


PERSONAL INFORMATION

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Google Scholar:		

EDUCATION

1984 - 1990	Omdurman Althawra (18) Primary School.
1990 - 1993	Bakkar Intermediate School (Omdurman).
1993 - 1996	Omdurman Elahliya High Secondary School

ACADEMIC QUALIFICATIONS

1996 - 2002	<p><u>B.Sc. Biomedical Engineering (Sep. 2002)</u></p> <p>⇒ Biomedical Engineering Department, Sudan University of Science and Technology, Khartoum, Sudan.</p> <p>⇒ Graduation Project Title: Telemedicine.</p> <p>⇒ Class of award: First class, Rank: 1st.</p>
2005 - 2007	<p><u>M.Sc. Systems and Biomedical Engineering (Jan. 2007)</u></p> <p>⇒ Systems and Biomedical Engineering Department,</p> <p>⇒ Thesis Title: Processing Strategies for Functional Magnetic resonance Imaging Data.</p>
2008 - 2011	<p><u>PhD Systems and Biomedical Engineering (Sep. 2011)</u></p> <p>⇒ Systems and Biomedical Engineering Department,</p> <p>⇒ Thesis Title: Compact Digital Medical Ultrasound Imaging System.</p>

AREA OF INTEREST

- ⇒ Research interests include:
- Medical imaging processing and analysis in particular MRI and ultrasound imaging.
 - Multidimensional signal processing for biomedical applications.
 - Embedded Systems for biomedical applications.

WORK HISTORT

- ⇒ Head of Biomedical Engineering Department, Faculty of Engineering, Sudan University of Science and Technology, Khartoum, Sudan (May

2012).

- ⇒ Assistant Professor of Biomedical Engineering, Faculty of Engineering, Sudan University of Science and Technology, Khartoum, Sudan (Jan. 2012).
- ⇒ A Lecturer at Sudan University of Science & Technology, College of Engineering, Biomedical Engineering Department (Jan. 2007).
- ⇒ Teaching assistant at Sudan University of Science & Technology, College of Engineering, Biomedical Engineering Department (Oct. 2002).
- ⇒ Computer Center- Sudan University of Science & Technology- Telemedicine Project (2002).

TEACHING EXPERIENCE

⇒ **Undergraduate:**

- Medical Ultrasound (undergrads- 5th year), (2014-2015).
- Digital Image Processing (undergrads- 4th year), (2006-now).
- Computer Applications (undergrads- 4th year), (2006-2007).
- Digital Signal processing (undergrads- 4th year), (2012-now).
- Medical Instrumentation II (undergrads- 5th year), (2012- now).
- Medical Imaging by Ionizing Radiation (undergrads- 4th year), (2012-now).
- Analog Electronics (undergrads- 3rd year), (2012-2013).
- Biomedical Image Processing (undergrads- 4th year), (2012-now).

⇒ **Postgraduate:**

- Biomedical Signal Processing (Grad students), (2012-now).
- Biomedical Image Analysis (Grad students), (2012-now).
- Medical Imaging II (Grad students), (2012-now).
- Bio-signals and Image Processing (Grad students), (2011-2012).

Graduation Projects (BME seniors)

- 1) Design of digital apodization technique for medical ultrasound (2012-2013).
- 2) Linear array image reconstruction for digital medical ultrasound (2012-2013).
- 3) Design of digital FIR Hilbert transformation filters for medical ultrasound (2012-2013).
- 4) Derivative-based method for QRS detection in ECG (2012-2013).
- 5) Technique for ordering independent component analysis (ICA) for functional magnetic resonance (fMRI) imaging data (2012-2013).
- 6) A proposal of SOPs for medical laboratories (Histopathology and Clinical chemistry) instruments in Sudan (2013-2014).
- 7) A proposal of SOPs for ICU and operating room instruments in Sudan (2013-2014).
- 8) A proposal of SOPs for medical imaging instruments in Sudan (2013-2014).
- 9) A proposal of SOPs for medical laboratories (Hematology and Microbiology) instruments in Sudan (2013-2014).
- 10) A proposal of SOPs for Haemodialysis machine in Sudan (2013-2014).
- 11) Computerized preventive maintenance management system (CPMMS) for Hematology department equipments in National laboratory for public health (STACK) (2013-2014).
- 12) Computerized preventive maintenance management system (CPMMS) for Microbiology department equipments in National laboratory for public health (STACK) (2013-2014).
- 13) Computerized preventive maintenance management system (CPMMS) for chemical pathology department equipments in National

laboratory for public health (STACK) (2013-2014).

- 14) Computerized preventive maintenance management system (CPMMS) for Histopathology department equipments in National laboratory for public health (STACK) (2013-2014).
- 15) Analysis of the relationship between parameters of the EEG signal and sleep stages (2014-2015).
- 16) Inspection program and procedures for medical devices (2014-2015).
- 17) Extraction of EEG Components using Digital Filters (2014-2015).
- 18) Design of Computerized Registration System (CRS) for Medical Devices (2014-2015).
- 19) Technique for Enhancing Nuclear whole Body Bone Scan imaging (2014-2015).
- 20) Detection of the QRS and Parameterization of the ECG (2014-2015).

Supervision of Postgraduate Students

Sust:

- 1) Development of computer aided detection system for cancer in digital mammogram (2013).
- 2) Assessment the effect of HIV/ AIDS on human brain using MRI (2013).
- 3) Physiological and random noise reduction in fMRI using Fourier analysis (2013).
- 4) Assessment of cerebral Malaria in children using MRI & MRS (2014).
- 5) Computer aided diagnosis of HIV (2014).
- 6) Educational software for Medical Ultrasound imaging System (2014).

- 7) Technique for motion correction in MRI (2014).
- 8) Design of clinical engineering department (2014).
- 9) Assessment of bioimpedance technique to detect breast cancer cell (2014), (Ph.D co-supervisor).

Other Universities:

- 1) Tuberculosis (TB) detection using digital image processing (2014), (University of Science & Technology).
- 2) Image restoration technique for magnetic resonance imaging (MRI), (2014), (University of Science & Technology).
- 3) Design Synthetic Transmit Aperture for Ultrasound Imaging (2014), (Ph.D co-supervisor), (University of Jazeera).

INTERNATIONAL CONFERENCES

- 1) The first Conference for Medicines Regulatory Authorities in Sudan and neighboring Countries Dec. 2014 (Attended).
- 2) The 29th National Radio Science Conference, Cairo, Egypt, April 2012(one presentation).
- 3) The 28th National Radio Science Conference, Cairo, Egypt, April 2011(one presentation).
- 4) The 1st Middle East Conference on Biomedical Engineering (MECBME'11), Sharjah, UAE, Feb.2011 (one presentation).
- 5) The 27th Annual National Radio Science Conference (NRSC'2010), Menouf, Egypt, 2010 (one presentation).
- 6) 2009 IEEE International Conference on Image Processing, Cairo, Egypt, 2009 (Attended)
- 7) 2009 IEEE International Ultrasonic Symposium, Rome, Italy, 2009 (one presentation).

- 8) The 6th International Conference on Photonics and Imaging in Biology and Medicine, Wuhan, China, 2007(Attended)
- 9) Cairo International Biomedical Engineering Conference 2006 (CIBEC'06), Cairo, Egypt (2 presentations).
- 10) Festival of creativity and invention for Arab and African, Khartoum 2003.

MEMBERSHIPS

- ⇒ Member in Arab Biomedical Engineering association.
- ⇒ Member in Sudanese medical engineering association.
- ⇒ Member of the International Society of Magnetic Resonance in Medicine (ISMRM).
- ⇒ Member of the Association for Advancement of Medical Instrumentation (AAMI)
- ⇒ Member of Sudanese Engineering council.
- ⇒ Member of college of Engineering council.
- ⇒ Member of college of Engineering research council.
- ⇒ Member of University Senate.
- ⇒ Member in National Medicines & Poisons Board.

RESEARCH PROJECTS

- ⇒ Development of a PC-based low-end ultrasound system.
- ⇒ Development of digital beamformer for ultrasound imaging applications.
- ⇒ System of preventive maintenance program for medical laboratories devices in National laboratory for public health.

- ⇒ Standard operation and procedures for medical devices in Sudan.
- ⇒ The effect of HIV/ AIDS on human brain using MRI.
- ⇒ Assessment of cerebral Malaria in children using MRI & MRS

TRAINING COURSES/CERTIFICATIONS

- ⇒ Training course in medical equipments in:
 - Medical supplies in Khartoum (5 Jul.-20 Aug. 2000).
 - El-Shaap hospital in Khartoum (15 Sep. 2002 –10 Jun. 2003).
 - Sahiroon Hospital in Khartoum.
 - Artificial Organs Centre in Khartoum.
- ⇒ Training course on Analogue and Digital Electronics in the department of applied physics and instrumentation in Sudan Atomic Energy Commission. (20 Jan- 2 Feb 2003).
- ⇒ National Training Course in NDT-Radiographic Level II (16 Feb- 8 March 2004).
- ⇒ Educational Preparation Courses program at Staff development centre, SUST include the following subjects:
 - Philosophy and development of higher education.
 - Distance education.
 - Teaching methods.
 - Technological skill in university teaching.
 - Assessment and evaluation in higher education.
 - Counseling and guidance.
 - University educational systems.
 - Principles of curriculum development in higher education.
 - Educational psychology.
 - Research methods.
 - The legislations of higher education.
 - Quality and assurance in higher education.

- University of administration.
- Educational functions of the university.
- Teaching ethics.
- Training in higher education.
- Scientific writing.
- Micro-teaching.

OTHER ACTIVITIES

- ⇒ Head of Medical devices committee in National Medicines & Poisons Board.
- ⇒ Reviewer for the following international publications:
 - American Journal of Biomedical Science and Engineering (USA).
 - Engineering and Technology (USA).
 - American Journal of Computer Science and Information Engineering (USA).
- ⇒ Editorial Board Member for the following international publications:
 - American Journal of Biomedical Science and Engineering (USA).
 - Engineering and Technology (USA).
 - American Journal of Computer Science and Information Engineering (USA).
- ⇒ Reviewer for the following international conferences:
 - Middle East Conference on Biomedical Engineering (MECBME), (2014).
 - International Conference on Computing, Electrical and Electronics Engineering (ICCEEE), (2013).
 - The 3rd International Conference on Biomedical Engineering and Biotechnology (ICBEB 2014).

- ⇒ The head of reviewing M.Sc. program in biomedical engineering committee at Sudan University of Science and Technology.
- ⇒ Participated on the Status M.Sc. program in Medical Engineering at University of Science and Technology.
- ⇒ Participated in reviewing the B.Sc. program in biomedical engineering committee at Sudan International University.
- ⇒ Reviewer of the best undergraduate project competition in the Sudanese medical engineering association.

PEER - REVIEWED JOURNAL PUBLICATIONS

- 1) Hosam H. Osman, Mawia A. Hassan, Nihal M. Elhady & Reem M. Elrasheed, 2015, 'Computerized Preventive Maintenance Management System (CPMMS) for Haematology Department Equipments', *International Journal of Computer Applications*, Vol.109, No.16, pp. 9:12. **(USA, Impact Factor 0.791).**
- 2) Mawia A. Hassan, 2015,'Comparison between windowing apodization functions techniques for medical ultrasound imaging', *American Journal of Biomedical Science and Engineering*, Vol.1, No.1, pp. 1:8. **(USA).**
- 3) Mawia A. Hassan, 2014 'Compact Low-Cost Digital Medical Ultrasound Imaging System' , *International Journal of Scientific & Engineering Research*, Vol. 6, No.1, pp. 201:216. **(USA, Impact Factor 3.2).**
- 4) Mawia Ahmed Hassan, 2014, 'Technique for Suppression Random and Physiological Noise Components in Functional Magnetic Resonance Imaging Data', *International Journal of Innovative Research in Advanced Engineering*, Vol. 1, No. 10,

pp. 425:434. (India, **Impact Factor 1.311**).

- 5) Mawia A. Hassan, Isam Elkidir, Mosab H.Omer, Mariam E. Sobhe, Ismael A.Hajar & Fahme A. Ebraheem,2014,'Assessment the Efficiency and Safety of Haemodialysis Machine: Case Study ', *International Journal of Scientific & Engineering Research*, Vol. 5, No. 8, pp. 939:948. (USA, **Impact Factor 3.2**).
- 6) Fatehia B. Garma & Mawia A. Hassan, 2014, 'Classification of Breast Tissue as Normal or Abnormal Based on Texture Analysis of Digital Mammogram', *Journal of Medical Imaging and Health Informatics*, vol. 4, No. 5, pp. 1:7. (USA, **Impact Factor 0.642**).
- 7) Mawia Ahmed Hassan, 2014, 'Synthetic Aperture Ultrasound Image Reconstruction,' *International Journal of Computer Applications*, Vol. 95, No.3, pp. 17:22. (USA, **Impact Factor 0.791**).
- 8) Mawia Ahmed Hassan, 2014, 'FPGA-Based 16-Channel Digital Ultrasound Receive Beamformer', *International Journal of Scientific & Engineering Research*, Vol. 5, No. 6, pp. 484:490. (USA, **Impact Factor 3.2**)
- 9) Mawia A. Hassan & Yasser M. Kadah, 2013, 'Digital Signal Processing Methodologies for Conventional Digital Medical Ultrasound Imaging System', *American Journal of Biomedical Engineering*, Vol. 3, No. 1, pp. 14:30. (USA)

PEER - REVIEWED CONFERENCE PUBLICATIONS

- 1) Shaza A Mohamed, Elaf D Mohamed, Mohamed F Elshikh & Mawia A Hassan, 2013, ‘Design of digital apodization technique for medical ultrasound imaging’, *International Conference on Computing , Electrical and Electronics Engineering (ICCEEE)*.
- 2) Mawia A. Hassan & Yasser M. Kadah, 2012, ‘Synthetic Transmit Aperture Medical Ultrasound Imaging’, *Proc. 29th National Radio Science Conference*, Cairo, Egypt. (IEEE publications).
- 3) Mawia A. Hassan, Abou-Bakr M. Youssef & Yasser M. Kadah, 2011, ‘Embedded Digital Signal Processing for Digital Ultrasound Imaging’, *Proc. 28th National Radio Science Conference, Cairo, Egypt*. (IEEE publications)
- 4) M.A. Hassan & Y.M. Kadah, 2011, "Modular FPGABased Digital Ultrasound Beamforming,’ *Proc. 1st Middle East Conference on Biomedical Engineering (MECBME'11)*, Sharjah, UAE. (IEEE publications)
- 5) Mawia A. Hassan, Ahmed S. Mohamed, Abo-Bakr M. Youssef, & Yasser M. Kadah, 2010, ‘Signal Processing Methodologies for Digital Beamforming and Image Reconstruction in Ultrasound Imaging’, *Proc. 27th National Radio Science Conference, Menouf, Egypt*. (IEEE conference publications)
- 6) Amr M. Hendy, Mawia Hassan, Rania Eldeeb, Dina Kholy, Abou-Bakr M. Youssef & Yasser M. Kadah, 2009, ‘PC-Based Modular Digital Ultrasound Imaging System,’ *Proc. IEEE International Ultrasonics Symposium, Rome, Italy*. (IEEE publications).
- 7) Mawia Hassan, Nour Shabrawy, Ahmed S. Ismail, Abou-Bakr Youssef & Yasser Kadah, 2006, ‘Signal Processing in

Functional MRI: Robust Suppression of Random and Physiological Noise Components using Threshold Spectrum Estimation and Harmonics analysis', *Proc. 3rd Cairo International Biomedical Engineering Conference*, Cairo. (IEEE publications)

- 8) Nour Shabrawy, Mawia Hassan, Ahmed S. Ismail, Abou-Bakr M. Youssef & Yasser M. Kadah, 'Robust ordering of independent components and analysis of event-related functional magnetic Resonance imaging data', *Proc.3rd Cairo International Biomedical Engineering Conference*, Cairo. (IEEE publications)

Referees

1. Prof. Dr. Yasser M. Kadah, Systems & Biomedical Engineering Department, Faculty of Engineering, Cairo University, Egypt. (ymk@kspace.org).
2. Prof. Dr. Aly A. Farag, Electrical and Computer Engineering, Computer Vision and Image Processing Laboratory, University of Louisville, Louisville, KY 40292, USA. (aly.farag@louisville.edu).