

Mohamed Ibrahim Waly

Mobile No.: 0966582299092 / 01006053528

Personal e-mail: bmewaly@gmail.com



Personal Data:

- Marital Status: Married.
- Children: Two
- Military Status: Exempted.
- Nationality: Egyptian.
- Date of Birth: 30-Jan-1983.
- Place of Birth: Cairo.
- Gender: Male.
- Address: 36 behind al Ahly club Nasr city- Cairo

Education:

- B.Sc. in System and Biomedical Engineering “The Higher Institute of Engineering - Shorouk Academy, Cairo, Egypt, 2004.
- Overall Grade: Excellent (with honor).
- Introductory master’s degree in system and biomedical engineering” System and Biomedical Engineering Department- Faculty of Engineering-Cairo University” 2005
- Introductory Grade: Very Good
- Master’s degree in system and biomedical engineering” System and Biomedical Engineering Department- Faculty of Engineering-Cairo University” 2009
- Introductory Grade for PHD degree: Very Good
- Comprehensive Exam for PDH degree done.
- PHD Degree in System and Biomedical Engineering” System and Biomedical Engineering Department- Faculty of Engineering-Cairo University” 2013.
- Associate professor from 27/12/2020 to 16/12/2024.
- Professor from 16/12/2024 until now

Graduation Project:

- **Project:** Chemical blood analyzer.
- **Project Grade:** Excellent.
- **Master point:** Computer aided surgery for liver Transplantation.
- **PHD point:** Prediction Model for the Development of Primary Open Angle Glaucoma in Individuals with Ocular Hypertension.

Supervised graduation Projects:

- Mouse eye movement.
- Khames Hospital design
- Autoclave.
- Hospital Information System.
- Vision Field.
- Infant Incubator.
- Syringe Pump
- LASER Scanner treatment equipment.

- Blood banking software Control
- Dental chair
- Dental X-ray
- Ultrasound pachymeter
- Portable dental unit
- Wheelchair
- Segmentation of Brest Cancer from digital microscopic images.
- Evaluation of Health care system in Shorouk city

Supervised master thesis:

- Numerical simulation and estimation of wall shear stress of a compliant thoracic aorta with aneurysm, 2020.
- Utilization of capital medical equipment in radiology department.
- New design for Flexible Radio-Frequency Identification (RFID) Antenna for Biomedical Sensor Applications
- The Influence of Different Engineering Management styles within Hospitals in the Riyadh region on the level of Medical Equipment Performance.
- The impact of application of total quality management in improving the level of performance of medical devices.
- The Perception of the Impact of Training and Continuing Education on the Professional Performance of Biomedical Engineers

Teaching Experiences:

Undergraduate Level:

- 2004-2012 I had an experience in Teaching **Electronic** sources as **Electrical circuit** for 1st year of biomedical, **Basic Electronic** for 2nd year, **Bioelectronics** for 3rd year and **Electronic system** for 4th year .
- 2004-2012 I had an experience in Teaching **Hospital management** for 4th year.
- 2004-2012 I had an experience in Teaching **Mechanical** sources as **Machine design** for 1st year of biomedical, **Thermodynamic** for 2nd year, and **Biomechanics** for 4th year
- 2004-2012 I had an experience in Teaching **Medical Equipment** sources as **Biomedical Testing Devices** for 3rd year and **Medical Equipment (1 &2)** for 4th year
- 2013-2016 I had an experience in Teaching **Dynamic and control system** for 3rd year and System Engineering for 4th year
- 2015 – till now I had an experience in Teaching **Medical Electronic equipment** and **Optical and Medical Laboratory equipment**

Graduate Level (Biomedical engineering Master program):

- Research Methodology
- Physiological modeling
- Hospital Planning, Organization and Management.
- Biosignal processing
- Medical image processing
- Healthcare technology management

Academic experiences:

Institution	Title	Period	FT/PT
High Institute of engineering	Assistant Lecturer	2004-2009	FT
High Institute of engineering	Lecturer	2009-2013	FT
High Institute of engineering	Assistant Professor	2013-2015	FT
High institute of technology and engineering	Assistant Professor	2014-2015	PT
College of applied medical science	Assistant Professor	2015 – 2020	FT
College of applied medical science	Associate Professor	2020 – 2024	FT
College of applied medical science	Professor	2024 – until now	FT

Other Responsibilities:

- Responsible for supporting all the new staff of assistants in our department.
- Support all non-academic staff in dealing with all office work.
- Regulate all the department office work.
- Construct the timetable for the academic year.

Conferences:

- Attend and Organize in the 1st International Biomedical Engineering Conference 2002 workshop About Safety & Hazards in Hospital and Clinical Engineering Role.
- Attend CIBEC 2012, the 6th Cairo International Conference on Biomedical Engineering, sponsored by the IEEE Engineering in Medicine and Biology Society (EMBS).
- Organize IEEE EMBS International Students Conference 2013.
- Injury's symposium- Prevention and Methods of Treatment & Rehabilitation 2015

Publications:

A- Biomedical engineering fields

- Gmati, I. E., Gmati, Y., Amara, W., Ghayoula, R., Smida, A., Waly, M. I., Fattahi, J., & Satouri, J. (2025). A Novel 3D-Printed Passive Microfluidic Temperature Sensor for Medical Applications. *IEEE Transactions on Components, Packaging and Manufacturing Technology*, 1. <https://doi.org/10.1109/TCPMT.2025.3552029>.
- M. I. Waly et al., "Optimization of a Compact Wearable LoRa Patch Antenna for Vital Sign Monitoring in WBAN Medical Applications Using Machine Learning," in *IEEE Access*, vol. 12, pp. 103860-103879, 2024, doi: 10.1109/ACCESS.2024.3434595.
- Waly, Mohamed Ibrahim. 2024. "Examining the Relation of Transformational Leadership in Clinical Engineering on the Performance of Medical Equipment: A Neural Network Approach." *International Journal of Online and Biomedical Engineering (iJOE)* 20(07):163–82. doi: 10.3991/ijoe.v20i07.47803.
- Ghayoula, Ridha, Wided Amara, Amor Smida, Jaouhar Fattahi, Mohamed I. Waly, Sahbi Bahroun, Issam El Gmati, and 2024 16th International Conference on Electronics, Computers and Artificial Intelligence (ECAI) Iasi, Romania 2024 June 27 - 2024 June 28. 2024. "RSA-1024 Cryptography on

Artix-7 FPGA: Medical Imaging Application.” Pp. 1–6 in *2024 16th International Conference on Electronics, Computers and Artificial Intelligence (ECAI)*.

- Ramzi Kheder, Ridha Ghayoula, Amor Smida, Issam El Gmati, Lassad Latrach, Wided Amara, Amor Hammami, Jaouhar Fattahi, and Mohamed I. Waly. 2024. “Enhancing Beamforming Efficiency Utilizing Taguchi Optimization and Neural Network Acceleration.” *Telecom* 5(2):451–75. doi: 10.3390/telecom5020023.
- Waly, Mohamed Ibrahim, Fahad Alshammari, Maryam E. Alshammari, and Mohammed Algahtany. 2024. “Assessing Subjective Visual Vertical Reliability: A Comparison of the “Bucket Test,” a Mobile App, and a Virtual System.” *International Journal of Online and Biomedical Engineering (iJOE)* 20(02):149–65. doi: 10.3991/ijoe.v20i02.45981.
- Waly, M. I., Smida, A., AlJarallah, N. A., Ghayoula, R., Negm, A. S., Muhammad, S., ... & Iqbal, A. (2023). Advancement of a High-Efficiency Wearable Antenna Enabling Wireless Body Area Networks. *IEEE Access*.
- Muhammad, S., Tiang, J. J., Roslee, M., Waly, M. I., Mallat, N. K., Smida, A., & Iqbal, A. (2023). Advancing IoT wireless sensor nodes with a low profile multiband RF rectifier based on multi-stub J-Inverter network. *AEU-International Journal of Electronics and Communications*, 171, 154869.
- Muhammad, S., Waly, M. I., AlJarallah, N. A., Ghayoula, R., Negm, A. S., Smida, A., ... & Roslee, M. (2023). A multiband SSr diode RF rectifier with an improved frequency ratio for biomedical wireless applications. *Scientific reports*, 13(1), 13246.
- Muhammad, S., Waly, M. I., Mallat, N. K., AlJarallah, N. A., Ghayoula, R., Negm, A. S., ... & Iqbal, A. (2023). Wideband RF rectifier circuit for low-powered IoT wireless sensor nodes. *AEU-International Journal of Electronics and Communications*, 154787.
- Bakouri, M., Alyami, N., Alassaf, A., Waly, M., Alqahtani, T., AlMohimeed, I., ... & Alharbi, Y. (2023). Sound-Based Localization Using LSTM Networks for Visually Impaired Navigation. *Sensors*, 23(8), 4033.
- Waly, Mohamed Ibrahim. "Intelligent Beetle Antenna Search with Deep Transfer Learning Enabled Medical Image Classification Model." *Computer Systems Science & Engineering* 46.3 (2023).
- A. Smida, A. Iqbal, A. J. Alazemi, M. I. Waly, R. Ghayoula and S. Kim, "Wideband Wearable Antenna for Biomedical Telemetry Applications," in *IEEE Access*. doi: 10.1109/ACCESS.2020.2967413
- Iqbal, A. Smida, A. J. Alazemi, M. I. Waly, N. K. Mallat and S. Kim, "Wideband Circularly Polarized MIMO Antenna For High Data Wearable Biotelemetric Devices," in *IEEE Access*. doi: 10.1109/ACCESS.2020.2967397.
- Waly, M. (2020). A Modified Evaluation Approach for Direct Assessment of Program Outcomes: Medical Equipment Technology Program as Case Study. *International Journal of Emerging Technologies in Learning (iJET)*, 15(4), 22-36. Kassel, Germany: International Journal of Emerging Technology in Learning. Retrieved August 9, 2020 from <https://www.learntechlib.org/p/217237/>.
- Kaja, R., Vaiyapuri, A., Sirajudeen, M. S., Muthusamy, H., Unnikrishnan, R., Waly, M., Devaraj, S., Seyam, M. K., & S, G. N. (2020). Biofeedback flutter device for managing the symptoms of patients with COPD. *Technology and health care : official journal of the European Society for Engineering and Medicine*, 10.3233/THC-202222. Advance online publication. <https://doi.org/10.3233/THC-202222>.
- Alanazi, A. B., Sikkandar, M. Y., & Waly, M. I. (2020). Estimation of wall shear stress of compliant thoracic aorta with aneurysm. *Journal of Mechanics in Medicine and Biology*, 20(03), 2050013.
- M.Waly" Evaluation of clinical engineering department services in Riyadh city hospitals", *International Journal of Online and Biomedical Engineering (iJOE)* , 2020.
- Alharbi, Raed, Mohamed I Waly et.al" Does transcranial direct current stimulation affect selective visual attention in children with left-sided infantile hemiplegia? A preliminary randomized controlled study." *Brain Impairment*. 2020

- D. Venugopal, T. Jayasankar, Mohamed Yacin Sikkandar, Mohamed Ibrahim Waly, Irina V. Pustokhina, Denis A. Pustokhin and K. Shankar, "A Novel Deep Neural Network for Intracranial Haemorrhage Detection and Classification" 2021. Computers, Materials & Continua
- R. Sowmyalakhmi, Mohamed Ibrahim Waly, Mohamed yacin Sikkandar, T. jayasankar, Asyed Sayed Ahmed, Rahhmi Rani, and surech Chavhan "An Optimal Lempel Ziv Markov Based Microarray image compression algorithm for prostate cancer patients images" 2021. Computers, Materials & Continua
- Ahmed Abdel-Hadi, Bader Alshehri, Mohamed Waly, Mohamed Aboamer, Saeed Banawas, Mohammed Alaidarous, Manikandan Planisamy "Predictive modeling and validation on growth and production of asexual spores and ochratoxin A of *Aspergillus ochraceus* group under ecophysiological factors" Toxins, 2021.
- Sowmyalakhmi, R., Waly, M. I., Sikkandar, M. Y., Jayasankar, T., Ahmad, S. S., Rani, R., & Chavhan, S. (2021). An Optimal Lempel Ziv Markov Based Microarray Image Compression Algorithm. CMC-COMPUTERS MATERIALS & CONTINUA, 69(2), 2245-2260.
- Waly MI, Sikkandar MY, Aboamer MA, Kadry S, Thinnukool O. Optimal Deep Convolution Neural Network for Cervical Cancer Diagnosis Model. 2022
- Jayanthi N, Manohari D, Sikkandar MY, Aboamer MA, Waly MI, Bharatiraja C. Multi-Model Detection of Lung Cancer Using Unsupervised Diffusion Classification Algorithm. 2022
- Selmi, M., Iqbal, A., Smida, A., Waly, M. I., & Belmabrouk, H. (2022). Modeling of heat transfer distribution in tumor breast cancer during microwave ablation therapy. Microwave and Optical Technology Letters.
- M. Waly, A. Sharawy, K. Wahba "System dynamic model for Normal Intraocular pressure" GJCAT, Vol 1(4), 2011, 502-511.
- M. Waly, A. Sharawy, K. Wahba "A Comparison of Different Prediction Models in the Progression of Ocular hypertension to Primary Open Angle Glaucoma" International Journal of Applied Information Systems (IJ AIS) Foundation of Computer Science FCS, New York, USA, Volume 5–No.3, February 2013
- M. Waly, A. Sharawy, K. Wahba, Ayman Salah and Islam ibrahem "Sensitivity of the Risk Factors for the Progression of Ocular Hypertension to Primary Open Angle Glaucoma" International Journal of Computer Applications Volume 70– No.22, May 2013
- Hanaa Ismail Elshazly, Mohamed Waly, Abeer Mohamed Elkorany, Aboul Ella Hassanien "Chronic eye disease diagnosis using an ensemble-based classifier" ICET 2014.
- Mohamed Abd Elfattah, M. I. Waly, Mohamed Abu ElSoud, Aboul Ella Hassanien, Mohamed F. Tolba, Jan Platos, Gerald Schaefer: An Improved Prediction Approach for Progression of Ocular Hypertension to Primary Open Angle Glaucoma. IBICA 2014 Volume 303, 2014, pp 405-412
- M.I.waly and A. El Hossey "Detection of Retinal Blood Vessels in Digital Fundus Images by using Gabor filter with Entropic threshold" Majmaah Journal of Health Sciences. 2016. Volume 5.

B- Electrical engineering and communication fields:

- Amjad Iqbal, Mohamed I Waly, Amor Smida, Nazih Khaddaj Mallat, "Dielectric Resonator Antenna with Reconfigurable Polarization States" IET Research Journals, 2020.
- Iqbal, Amjad, Amor Smida, Mohamed I. Waly, and Nazih Khaddaj Mallat. "Highly-tunable and wide stopband microstrip bandpass filters." International Journal of RF and Microwave Computer-Aided Engineering 31, no. 5 (2021): e22610.
- Surajo Muhammad a,*, Jun Jiat Tiang a, Sew Kin Wong a, Amor Smida b,c, Mohamed I. Waly b, Amjad Iqbal "Efficient Quad-band RF Energy Harvesting Rectifier for Wireless Power Communications" International Journal of Electronics and Communications 2021
- Muhammad, S., Tiang, J. J., Wong, S. K., Rambe, A. H., Adam, I., Smida, A., Waly, M. I., ... Mohd, Y. M. N. (March 20, 2022). Harvesting Systems for RF Energy: Trends, Challenges, Techniques, and Tradeoffs. Electronics, 11, 6, 959.

- Muhammad S, Tiang JJ, Wong SK, Nebhen J, Smida A, Waly MI, Iqbal A. Broadband RCN-based RF-rectifier with a large range of power for harvesting ambient wireless energy. *AEU-International Journal of Electronics and Communications*. 2022 Jul 1; 152:154228.
- Muhammad, S., Smida, A., Waly, M. I., Mallat, N. K., Iqbal, A., Reza Khan, S., & Alibakhshikenari, M. (2022). Design of Wideband Circular-Slot Antenna for Harvesting RF Energy. *International Journal of Antennas and Propagation*, 2022.

C- Other Engineering fields:

- Z. Li, M. Sheikholeslami, M. Ayani, M. Shamlooei, A. Shafee, M. I. Waly, and I. Tlili, "Acceleration of solidification process by means of nanoparticles in an energy storage enclosure using numerical approach," *Physica A: Statistical Mechanics and its Applications* 524 ,540–552 (2019).
- Azam, Muhammad, Fazle Mabood, Tianzhou Xu, Mohamed Waly, and Iskander Tlili. "Entropy optimized radiative heat transportation in axisymmetric flow of Williamson nanofluid with activation energy." *Results in Physics* 19 (2020): 103576.
- Al-Atroush, Mohamed Ezzat, Omar Shabbir, Bandar Almeshari, Mohamed Waly, and Tamer A. Sebaey. "A Novel Application of the Hydrophobic Polyurethane Foam: Expansive Soil Stabilization." *Polymers* 13, no. 8 (2021): 1335.

D- Disease prevalence and pattern:

- Omar Sayed Amer, Mohamed Ibrahim Waly and Saeed Ahmed Al-Zahrani "Intestinal parasitic infections among patients of Prince Sultan Military Medical City in Riyadh region, Saudi Arabia: a 5-year retrospective study". *Pakistan journal of zoology* (0.45 impact factor ISI).2017
- Sirajudeen M.s., Alqahtani M., Alaidarous M.& Waly M. (2018). Work-related musculoskeletal disorders among faculty members of college of applied medical sciences, Majmaah university, Saudi Arabia: A cross-sectional study. *International Journal of Health Science*. 12.
- SIRAJUDEEN M.S., MUTHUSAMY H., ALQAHTANI M., WALY M., WALY M., & JILANI A.K. (2018). Computer-related health problems among university students in Majmaah region, Saudi Arabia. *Biomedical Research (India)*. 29, 2405-2415
- "Hand Hygiene practice among hospital laboratory workers in selected hospitals in Saudi Arabia". *Biosci. Biotech. Res. Comm.* 11(1): 11-17 (2018)
- ALAIDAROUS, M., CHOUDHARY, R. K., WALY, M. I., MIR, S., BIN DUKHYIL, A., BANAWAS, S. S., & ALSHEHRI, B. M. (2018). The prevalence of transfusion-transmitted infections and nucleic acid testing among blood donors in Majmaah, Saudi Arabia. *Journal of Infection and Public Health*. 11, 702-706.
- AMER OSO, AL-MALKI ES, WALY MI, ALAGEEL A, & LUBBAD MY. (2018). Prevalence of Intestinal Parasitic Infections among Patients of King Fahd Medical City in Riyadh Region, Saudi Arabia: A 5-Year Retrospective Study. *Journal of Parasitology Research*. 2018.
- Sirajudeen MS, Waly M, Alqahtani M, et al. Generalized Joint Hypermobility among School-going children in Majmaah region, Saudi Arabia. *Peerj*; 2020. DOI: 10.21203/rs.2.17255/v1.
- O.Amer, M.Waly, " Epidemiological trends of Malaria in the Western regions of Saudi Arabia: a cross sectional study" *The Journal of Infection in Developing Countries* 2020.
- Seyam M, Sherief A, Waly MI, Kashoo FZ, Elfakharany MS. Effect of sensory integration on gait for children with mild hemiplegic cerebral palsy. *Egyptian Journal of Physical Therapy*. 2021 Sep 1;7(1):1-6.
- Alaidarous, M., M.I.Waly and etal (June 15, 2021). Serum Lipid Profile in Patients Visiting King Khalid General Hospital in Majmaah, Saudi Arabia. *Bioscience Biotechnology Research Communications*, 14, 2, 563-569.

- Sirajudeen, M. S., Waly, M., Manzar, M. D., Alqahtani, M., Alzhrani, M., Alanazi, A., Unnikrishnan, R., ... Alrubaia, W. (April 12, 2022). Physical activity questionnaire for older children (PAQ-C): Arabic translation, cross-cultural adaptation, and psychometric validation in school-aged children in Saudi Arabia. Peerj, 10.
- Sirajudeen, M. S., Alzhrani, M., Alanazi, A., Alqahtani, M., Waly, M., Manzar, M., ... & Miraj, M. (2022, December). Prevalence of Upper Limb Musculoskeletal Disorders and Their Association with Smartphone Addiction and Smartphone Usage among University Students in the Kingdom of Saudi Arabia during the COVID-19 Pandemic—A Cross-Sectional Study. In Healthcare (Vol. 10, No. 12, p. 2373). Multidisciplinary Digital Publishing Institute.
- Sirajudeen, Mohamed Sherif, et al. "Prevalence of upper limb musculoskeletal disorders and their association with smartphone addiction and smartphone usage among university students in the Kingdom of Saudi Arabia during the COVID-19 Pandemic—A Cross-Sectional Study." Healthcare. Vol. 10. No. 12. MDPI, 2022.
- Sirajudeen, M. S., Alzhrani, M., Alanazi, A., Alqahtani, M., Waly, M., Unnikrishnan, R., ... & Al-Hussinan, N. M. (2022). Prevalence of text neck posture, smartphone addiction, and its association with neck disorders among university students in the Kingdom of Saudi Arabia during the COVID-19 pandemic. PeerJ, 10, e14443.

Patent:

- Automated Infusion Apparatus for Targeted Liposomal Therapeutic Delivery, Intellectual property office uk Patent Office
- AI ENABLED PROBE SONICATOR DEVELOPING NANO FORMULATION FOR, Intellectual property office uk Patent Office.
- AI-Enabled Device for Identifying Autoimmune Diseases through Blood Plasma , Intellectual property office uk Patent Office.
- High Performance Recrystallization Device with advanced Filtration and Separation Techniques, Intellectual property office uk Patent Office.

Software:

- | | |
|----------|----------|
| • Matlab | • Protos |
| • Ithink | • Vensim |
| • CST | • python |

Management:

- Short and long-term planning
- Leadership, dependable and oriented results
- Communications and well-organized
- Applying policies and procedures of the firm
- Minimize the costs and the expenses.
- Internal and external correspondences

Educational quality assurance unit:

- Responsible for preparing course description and report
- One of the teams that are responsible for preparing Educational Regulations for High Institute of Engineering
- One of the teams that are responsible for preparing Educational Regulations for High Institute of Engineering
- Chairman of Quality assurance unit.
- Chairman of Curriculum and education plan unit.

- Chairman of Medical continuous education unit.
- Coordinator for Basic life support center.
- Member for Health information technology preparation committee
- Member for Biomedical Engineering Master program preparation committee
- Chairman of TQM unit
- Chairman of academic affair and examination unit.
- Chairman of student support unit.

Consultation:

- Biomedical Engineering consultant in Center for Advanced Software and Biomedical Engineering Consultations (CASBEC) - Faculty of Engineering – Cairo university from 2013 till now.
- Biomedical engineering consultant certified from Saudi Commission for health specialties.
- Biomedical engineering consultant for Tamar Hospital
- Biomedical engineering consultant for Majmaah university medical Center
- Deanship of Graduate Studies consultant.
- Continuing Professional Development Consultant

Awards:

- Dean of Excellence Award for faculty members 2016-2017
- Dean of Excellence Award for faculty members 2017-2018
- Dean of Excellence Award for faculty members 2019- 2020
- Dean of Excellence Award for faculty members 2023-2022

Community Service:

- Awareness campaign for Food Concepts 2015
- Unified Health Week to Promote Oral and Dental Health 2017

Training courses and workshops:

- Clinical engineering workshop 2012
- Application of quality management system ISO 9001 2016
- Preparing the self-study report for academic programs 2017
- How to prepare the cognitive domain question for learning 2017
- Quantitative data analysis 2017
- Escienta- tips to avoid common mistakes researchers 2017
- Publishing mechanism in ISI 2018
- Search mechanism in IEEE 2018
- Statistical analysis using excel 2018.
- How to use statistical methods to extract results from among the numbers 2018.

Languages:

- Arabic: Mother Tongue
- English: Fluent (spoken & written)