrial Processes", Organized by Sudan Academy of Sciences (SAS) and Prof. Al Ameen Al Kenzy (workshop provider), Petroleum Training Centre Conference Hall, Khartoum, 2005.
  6. A workshop on "Applications of Predictive Maintenance Methods to General Industry", Organized by Industrial Research and Consultancy Centre (IRCC) in collaboration with COMSATS (Pakistan), Ustaz Badr Eldeen Sulaiman Conference Hall IRCC, 2007.
  7. Editing and Producing of Industrial Research and Consultancy Centre (IRCC) Corporate Strategic Plan 2008/2009-2013/2014, July, 2008.
  8. A workshop on: "Bachelor Graduation Projects, a R&D first step ", Organized by Electronics System Research Centre (ESRC), College of Engineering, Sudan University of Science and Technology (SUST), Sudan. 11 November 2008.

9. Editing and Producing of Engineering Researches and Industrial Technologies Council Student Guide Book, Sudan Academy for Sciences (SAS), Sudan. November 2008.
10. Editing and Producing of Engineering Industries Researches Department Year Book, 2008, January 2009.
11. A week of Localization of Engineering Industries in Sudan, with the theme "National Industries Instead of Importations" Organized by IRCC, under the patronage of Kenana Sugar Cane Company, Giad Industrial Group and SUGA Hydraulics, March 17-21, 2013, IRCC, Sudan.
12. A National Training Workshop on Repair and Maintenance of Scientific Equipment in Universities, Research Institutes and Small Scale Industries, Organized by COMSATS, ISESCO, and IRCC, August 18-22, 2013, IRCC, Sudan.
13. A Head of the Technical Committee for Determining the bases and parameters of concession in Assembly Industry in Sudan. This technical committee is formed according to the Industry State Minister Decree No.7 in 10 May 2015.
14. An International Conference on SMEs Industries, Organized by Ministry of Industry (Sudan), Union of Arab Scientific Research Councils, IRCC, 13-15 October, 2015, Khartoum, Sudan.

● **Author/Co-author of Proposals:**
   o "Advanced Electronics Technology Centre", as responding to the request of H.E. Prof. Al Zubair Basheer Taha, the Minster of Ministry of Science and Technology (MOST) to Prof. Mawloud Mustafa Al-Hammd (Iraq), Sudan, May 2004. (co-author).
   o "Advance Electronics Division", a proposal for re-launching the Electrical and Electronics Engineering Division as a research division in the Engineering Industries Researches Department, Industrial Research and Consultancy Centre (IRCC), Sudan, February 2007 (Author).
   o "Sudan Space Science and Technology Agency (SSSTA)," An initial proposal responding to the request of H.E. Dr. Issa Bishry, State Minister of Ministry of Science and Technology (MOST) to the Director General of Industrial Research and Consultancy Centre (IRCC), May 2008 (Co-author).
   o "Sudanese Remote Sensing Centre (SRSC)," A Submitted proposal to the Islamic Development Bank (IDB), Judah, Saudi Arabia, May 2008 (Co-author).
   o "UNESCO Chair in Transfer of Technology (UNESCOTT) at Industrial research and Consultancy Centre (IRCC), Sudan," A proposal (and Appeal) for re-launching the Chair, April 2014 (Co-author).

Extra Professional and Industrial Activities

● Member of Steering/Organizing/Technical Committee of more than **13** International and National Conference, Workshop, and Training Programmes.
● Membership of Professional Associations:
   o Member of the Sudanese Engineering Council (SEC) as Graduate Engineer (No. 8011) since 3 July 2006.
   o Graduate member of the Sudan Engineering Society (SES), since 28 August 2005.
   o Student member of the Institute of Electrical and Electronics Engineering (IEEE), as from August 2005 to February 2006.
   o Member of the Sudanese Society for Young Scientists (SSYS), since 21 January 2007.
   o Student member of the Institute of Electronics, Information and Communication Engineers (IEICE), as from October 2010 to May 2012.

Hands-on Training Courses Provider:

- Introduction to Embedded Systems using AVR Microcontroller and Atmel Studio (36 conducted Hours course).
- Introduction to Embedded Systems using Arduino (36 conducted Hours course).
- Introduction to Printed Circuit Board Fabrication (24 conducted Hours course).
- Practical Electronics for Inventors I and II (36 conducted Hours for each course).
- Printed Circuit Board Design using ALTIUM Designer (Elementary and Intermediate Levels), (36 conducted Hours course).
- Introduction to Digital Signal Processing using MATLAB (36 conducted Hours course).
- Principles of Communication Systems using MATLAB/SIMULLINK (36 conducted Hours course).
- Introduction to MATLAB/SIMULINK for Engineers and Scientists (36 conducted Hours course).

Computer and Programming Skills:

- Good Knowledge of Computer driving:
  - Windows (95-10) Operating System (installation, repair and viruses' protection procedures).
  - Microsoft Office (97-2016): Word, PowerPoint, Publisher, Excel, and Visio.
- Good Knowledge of Computer Maintenance and Installation.
- Good Knowledge of Internet Exploration, Navigation and Search Skills.
- Good Knowledge of Programming Languages: C&C++, Assembly, VHDL, MATLAB/SIMULINK ver.6 and higher, BASCOM and Atmel Studio ver. 6 and higher, Scratch 3, MIT App. Inventor, and Python.
- Good Knowledge of Design and Simulation Programmes: Electronics Work Bench, Circuit Maker ver.6 and higher, Microwave Office, Protel DXP, Altium Designer, Code Composer Studio v3.3 (Texas Instruments), and Proteus 7 Professional (ISIS Professional) and higher.
- Elementary Knowledge of: Ubuntu 12.04, Network Simulator 2 (NS2), Maple 13, LaTeX, and LabView 2011.

Research/Work Interest Areas:

- Wireless Communication: OFDM/A-based Systems, Next Generation of Mobile Communication (Physical and MAC Layers).
- Digital Signal Processing and Statistical Signal Processing.
- Radar: Metrological and Military Radar and Analysis their Data.
- Embedded System: Design and Implementation of Modern (microcontroller-based) Scientific Equipment.
- Design and Fabrication of a low cost Electronic Systems especially the educational/training boards as well as industrial electronics control boards for industrial SMEs.
- Artificial intelligence (AI) and its application in Communication.

Intellectual Property (IP) and Patents:

- Intellectual Property (IP):
  - Trade Mark: "ALGAREEN ENGINEERING®", No 57260, March, 2017, Sudan.
- Patents:
  - Local Patent: "Evaporative Air Cooler Control System (EACCS)", No. 3861, February 2018, Sudan.

- o Local Patent: "AVR Development Board (PADA')", No. 4029, February 2019, Sudan.
- o Local Patent: "Towered Evaporative Air Cooler Control System (TEACCS)-AMEL", No., February 2020, Sudan.

Proficiency of Languages:

1. **Arabic**: Mother Tongue (*Native speaker*).
2. **English**: Second Language (*Spoken proficiency: C1, Written proficiency: C2*).

References:

- **Mr. Nor Hisham Bin Hj Khamis,** *Eng., MSC.*, *PhD., Associate Professor.*
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- **Mr. Hytham Mohammed Shabour,** *Eng., MSC.*
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- *More References can be provided upon request according to the area such as Academic, Applied R&D, and Industrial.*