

CV

Prof. Dr. Sabah Mohamed Ahmed, Ph. D.,

**Mechatronics and Robotics Engineering, School of Innovative Design Engineering. Egypt-
Japan University of Science and Technology (E-Just)**

**(Former: Professor of Electronics and Communication Engineering, Faculty of Engineering,
Manager of Assiut University Information and Communications Technology Training Project, Assiut
University, Assiut, Egypt and Associate Professor at the Computer Science Department, Faculty of
Sciences, Zarka Private University, Zarka, Jordan)**

Email: sabah.ahmed@ejust.edu.eg, zahhad@aun.edu.eg and sabahma@yahoo.com

Tel. 0020-88-2411045 office and 0020-88-2088333 home and 0020-100-5867296- (mobile)

Main Fields of Interest:

**Mechatronics and Robotics Engineering, Digital Signal and Image Processing,
Biomedical and Bioinformatics**

Google Scholar (Citation indices = 2163 , H-index = 23 and i10-index = 41)

<https://scholar.google.ca/citations?user=mP4w4LMAAAAJ&hl=en>

**Scopus Scholar (Citation indices = 1151 , H-index = 17 and Total no. of Int. publications in
SCOPUS 49) ORCID ID Number 0000-0003-4462-3552**

<https://www.scopus.com/authid/detail.uri?authorId=55456828900>

Research Gate Profile (Publications=81, Reads=69,485, Citations = 1,708, H-index = 21, RG = 25.64)

<https://www.researchgate.net/profile/Sabah-Ahmed-4>

April, 2022

Curriculum Vita

Personal

Name : Sabah Mohamed Ahmed

Date of Birth : April 9th. 1956, Assiut, Egypt.

Place of Birth : April 9th. 1956, Assiut, Egypt.

Affiliation: Professor of Mechatronics and Robotics Engineering,
School of Innovative Design Engineering. Egypt-
Japan University of Science and Technology (E-Just)

Nationality : Egyptian

Marital Status : Married (3 children)

Current Address: Mechatronics and Robotics Engineering, School of Innovative Design Engineering,
Egypt-Japan University of Science and Technology (E-Just), New Borg Al Arab,
Alexandria 21934, Egypt.

Permiant Address: Electrical and Electronics Engineering Department, Faculty of Engineering,
University of Assiut, Assiut 71516, EGYPT.

Tel. 2 Tel. 0020-88-2411045 office and 0020-88-2088333 home and 0020-100-5867296- (mobile)

Email: sabah.ahmed@ejust.edu.eg, sabahma@yahoo.com and sabah@eng.au.edu.eg



Eduction

1974-1979 B.Sc. in Electronics and Communications (Excellent with honors), University of Assiut, Assiut, Egypt.

1981-1985 M. Sc. in Electronic Engineering, University of Assiut, Assiut, Egypt.

Title of the Thesis: Use of Microprocessor in Analog-To-Digital Converters Design..

1988-1992 Ph.D. in Electronics and Communications: Technical University of Budapest,
Budapest, Hungary, Sept. 1992.

Title of the Dissertation: Speech Synthesis System for Modern Standard Arabic.

Work Experience

Aug. 2017 - till now Professor of Mechatronics and Robotics Engineering, School of Innovative Design Engineering. Egypt-Japan University of Science and Technology (E-Just)

- March 2009 – Aug. 2017** Professor at the Department of Electrical Engineering, Faculty of Engineering , University of Assiut, Assiut, Egypt.
- March 2004 – Feb. 2009** Associate Professor at the Department of Electrical Engineering, Faculty of Engineering , University of Assiut, Assiut, Egypt.
- Oct. 2000 – Feb. 2004** Associate Professor at the Computer Science Department, Faculty of Sciences, Zarka Private University, Zarka, Jordan.
- Nov. 1996-Sept. 2000** Assistant Professor at the Department of Economics (Computer Group), Faculty of Economics and Administrative Sciences, Jarash University, 26150-Jarash, Jordan.
- Oct. 1992-Oct. 1996** Assistant Professor at the Department of Electrical Engineering, Faculty of Engineering , University of Assiut, Assiut, Egypt.
- Oct. 1989–Sept.1992** Research Fellow, Department of Telecommunications and Telematics, Technical University of Budapest, H-1111 Bp., Stoczek U.2, Hungary.
- April 1985-Sept. 1989** Assistant Lecturer, Faculty of Engineering, University of Assiut, Egypt.
- Oct.1979-March 1985** Demonstrator (teaching and research assistant), Faculty of Engineering, University of Assiut, Assiut, Egypt.

Teaching Experiences:

A. Undergraduate Level

1. Electrical Engineering (Circuits and Machines)
2. Introduction to Computers and Computer Skills.
3. Computer Applications and Internet.
4. Computer Languages (Basic, Fortran, Pascal, C++ and MatLab)
5. Digital Logic Design.
6. Discrete Mathematics.
7. Computer Organization.
8. System Programming.
9. Computer Architecture.
10. Special Topics (Speech Analysis and Synthesis).
11. Electrical Circuits I and II.
12. Electronics and Electronic Circuits.

13. Embedded Systems
14. Programmable Logic Controller (PLC)
15. Introduction to Bio-Mechatronics
16. Electronic Instruments and Instrumentation.
17. Digital Signal Processing.
18. Digital and Analog Communication Systems.

B. Graduate Level:

1. Advanced Mechatronics Engineering.
2. Numerical Techniques and Programming.
3. Database Management, Design and Implementations.
4. Operating System Design and Computer Systems.
5. Speech Synthesis and Recognition Systems.
6. Linear Prediction Coding.
7. Wireless Communication.
8. Advanced Bio-Engineering Systems
9. Bio-Mechatronics Systems

C. Computer Experience and Software Knowledge

1. Experienced with many Computer Languages (e.g. Basic, Fortran-90, Pascal, and C++ Visual Stiduo).
2. Experienced with Many Graphics and Spread Sheets Software Such As Quattro-Pro, Louts, Harvard Graphics, MicroSoft Office Tools.

D. Attend the Following Training Courses

1. Teaching using technology.
2. Manage time and work pressures.
3. University and the community.
4. Ethics and Professional Ethics.
5. Making decisions and solving problems.
6. Scientific publishing.

Projects and Applied Research for Production and Service Environment

- 1- Participate in the development of Arabic Text-to-Speech System in Arabic-speaking. This system is integrated in the international speech synthesis system (MultiVox) which deals with English, French, German, Spanish, Hungarian, languages. It was manufactured in Germany.
- 2- Participation in the development of software package for designing all types of analog and digital filters. This package is used for designing purposes in industry and can be used as an educational tool to teach filter design and analysis.
- 3- Participation in the design of EPROM programmer, reader and writer for various types of memory modules programmed " Universal EPROM Programmer". It can handle memory modules of different capacities and from different companies.
- 4- Participate in design, development and implementation of the portable device to send and receive electrical activity of the heart signal to rescue patients in emergency situations.
- 5- Participation in the design, development and implementation of a device to prevent the sending and receiving cell phone signals.
- 6- Coauthor of "Logic and digital circuits" book for the second year students - Department of Electrical Engineering --2 004 College of Engineering – Assiut.
- 7- Participate in the preparation of two books in electronic circuits for third and fourth years students - Department of Electrical Engineering (Communications Division), Faculty of Engineering – Assiut.
- 8- Member of the executive team of the development and restructuring of the Bylaws of Institute of Sugar Technology - Assiut University.
- 9- Member of the executive team for the project of training of technicians and maintenance services at the Institute for Studies and Research Sugar Technology - Assiut University.
- 10- Member of the Executive Group for developing the College of Engineering (Project Quality Assurance and Accreditation) Rehabilitation Accreditation to get accreditation from the National Authority for Quality Assurance and Accreditation.
- 11- Member of the executive team for the construction of a scientific resource center, multimedia, Faculty of Science - Assiut University.
- 12- Member of Management Team and coordinator of the project for training faculty members and their assistants and working groups on information technology and communications - development projects for information and communication technology in the Egyptian universities.

- 13- Member of the Project Management Team for Automated Management Information Systems at the University of Assiut - development projects for information and communication technology in the Egyptian universities.
- 14- Member of the executive team for the project of training of faculty members on the requirements of electronic publishing and attend the training of trainers on the requirements of electronic publishing.
- 15- Member of the Academic Standards preparation and characterization team for preparing reports of programs and graduate courses submitted to the National Authority for Quality Assurance and Accreditation for the adoption of the Faculty of Engineering - Assiut University.
- 16- Participation in all scientific activities of the electrical engineering department such as attending seminars and discussions Theses and Scientific Conference of the department and supervision of undergraduate students on trips. Faculty of Engineering - Assiut

Quality Assurance and Accreditation Experience

- 1- Executive team member of Quality Assurance and Accreditation Project at Faculty of Engineering, Assiut University, Egypt; 2010-2012.
- 2- Member of the committee of reviewing the Academic Reference Standard (ARS) of
 - Electronics and Communication Technology, B. Sc. Program.
 - Computer Engineering and Information Technology, B. Sc. Program.For Modern Academy for Engineering and Technology in Maadi, Cairo, 2015. (Nominated by NAQAAE; Egypt).
- 3- Member of the committee of reviewing the Academic Reference Standard (ARS) of
 - Electronics and Electrical Communications Engineering, B. Sc. Program
 - Computer Science and Engineering, B. Sc. Program.
 - Industrial Electronics and Control Engineering, B. Sc. Program.For of the Faculty of Electronics Engineering, Menofia University, 2015. (Nominated by NAQAAE; Egypt).

Awards

- 1- Holds a Distinction Award for best scientific research in engineering sciences for the year 2009.
- 2- Holds a Distinction Award for best scientific research in engineering sciences for the year 2012.

Supervision of Postgraduate Students

- 1- Design of Digital Filters using Artificial Immune Algorithm, M. Sc. Thesis, by Nabil Sabor, Faculty of Engineering, Assiut University, Egypt, 2011.
- 2- ECG Signal Compression using Wavelet Transform, M. Sc. Thesis, by Ahmed Zakaria, Faculty of Engineering, Assiut University, Egypt, 2012.
- 3- A Vision Based System for Vehicle Monitoring and Classification, M. Sc. Thesis, by Emad Saleh Sayed, Faculty of Engineering, Assiut University, Egypt, 2012.
- 4- A Wireless Emergency Telemedicine System for Patients Monitoring and Diagnosis, M. Sc. Thesis, by Osama Elnahas, Faculty of Engineering, Assiut University, Egypt, 2013.
- 5- Future Location Prediction of Mobile User in Cellular Network Platform: Intra-Cell Approach, M. Sc. Thesis, by Mohamed Mourad, Faculty of Engineering, Assiut University, Egypt, 2013.
- 6- Prediction of Gene Locations in DNA using Digital Signal Processing Techniques, M. Sc. Thesis, by Shimaa Adly, Faculty of Engineering, Assiut University, Egypt, 2013.
- 7- Energy Saving in Wireless Sensor Networks, Ph. D. Thesis, by Nabil Sabor, Faculty of Engineering, Assiut University, Egypt, 2015.
- 8- Biometric Authentication Based on Heart Sounds and Electroencephalography Signals, M. Sc. Thesis, by Sherif Nagib Abbas Seha, Faculty of Engineering, Assiut University, Egypt, 2015.
- 9- Bio-images Edge Detection Using Wavelet Transform, M. Sc. Thesis, by Ahmed A. Donkol, Faculty of Engineering, Assiut University, Egypt, 2015.
- 10- Compression of Biomedical Images, M. Sc. Thesis, by Mahmoud Khaled, Faculty of Engineering, Assiut University, Egypt, 2015.
- 11- Compressed Spectrum Sensing for Cognitive Radio, Ph. D. Thesis, by Khaled Ali Ahmed Ba Ali, Faculty of Engineering, Assiut University, Egypt, 2015.
- 12- Supervision of 3 M. Sc. Students and two Ph. D. Students.

Other Scientific Activities

- 1- Establishment of the Basic Electronic Engineering and Computer Laboratories, Department of Electrical and Electronic Engineering, University of Assiut, Egypt.
- 2- Development of the Study Plan (including courses description), Department of Electrical and Electronic, Engineering, Faculty of Engineering, University of Assiut, Egypt, 1995.
- 3- Member of the organization committee of the Middle East Power Systems Conference (MEPCON-96), Luxor, Egypt, Jan. 1996.

- 4- Member in the organization committee of the Arab Conference on Information Technology (ACIT'2000), Zarka, Jordan, Oct. 2000.
- 5 - Member of the scholarship for a PhD, Department of Communications Engineering and Acoustics - Technical University of Budapest - Hungary in the period from September 1989 to September 1992.
- 6 - Member of the Advisory Centre for Engineering, Assiut University, since October 1992 to date.
- 7- Assistant Professor of Computer Science - Faculty of Economics and Administrative Sciences - Jarash University - Jordan from November 1997 until September 2000.
- 8- Assistant Professor, Department of Computer Science - Faculty of Science - University of Zarqa, Jordan, from October 2000 until Feb. 2004.
- 9- Member of the executive team for several projects to develop system of higher education at Egyptian universities, carried out in Assiut University, such as: structuring the study plan of the Studies and Research Sugar Technology Institute, University of Assiut, Quality Assurance and Accreditation project for Faculty of Engineering, and the Electronic Publishing project, and establishment a resource center of scientific and multimedia for Faculty of Science, and the Training of technicians at the University of Assiut project.
- 10 - Deputy Director of Management Information Systems Project at the University of Assiut, one of the projects of developing information technology systems and communications, Egyptian Supreme Council of Universities since July 1, 2008-30 June 2010.
- 11- Director, Center for ICDL exams, Faculty of Engineering from July 1, 2010 until July 1, 2013.
- 12- Manager of Information and Communications Technology Project at the University of Assiut, one of the projects of developing information technology systems and communications, Egyptian Supreme Council of Universities since July 1, 2010 until now.

Fields Of Interest

- 1) Computer-Aided Design.
- 2) Communication and Information Technology.
- 3) Digital Signal and Image Processing.
- 4) Signal Compression Using Wavelet Transforms.
- 5) Genetic and Immune Algorithms.
- 6) Digital Signal and Image Processing.
- 7) Multi Resolution Analysis and Wavelet Transforms.
- 8) Biomedical and Bioinformatics Engineering.

- 9) CAD Tools for Designing Analog, Wave-Digital, FIR and IIR Filters.
- 10) Speech Synthesis and Recognition.
- 11) Analysis of Power Systems.
- 12) Telemedicine.
- 13) Embedded Systems
- 14) Genomic Digital Signal Processing.
- 15) Information and Communication Technologies.
- 16) Wireless Sensor Networks.
- 17) Biometric Authentication and Recognition.

Languages

- 1- Arabic (mother tongue).
- 2- English.
- 3- Hungarian.

Publication in National and International Scientific Journals and Conferences

The publications in journals were in the following journals (One (or more) paper(s) has been published in the following national and international refereed journals)

- 1) IEEE Signal Processing Letters.
- 2) IET Biometrics.
- 3) IET Wireless Sensor Systems.
- 4) Medical Engineering and Physics.
- 5) Journal of Medical Engineering & Technology.
- 6) Physical Review, Japan.
- 7) Digital Signal Processing: A Review.
- 8) Journal of Communications.
- 9) Journal of Electrical Engineering.
- 10) Digital Signal Processing.
- 11) Journal of Medical Engineering and Technology.
- 12) International Journal of Signal and Imaging Systems Engineering.
- 13) Journal of Signal and Information Processing.
- 14) International Journal of Communications, Network and System Sciences.
- 15) International Journal of Information Technology and Computer Science.
- 16) International Journal of Engineering and Innovative Technology.

- 17) Signal, Image, and Video Processing.
- 18) International Journal of Telemedicine and Applications.
- 19) Journal of Signal and Information Processing.
- 20) International Journal of Engineering Innovations and Research.
- 21) SOP Transactions on Signal Processing.

The conferences' publications were in the following conferences:

- 1) European Conference on Circuit Theory and Design (ECCTD'87), Paris, Sept. 1987.
- 2) IEEE International Symposium on Circuits and Systems (ISCAS'89), Portland, USA, 1989.
- 3) European Conference on Circuit Theory and Design (ECCTD'89), England, May 1989.
- 4) IEEE International Symposium on Circuits and Systems (ISCAS'90), Orleans, USA, 1990.
- 5) European Conf. on Circuit Theory & Design, ECCTD'95, Istanbul, Turkey, Aug. 1995.
- 6) National Radio Science Conference (NRSC'96), Cairo, Egypt, March 1996.
- 7) International Conference on Computational Aspects and Their Applications in Electrical Engineering, 2nd CATAEE'97, Amman, Jordan, July 1997
- 8) European Conference on Circuit Theory and Design (ECCTD'97), Hungary, Aug. 1997.
- 9) IEEE International Conference on Electronics, Circuits and Systems, Cairo, Dec. 1997.
- 10) National Radio Science Conference (NRSC'98), Cairo, Egypt, Feb. 1998.
- 11) IEEE International Symposium on Radio Science, Atlanta, USA, June 1998.
- 12) International Conference on Computational Aspects and Their Applications in Electrical Engineering, 3rd CATAEE'99, Amman, Jordan, Oct. 1999.
- 13) The 7th IEEE International Conference on Electronics, Circuits and Systems (ICECS 2000), Beirut, Lebanon, 2000.
- 14) The 8th IEEE International Conference on Electronics, Circuits and Systems (ICECS 2001), Malta, 2001.
- 15) 2nd IEEE Conference on Signal Processing and Information Technology, Marrakech, Morocco, Dec. 2002.
- 16) European Conference on Circuit Theory and Design, ECCTD'03, Poland, 1-4 Sept. 2003.
- 17) The 10th IEEE International Conf. on Electronics, Circuits and Systems, ICECS'03, Sharjah, United Arab Emirates, 14-17 Dec. 2003.
- 18) National Radio Science Conference (NRSC'10), Cairo, Egypt, March 2010.
- 19) National Radio Science Conference (NRSC'11), Cairo, Egypt, April 2011.
- 20) The 1st Taibah University International Conference on Computing and Information Technology, Al-Madinah Al-Munawwarah, Saudi Arabia, March 2012.

- 21) National Radio Science Conference (NRSC'12), Cairo, Egypt, April 2012.
- 22) The 30th National Radio Science Conference, NRSC, Cairo, Egypt, April 2013.
- 23) 27th Annual IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2014), Toronto, Ontario, Canada, 2014.
- 24) Proc. of 7th Cairo IEEE Int. Biomedical Engineering Conf. (CIBEC-2014), Cairo, Egypt, 2014.
- 25) National Radio Science Conference (NRSC'15), Cairo, Egypt, April 2015.

The Overall Scientific Publications (Total Citations H-index, Highly Cited)

https://scholar.google.ca/citations?user=mP4w4LMAAAAJ&hl=en					
Citations	1312	h-index	22	i10-index	35
Total number of published papers	91	Number of published papers in Journals	60	Number of published papers in conferences	31
Total number of unpublished papers (submitted or to be submitted)					5
Total number of published papers in journals having impact factor (54.42)					34
Citations of highly cited article					108
Number of publications in journals during the last five years					22
Number of publications in conferences during the last five years					9

Papers Published in Journals

- 1) N. Hamdy, M. Abdel-Gawad and Sabah, M.A., "Microprocessor Aided Analog-To-Digital Conversion" Mansoura Bulletin, vol. 9, no. 1, June 1984, Mansoura, Egypt.
- 2) Sabah, M.A., G. Gordos and G. Olaszy, "Acoustic Building Units for Formant Synthesis Text-to-Speech Converter System for Modern Standard Arabic" Periodica Polytechnica, TUB, Budapest, Hungary, Vol. 36, no. 1, pp. 39-52, 1992.
- 3) Sabah, M.A., G. Gordos and G. Olaszy, "Data-Base Rule-System for the MULTIVOX Text-To-Speech Converter Application for Arabic Language" Periodica Polytechnica, TUB, Budapest, Hungary, Vol. 36, no. 2, pp. 93-106, 1992.
- 4) Sabah, M.A., and M. Abo-Zahhad, "FIR Half-Band Filters Satisfying Prescribed Amplitude and Phase Specifications in Weighted Least Squares Sense" Mu'tah Journal for Research and Studies (Natural and Applied Sciences Series), Mu'tah University, 1999.

- 5) M. Abo-Zahhad and Sabah, M. A., "Design of Selective M-Channel Perfect Reconstruction FIR Filter Banks" *Electronics Letters*, vol. 35, no. 15, pp. 1223-1225, July 1999. (IF=0.93).
- 6) Sabah, M. A., A. Al-Shrouf and M. Abo-Zahhad, "ECG Data Compression Using Optimum Non-Orthogonal Wavelet Transform" *Medical Engineering and Physics*, vol. 22, no. 1, pp. 39-46, May 2000. (IF=1.825).
- 7) Sabah, M. A., A. Al-Shrouf and M. Abo-Zahhad, "Compression of Electrocardiogram Signal Using Wavelets" *Jordanian Journal of Applied Sciences*, vol. 2, no.3, pp. 23-45, 2000.
- 8) Sabah, M. A. and M. Abo-Zahhad, " A new hybrid algorithm for ECG signal compression based on the wavelet transformation" *Medical Engineering and Physics*, vol. 24, no. 3, pp. 50-66, 2001. (IF=1.825).
- 9) A. Al-Shrouf, M. Abo-Zahhad and Sabah, M. A., "A Novel Compression Algorithm For Electrocardiogram Signals Based On The Linear Prediction Of The Wavelet Coefficients" *Digital Signal Processing*, vol. 13, no. 4, pp. 604-622, October 2003. (IF=1.256).
- 10) M. Abo-Zahhad, A. Al-Smadi and Sabah, M. A., "High-Quality Low-Complexity Wavelet-Based Compression Algorithm For Audio Signals" *Electrical Engineering*, vol. 86, no. 4, pp. 219-227, July 2004. (IF=0.367).
- 11) A. Al-Smadi, M. Abo-Zahhad, and S. M. Ahmed, "A New Order Determination Technique Based On the Determination of Singularity Of Principal Submatrices" *International Journal of Engineering Simulation (IJES)*, vol. 5, no. 2, pp. 81-89, April 2004.
- 12) S. M. Ahmed, Q. Al-Zoubi, and M. Abo-Zahhad, "A hybrid ECG compression algorithm based on singular value decomposition and discrete wavelet transform" *Journal of Medical Engineering and Technology*, vol. 31, no. 1, pp. 54 - 61, Jan. 2007. (IF= 1.67).
- 13) A. F. Al-Ajlouni, M. Abo-Zahhad, S. M. Ahmed, and R. J. Schilling, "An ECG Signal Compressor Based On The Selection Of Optimal Threshold Levels Of Discrete Wavelet Transform Coefficients," *Journal of Medical Engineering & Technology*, Vol. 32, No. 6, pp. 425-433, 2008. (IF= 1.67).
- 14) S. M. Ahmed, A. F. Al-Ajlouni, M. Abo-Zahhad, and B. Harb, "ECG Signal Compression Using Combined Modified Discrete-Cosine and Discrete Wavelet Transforms," *Journal of Medical Engineering & Technology*, Vol. 33, No. 1, pp. 1-8, 2009. (IF= 1.67).
- 15) M. Abo-Zahhad, Sabah M. A. and A. Zakaria, "ECG Signal Compression Technique Based on Discrete Wavelet Transform and QRS-Complex Estimation," *Signal Processing – An International Journal (SPIJ)*, vol. 4, no. 2, pp. 138-160, 2010..

- 16) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and A. F. Al-Ajlouni, "Design of Two-Dimensional Recursive Digital Filters with Specified Magnitude and Group Delay Characteristics using Taguchi-based Immune Algorithm", *Int. J. of Signal and Imaging Systems Engineering*, vol. 3, no. 3, pp. 222-235, 2010.
- 17) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and A. F. Al-Ajlouni, "The Convergence Speed of Single-And Multi-Objective Immune Algorithm Based Optimization Problems", *Signal Processing – An International Journal (SPIJ)*, vol. 4, no. 5, pp. 247-266, 2010.
- 18) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and A. F. Al-Ajlouni, "Digital Filters Design Educational Software Based on Immune, Genetic and Quasi-Newton Line Search Algorithms", *Int. J. of Innovation and Learning*, vol. 9, no. 1, pp. 35-62, 2011.
- 19) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and A. F. Al-Ajlouni, "An Adaptive Mutation Approach for Fastening the Convergence of Immune Algorithms", *J. of Signal and Information Processing*, 2011.
- 20) M. Abo-Zahhad, Sabah M. Ahmed and M. Mourad, "Hybrid Uplink-Time Difference of Arrival and Assisted-GPS Positioning Technique," *International Journal of Communications, Network and System Sciences*, pp. 303-312, vol. 5, 2012.
- 21) M. Abo-Zahhad, Sabah M. Ahmed and Shimaa A. Abd-Elrahman, "Genomic Analysis and Classification of Exon and Intron Sequences Using DNA Numerical Mapping Techniques," *I. J. of Information Technology and Computer Science*, 2012. (IF=1.850).
- 22) M. Abo-Zahhad, Sabah M. A. and A. Zakaria, "An Efficient Technique for Compressing ECG Signals Using QRS Detection, Estimation and 2-D DWT Coefficients Thresholding," *Modelling and Simulation in Engineering*, vol. 2012, Article ID 742786, pp. 1-10, 2012.
- 23) M. Abo-Zahhad, A. F. Al-Ajlouni, S. M. Ahmed, and R. J. Schilling, "A New Algorithm For The Compression Of ECG Signals Based-On Mother Wavelet Parameterization And Best-Threshold Levels Selection," *Digital Signal Processing*, vol. 23, no. 3, pp. 1002-1011 May 2013. (IF=1.256).
- 24) M. Abo-Zahhad, Sabah M. Ahmed and M. Mourad, "Services and Applications Based on Mobile User's Location Detection and Prediction," *Int. J. Communications, Network and System Sciences*, vol. 6, pp. 167-175, April 2013.
- 25) M. Abo-Zahhad, Sabah M. Ahmed and M. Mourad, "New Technique for Mobile User's Location Detection, Future Prediction and Their Applications," *International Journal of Engineering and Innovative Technology*, pp. 1-15, Nov. 2013.

- 26) M. Abo-Zahhad, Sabah M. Ahmed and Sherif N. Abbas, "Biometric Authentication Based On PCG and ECG Signals: Present Status and Future Directions," *Signal, Image, and Video Processing*, vol. 8, no. 4, pp 739-751, 2014. (IF=1.430)
- 27) M. Abo-Zahhad, Sabah M. Ahmed, Nabil Sabor and S. Sasaki, "A New Energy-Efficient Adaptive Clustering Protocol Based on Genetic Algorithm for Improving the Lifetime and the Stable Period of Wireless Sensor Networks," *International Journal of Energy, Information and Communications*, vol. 5, no. 3, pp.47-72, 2014.
- 28) M. Abo-Zahhad, Sabah M. Ahmed and Shimaa A. Abd-Elrahman, "A Novel Circular Mapping Technique for Spectral Classification of Exons and Introns in DNA Sequences," *I.J. Information Technology and Computer Science*, Vol. 04, pp. 19-29, 2014. (IF=1.850).
- 29) M. Abo-Zahhad, Sabah M. . Ahmed and S. A. Abd-Elrahman , "Integrated Model of DNA Sequence Numerical Representation and Artificial Neural Network for Human Donor and Acceptor Sites Prediction" *I.J. Information Technology and Computer Science*, vol. 6, no. 6, May 2014. (IF=1.850).
- 30) M. Abo-Zahhad, Sabah M. Ahmed and O. Elnahas, "A Wireless Emergency Telemedicine System for Patients Monitoring and Diagnosis," *International Journal of Telemedicine and Applications*, Vol.2014, Article ID 380787, pp. 1-11, 2014.
- 31) M. Abo-Zahhad, R.R. Gharieb, Sabah M. Ahmed and A. A. Donkol "Edge Detection with a Preprocessing Approach," *Journal of Signal and Information Processing*, vol. 5, no. 4, pp. 123-134, Nov. 2014.
- 32) M. Abo-Zahhad, R. R. Gharieb, Sabah M. Ahmed and A. A. Donkol "Enhancement of Gabor Directional Wavelet Edge Detection Method," *International Journal of Engineering Innovations and Research*, vol. 3, no. 6, pp. 839-849, Nov. 2014.
- 33) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "A Novel Biometric Approach for Human Identification and Verification Using Eye Blinking Signal," *IEEE Signal Processing Letters*, vol. 22, no. 7, pp 876-880, 2015. (IF=1.751).
- 34) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "The State of the Art Methods and Future Perspectives for Personal Recognition Based on Electroencephalogram Signals," *IET Biometrics*, vol. 4, no. 3, pp. 179-190, March 2015. (IF=0.857).
- 35) M. Abo-Zahhad, Sabah M. Ahmed and O. Elnahas, "Remote Online Vital Signs Processing For Patient Monitoring and Diagnosis", *SOP Transactions on Signal Processing*, pp. 1-16, Jan. 2015.

- 36) M. Abo-Zahhad, R.R. Gharieb, Sabah M. Ahmed and Mahmoud Khaled, "Brain Image Compression Techniques," International Journal of Engineering Trends and Technology IJETT, vol.9, pp. 1-13, Jan. 2015.
- 37) M. Abo-Zahhad, R.R. Gharieb, Sabah M. Ahmed and Mahmoud Khaled "Huffman Image Compression Incorporating DPCM and DWT," Journal of Signal and Information Processing, vol. 6, pp. 123-135, 2015.
- 38) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "A New EEG Acquisition Protocol for Biometric Identification Using Eye Blinking Signals," International Journal of Intelligent Systems and Applications (IJISA), vol. 7, no. 6, pp. 48-54, 2015.
- 39) M. Abo-Zahhad, Sabah M. Ahmed, N. Sabor and A. F. Al-Ajlouni, "Wavelet Threshold-Based ECG Data Compression Technique Using Immune Optimization Algorithm," International Journal of Signal Processing, Image Processing and Pattern Recognition, Vol. 8, No. 2, pp. 347-360, 2015.
- 40) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and S. Sasaki, "Utilization of Multi-Objective Immune Deployment Algorithm for Coverage Area Maximization with Limit Mobility in Wireless Sensors Networks," IET Wireless Sensor Systems, vol. 5, no. 5, pp. 250-261, 2015. (IF=1.67).
- 41) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and S. Sasaki, "Rearrangement of Mobile Wireless Sensor Nodes for Coverage Maximization Based on Immune Node Deployment Algorithm", International Journal of Computers & Electrical Engineering, vol. 43, pp. 76–89, April 2015, (IF=0.99).
- 42) M. Abo-Zahhad, Sabah M. Ahmed, N. Sabor and S. Sasaki, "Mobile Sink based Adaptive Immune Energy-Efficient Clustering Protocol for Improving the Lifetime and Stability Period of Wireless Sensor Network," IEEE Sensors Journal, vol. 15, no. 8, pp. 4576-4586, 2015, (IF=4.335).
- 43) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "A new multi-level approach to EEG based human authentication using eye blinking," Pattern Recognition Letters, DOI: 10.1016/j.patrec.2015.07.034, 2015. (IF=1.551).
- 44) M. Abo-Zahhad, Sabah M. Ahmed, N. Sabor and S. Sasaki, "A Centralized Immune-Voronoi Deployment Algorithm for Coverage Maximization and Energy Conservation in Mobile Wireless Sensor Networks" An International Journal on Multi-Sensor, Multi-Source Information Fusion, vol. 30, pp. 36-51, 2015. (IF=4.335).

- 45) N. Sabor, M. Abo-Zahhad, S. Sasaki, and S. M. Ahmed, " An Unequal Multi-hop Balanced Immune Clustering protocol for wireless sensor networks," *Applied Soft Computing Journal*, vol. 43, 372-389, 2016. (IF=2.81).
- 46) N. Sabor, S. Sasaki, M. Abo-Zahhad and S. M. Ahmed, "A Graphical-based educational simulation tool for Wireless Sensor Networks," *Simulation Modelling Practice and Theory*, vol. 69, pp. 55–79, 2016. (IF=1.482).
- 47) M. Abo-Zahhad, Sabah M. Ahmed, Mohammed Farrag and Sherif N. Abbas, "A Comparative Approach between Cepstral Features for Human Authentication Using Heart Sounds," *Signal, Image, and Video Processing*, 10(5), pp. 843-851, 2016. (IF=1.430).
- 48) Sherif N. Abbas, Abo-Zahhad, M., Ahmed, S.M. and Farrag, M., "Heart-ID: human identity recognition using heart sounds based on modifying mel-frequency cepstral features.," *IET Biometrics*, 5(4), pp.284-296, 2016. (IF=0.857).
- 49) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "Biometrics from heart sounds: Evaluation of a new approach based on wavelet packet cepstral features using HSCT-11 database," *Computers & Electrical Engineering*, Volume 53, July 2016, (IF=1.084), Qu2.
- 50) N Sabor, S Sasaki, M Abo-Zahhad, Sabah M Ahmed, "A Comprehensive Survey on Hierarchical-Based Routing Protocols for Mobile Wireless Sensor Networks: Review, Taxonomy, and Future Directions," *Wireless Communications and Mobile Computing*, pp. 1-23, Wiley, Jan. 2017. (IF=1.899), Q2.
- 51) M Abo-Zahhad, Ahmed, S.M., Farrag, M.A. and BaAli, K.A., "Wideband Cognitive Radio Networks Based Compressed Spectrum Sensing: A Survey," *Journal of Signal and Information Processing*, 9(02), 2018.
- 52) N. Sabor, S. M. Ahmed, M Abo-Zahhad and S. Sasaki, "ARABIC: An Adjustable Range Based Immune hierarchy Clustering protocol supporting mobility of Wireless Sensor Networks," *Pervasive and Mobile Computing*, 43, 27-48, 2018. (IF=2.349), Qu1.
- 53) Omuzi A. Hudson, Mohamed Fanni,, Sabah M. Ahmed, Ahmed Sameh, "Autonomous Flight Take-off in Flapping Wing Aerial Vehicles," *Journal of Intelligent & Robotic Systems*, pp. 1-18, March 2019. <https://doi.org/10.1007/s10846-019-01003-3> , (IF=1.583), Qu1.
- 54) A Ali, K Inoue, A Shalaby, MS Sayed, Sabah M Ahmed, "Efficient Auto encoder-Based Human Body Communication Transceiver for WBAN," *IEEE Access*, August 2019. (IF=3.745), Qu1.

- 55) AI Afifi, AB Abdel-Rahman, AS Abd El-Hameed, A Allam, Sabah M. Ahmed, "Small Frequency Ratio Multi-Band Dielectric Resonator Antenna Utilizing Vertical Metallic Strip Pairs Feeding Structure," IEEE Access, 8, 112840-112845, October 2019. (IF=3.275), Qu1.
- 56) Ahmed Sameh, Amr Hamed, Mohamed Fanni, Sabah M. Ahmed, "Hybrid Guidance of Quadrotor Manipulation System for Indoor-Outdoor Active Tasks," International Journal of Mechanical and Mechatronics Engineering, 2020. (IF=1.450), Qu2.
- 57) Maha R. Abdel-Haleem, Tamer Abou-elnaga, **M. Abo-Zahhad** and Sabah M. Ahmed, "A Preclinical System for Enhancing the Efficiency of Microwave Breast Cancer Hyperthermia Therapy Using Dielectric Matched Layer and Convex Lenses," Progress In Electromagnetics Research C 109, 153-168, 2021. (IF=1.450), Qu3.
- 58) Maha R. Abdel-Haleem, Tamer Abou-elnaga, M. Abo-Zahhad and Sabah M. Ahmed, "Enhancing Microwave Breast Cancer Hyperthermia Therapy Efficiency Utilizing Breast Fat Grafting with Horn Antenna," International Journal of RF and Microwave Computer-Aided Engineering, Vol. 31, No. 6, June 2021. (IF=1.694), Qu2.
- 59) A Morsi, HS Abbas, Sabah M. Ahmed, AM Mohamed, "Model Predictive Control Based on Linear Parameter-Varying Models of Active Magnetic Bearing Systems," IEEE Access 9, 23633-23647, 2021. (IF=3.745), Qu2.
- 60) Muhammad Adel, Sabah M. Ahmed, Mohamed Fanni, "End-Effector Position Estimation and Control of a Flexible Interconnected Industrial Manipulator Using Machine Learning," IEEE Access, 2022. (IF=3.745), Qu2.
- 61) M. M. Khodier, S. M. Ahmed and M. S. Sayed, "Complex Pattern Jacquard Fabrics Defect Detection Using Convolutional Neural Networks and Multispectral Imaging," in IEEE Access, vol. 10, pp. 10653-10660, 2022, doi: 10.1109/ACCESS.2022.3144843. (IF=3.745), Qu2.

Papers Published in National Journals

- 62) Sabah M.A., "ECG Data Compression Algorithm Based on the Combination of Singular Value Decomposition and Discrete Wavelet Transform" Journal of Engineering Sciences, Assiut University, pp. 2267-2280, November 2005.
- 63) Sabah M.A., "ECG Signal Compression Using Combined Modified Discrete-Cosine And Discrete-Wavelet Transforms" Journal of Engineering Sciences, Assiut University, Vol. 34, No. 1, pp. 215-226, Jan. 2006.

- 64) Sabah M.A., "Design Of IIR Filters Having Specified Magnitude and Group Delay Characteristics Using Evolutionary Immune Algorithm." Journal of Engineering Sciences, Assiut University, Egypt, vol. 36, no. 4, July 2008.
- 65) Sabah M.A., "Optimal Selection Of Threshold Levels and Wavelet Filters For High Quality ECG Signal Compression." Journal of Engineering Sciences, Assiut University, Egypt, vol. 36, no. 5, Sept. 2008.
- 66) M. Abo-Zahhad, Sabah M. Ahmed and M. Mourad, "Map Based Intra-Cell Method for Location Prediction Over UMTS Network Platform", Journal of Engineering Science, Assiut University, Vol. 39, No. 5, pp.1-26, Sept. 2011.
- 67) M. Abo-Zahhad, Sabah M. A. and A. Zakaria, "A New ECG Compression Algorithm Based on Wavelet Foveation and Huffman Coding Techniques, "Journal of Engineering Science, Assiut University, Nov. 2013.
- 68) M. Abo-Zahhad, Sabah M. Ahmed, Mohammed Farrag, and Khaled Ali BaAli, "Detection of Primary User in Wide-band Cognitive Radio Networks over Fading Channel using Compressed Sensing," Menoufia J. of Electronic Engineering Research (MJEER), 29 (1), 31-38, Egypt, July 2020.

15.2 Papers Published in National and International Conferences' Proceedings

Papers Published in International Conferences

- 69) M.Abo-Zahhad and Sabah M. A., "Design Of FIR Half-Band Filters Satisfying Prescribed Amplitude And Phase Specifications In Weighted Least Squares Sense" Proc. of Inter. Conf. On Computational Aspects and Their Applications in Electrical Engineering, 2nd CATAEE'97, Amman, Jordan, pp. 122-130, July 1997.
- 70) M. Abo-Zahhad, A. Al-Shrouf and Sabah, M. A., "ECG Data Compression Using Optimum Non-Orthogonal Wavelet Transform "Proc. of the 3rd Jordanian Conference on Electrical Engineering, Karak, Jordan, pp. 7-13, April 1999.
- 71) M. Abo-Zahhad, Sabah, M. A., and A. Al-Shrouf," Electrocardiogram Data Compression Based On Wavelet Transform Of Linear Predicted Error Signal" Proceedings of the 7th IEEE International Conf. On Electronics, Circuits and Systems, Beirut, Lebanon, pp. 599-603, Dec. 2000.
- 72) M. Abo-Zahhad and Sabah M.A., "Limited Vocabulary Microprocessor Based Biomedical Talking System" Proc. of Inter. Conf. On Computational Aspects and Their Applications in Electrical Engineering, 4th CATAEE'01, pp. 308-308, Amman, Jordan, March 2002.

- 73) M. Abo-Zahhad and Sabah M.A., "High Performance Compression Algorithm for Audio Signals Based On Wavelet Transforms" 2nd IEEE Conference on Signal Processing and Information Technology, pp. 518-522, Marrakech, Morocco, Dec. 2002.
- 74) A. Al-Smadi, M. Abo-Zahhad, and S. M. Ahmed, "ARMA Model Order Estimation Based on the Determinant of Submatrices of the Covariance Matrix", European Conference on Circuit Theory and Design, ECCTD'03, pp. 325-328, Poland, Sept. 2003.
- 75) M. Abo-Zahhad and Sabah M.A., "Design Of IIR Filters With Simultaneous Amplitude And Group-Delay Characteristics Using Genetic Algorithm" 10th IEEE International Conference on Electronics, Circuits and Systems, ICECS'03, Sharjah, United Arab Emirates, pp. 518-522, Dec. 2003.
- 76) M. Abo-Zahhad, Sabah M. A. and A. Zakaria, "Electrocardiogram Signals Compression Technique Based on QRS-Complex Estimation and 2-Dimensional Discrete-Wavelet Transform," The 1st Taibah University International Conference on Computing and Information Technology, Al-Madinah Al-Munawwarah, Saudi Arabia, March 2012.
- 77) M. Abo-Zahhad, Sabah M. Ahmed and M. Mourad, "Future Location Prediction of Mobile Subscriber over Mobile Network Using Intra Cell Movement Pattern Algorithm," International Conference on Communications, Signal Processing, and Their Applications, Sharjah, pp. 1-6, December 2012.
- 78) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and S. Sasaki, "Coverage Maximization in Mobile Wireless Sensor Networks Utilizing Immune Node Deployment Algorithm", 27th Annual IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2014), Toronto, Ontario, Canada, vol. 27, pp. 1 – 6, 2014.
- 79) M. Abo-Zahhad, Sabah M. Ahmed and Sherif N. Abbas, "PCG Biometric Identification System Based on Feature Level Fusion Using Canonical Correlation Analysis," IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2014), Toronto, Ontario, Canada, pp. 899-904, 2014.
- 80) Maha R. Abdel-Haleem, Tamer Abou-elnaga, Sabah M. Ahmed, M. Abo-Zahhad, "Convex Lenses Horn Antenna Microwave Hyperthermia Scheme," 12th European Conference on Antennas and Propagation, London, UK, 9-13 April 2018. Rank: A.
- 81) Omuzi A. Hudson, Mohamed Fanni, Sabah M. Ahmed, Ahmed Sameh, "Bio-Inspired Jumping Maneuver for Launching Flapping Wing Micro Air Vehicles," International Conf. on Autonomous Robot Systems and Competitions, ICARSC, Torres Vedras, Portugal, 25-27 April, 2018. Rank: A. doi:10.1109/ICARSC.2018.8374168.

- 82) Amr Hamed, Mohamed Fanni, Sabah M. Ahmed and Maha Salman, "Vision-Based Control of a Quad-rotor Manipulation System," IEEE International Conference on Mechatronics and Automation (ICMA 2018), Changchun, China, August, 2018. Rank: A.
- 83) Asmaa I. Afifi, Dalia M. Elsheakh, Adel B. Abdel-Rahman, Ahmed Allam, and Sabah M. Ahmed, "Dual Broadband Coplanar Waveguide-Fed Slot Antenna for 5G Applications," The 13th European Conference on Antennas and Propagation (EuCAP'19), Krakow, Poland, 31 March-5 April 2019. Rank: A.
- 84) H Obasekore, M Fanni, Sabah M Ahmed, "Insect Killing Robot for Agricultural Purposes," IEEE/ASME International Conference on Advanced Intelligent Mechatronics, AIM, July 2019. Rank: A.
- 85) Abdelrahman Morsi; Sabah M. Ahmed; Abdelfatah M. Mohamed; Hossam S. Abbas, "Model Predictive Control for an Active Magnetic Bearing System," IEEE 7th International Conference on Industrial Engineering and Applications (ICIEA), Bangkok, Thailand, Thailand, 16-21 April 2020. Rank: A.
- 86) Asmaa I. Afifi, Anwer S. Abd El-Hameed, Ahmed Allam, Sabah M. Ahmed, and Adel B. Abdel-Rahman, "Dual Port MIMO Antenna with Low Mutual Coupling Based on Asymmetric EBG Decoupling Structure," 15th European Conf. on Antennas and Propagation (EuCAP'21), Düsseldorf, Germany, 2021. Rank: A.

Papers Published in National Conferences

- 87) Sabah, M.A., G. Gordos and G. Olaszy, "A Novel Speech Synthesis Method for Modern Standard Arabic", Al-Azhar Engineering 2nd International Conference, Cairo, Egypt, pp. 141-152, Dec. 1991.
- 88) Sabah, M.A., G. Olaszy, G. Gordos and G. Nwmeth, "Arabic Version of the MULTIVOX: Technical Report", Technical University of Budapest, pp. 1-22, 1992.
- 89) M. Abo-Zahhad and Sabah M. A., "Design of Lattice Wave Digital Filters Through Phase Equalization" 3rd IASTED International Conf. in Computer Applications in Industry, pp. 76-79, Cairo, Egypt, Dec. 1994.
- 90) M. Abo-Zahhad and Sabah M. A., "Design of Lattice Wave Digital Filters Through Phase Equalization" 3rd IASTED International Conf. in Computer Applications in Industry, pp. 76-79, Cairo, Egypt, Dec. 1994.
- 91) M. Abo-Zahhad, Sabah M. A., and M. Yaseen, "Interactive Software Development for the Design and Synthesis of Lattice and Bireciprocal Wave-Digital Filters", Proc. of the Second

- International Conference on Engineering Research, pp. 199-216, Port-Said, Egypt, Dec. 1995.
- 92) M. Abo-Zahhad, Sabah M.A., and M. F. Fahmy, "Selective Bandpass Digital Filters With Maximally Flat Amplitude and Group Delay" Proc. of the Second International Conference on Engineering Research, ICER-95, pp. 268-278, Port-Said, Egypt, Dec.1995.
- 93) Sabah M. A., "Design Algorithm for Selective FIR Filters with Non-linear Phase Characteristics" Proc. of Al-Azhar Fourth International Conference, AEIC'95, pp. 262-272, Cairo, Egypt, Dec. 1995.
- 94) M. Abo-Zahhad, Sabah M. A., "Filter Designer: A Complete Design and Synthesis Package for Lumped, Wave-Digital, FIR and IIR Filters" Proc. of the 13th National Radio Science Conference, Cairo, Egypt, March 1996.
- 95) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and A. F. Al-Ajlouni, "Design of Immune Algorithm Based Two-Dimensional Recursive Digital Filters Using Multi-Level Orthogonal Arrays", 28th National Radio Science Conference NRSC 2011, April 26-28, 2011, National Telecommunication Institute, Cairo, Egypt. 2011.
- 96) M. Abo-Zahhad, Sabah M. Ahmed and Shima A. Abd-Elrahman, "A New Numerical Mapping Technique for the Recognition of Exons and Introns in DNA Sequences," The 30th National Radio Science Conference, NRSC, Cairo, Egypt, pp. 573-580, April 2013.
- 97) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "A New Biometric Modality for Human Authentication Using Eye Blinking," in Proc. IEEE 7th Cairo Int. Biomedical Engineering Conf. (CIBEC), Giza, Egypt, pp. 174-177, 2014.
- 98) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "A New Biometric Authentication System Using Heart Sounds Based on Wavelet Packet Features," IEEE International Conference on Electronics, Circuits, and Systems, ICECS 2015, Cairo, Egypt, December 06-09, 2015.
- 99) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and S. Sasaki, "Immune Node Deployment Algorithm for Mobile Wireless Sensor Networks with Limited Mobility based on Probabilistic Sensing Model", 32nd National Radio Science Conference, IEEE, Cairo, Egypt, pp. 259 – 267, March 2015.
- 100) M. Abo-Zahhad, Sabah M Ahmed, Mohammed Farrag, Mohammed F. A. and Abdelhay Ali, "Design and Implementation of Building Energy Monitoring and Management System based on Wireless Sensor Network", 10th IEEE International Conference on Computer Engineering and Systems, (ICCES), pp. 230-233, Cairo, Egypt, December 23-24, 2015.

- 101) M. Abo-Zahhad, Sabah M Ahmed, Mohammed Farrag, Khaled Ali BaAli. "Detection of primary user signal in wideband cognitive radio networks exploiting DCT as sensing matrix," Radio Science Conference (NRSC), IEEE Explore, 2017 34th National, pp. 152-159, March 2017.
- 102) M. Abo-Zahhad, Sabah M. Ahmed, Mohammed Farrag, and Khaled Ali BaAli., "Primary User Detection in Cognitive Radio Networks over Fading Channel using Compressed Sensing," In 2018 Japan-Africa Conference on Electronics, Communications and Computers (JAC-ECC), IEEE Explore, 16-18 Dec. 2018.

15.3 Papers Submitted to Journals and Conferences (2 Papers)

- 103) M. Abo-Zahhad, Sabah M. Ahmed and O. Elnahas, "A Remote Patient Monitoring: Survey of Current State" Submitted to the International Journal of Communication, 2021.
- 104) N. Sabor, M. Abo-Zahhad, S. Sasaki, and S. M. Ahmed, "A Survey on Classical and Optimized Hierarchical Protocols for WSNs," To be Submitted to Journal of Network and Computer Applications, 2021.

15.4 Selected Published Papers (During the Last 5 Years) in Referred International Journals

- 1) M. Abo-Zahhad, Sabah M. Ahmed and Sherif N. Abbas, "Biometric Authentication Based On PCG and ECG Signals: Present Status and Future Directions," Signal, Image, and Video Processing, vol. 8, no. 4, pp 739-751, 2014. (IF=1.430)
- 2) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "A Novel Biometric Approach for Human Identification and Verification Using Eye Blinking Signal," *IEEE Signal Processing Letters*, vol. 22, no. 7, pp 876-880, 2015. (IF=1.751).
- 3) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "The State of the Art Methods and Future Perspectives for Personal Recognition Based on Electroencephalogram Signals," *IET Biometrics*, vol. 4, no. 3, pp. 179-190, March 2015. (IF=0.857).
- 4) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and S. Sasaki, "Utilization of Multi-Objective Immune Deployment Algorithm for Coverage Area Maximization with Limit Mobility in Wireless Sensors Networks," *IET Wireless Sensor Systems*, vol. 5, no. 5, pp. 250-261, 2015. (IF=1.67).
- 5) M. Abo-Zahhad, S. M. Ahmed, N. Sabor and S. Sasaki, "Rearrangement of Mobile Wireless Sensor Nodes for Coverage Maximization Based on Immune Node Deployment Algorithm",

- International Journal of Computers & Electrical Engineering, vol. 43, pp. 76–89, April 2015, (IF=0.99).
- 6) M. Abo-Zahhad, Sabah M. Ahmed, N. Sabor and S. Sasaki, "Mobile Sink based Adaptive Immune Energy-Efficient Clustering Protocol for Improving the Lifetime and Stability Period of Wireless Sensor Network," IEEE Sensors Journal, vol. 15, no. 8, pp. 4576-4586, 2015, (IF=4.335).
 - 7) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "A new multi-level approach to EEG based human authentication using eye blinking," Pattern Recognition Letters, DOI: 10.1016/j.patrec.2015.07.034, 2015. (IF=1.551).
 - 8) M. Abo-Zahhad, Sabah M. Ahmed, N. Sabor and S. Sasaki, "A Centralized Immune-Voronoi Deployment Algorithm for Coverage Maximization and Energy Conservation in Mobile Wireless Sensor Networks" An International Journal on Multi-Sensor, Multi-Source Information Fusion, vol. 30, pp. 36-51, 2015. (IF=4.335).
 - 9) M. Abo-Zahhad, Sabah M. Ahmed, Mohammed Farrag and Sherif N. Abbas, "A Comparative Approach between Cepstral Features for Human Authentication Using Heart Sounds," Signal, Image, and Video Processing, 10(5), pp. 843-851, 2016. (IF=1.430).
 - 10) Sherif N. Abbas, Abo-Zahhad, M., Ahmed, S.M. and Farrag, M., "Heart-ID: human identity recognition using heart sounds based on modifying mel-frequency cepstral features.," IET Biometrics, 5(4), pp.284-296, 2016. (IF=0.857).
 - 11) N. Sabor, M. Abo-Zahhad, S. Sasaki, and S. M. Ahmed, " An Unequal Multi-hop Balanced Immune Clustering protocol for wireless sensor networks," Applied Soft Computing Journal, vol. 43, 372-389, 2016. (IF=2.81).
 - 12) M. Abo-Zahhad, Sabah M. Ahmed, and Sherif N. Abbas, "Biometrics from heart sounds: Evaluation of a new approach based on wavelet packet cepstral features using HSCT-11 database," Computers & Electrical Engineering, Volume 53, July 2016, (IF=1.084), Qu2.
 - 13) N Sabor, S Sasaki, M Abo-Zahhad, Sabah M Ahmed, "A Comprehensive Survey on Hierarchical-Based Routing Protocols for Mobile Wireless Sensor Networks: Review, Taxonomy, and Future Directions," Wireless Communications and Mobile Computing, pp. 1-23, Wiley, Jan. 2017. (IF=1.899), Q2.
 - 14) N. Sabor, S. M. Ahmed, M Abo-Zahhad and S. Sasaki, "ARABIC: An Adjustable Range Based Immune hierarchy Clustering protocol supporting mobility of Wireless Sensor Networks," Pervasive and Mobile Computing, 43, 27-48, 2018. (IF=2.349), Qu1.

- 15) Omuzi A. Hudson, Mohamed Fanni,, Sabah M. Ahmed, Ahmed Sameh, “Autonomous Flight Take-off in Flapping Wing Aerial Vehicles,” Journal of Intelligent & Robotic Systems, pp. 1-18, March 2019. <https://doi.org/10.1007/s10846-019-01003-3> , (IF=1.583), Qu1.

List of Impacted Journals & Their Impact Factor (Total Impact Points=79)

NO.	Journal Title	No. of Papers Published in Journal	Impact Factor for Journal	Sum of Impact Factor
1	Medical Engineering & Physics	3	1.825	5.475
2	Digital Signal Processing	4	1.256	5.024
3	Electrical Engineering	1	0.367	0.367
4	Signal, Image, and Video Processing	2	1.430	2.86
5	IEEE Signal Processing Letters	1	1.751	1.751
6	IET Biometrics	2	0.857	1.714
7	IET Wireless Sensor Systems	1	1.67	1.67
8	International J. of Computers & Electrical Engineering	1	0.817	0.817
9	International Journal of Information Technology and Computer Science	3	1.850	5.55
10	IEEE Sensors Journal	1	4.335	4.335
11	Journal of Medical Engineering and Technology	3	1.67	5.01
12	Electrical Engineering	1	0.367	0.367
13	International Journal of Engineering	1	1.0986	1.0986
14	Pattern Recognition Letters	1	1.551	1.551
15	An International Journal on Multi-Sensor, Multi-Source Information Fusion	1	3.681	3.681
16	Applied Soft Computing Journal	1	2.81	2.81
17	International Journal of Computers & Electrical Engineering	1	0.99	0.99

NO.	Journal Title	No. of Papers Published in Journal	Impact Factor for Journal	Sum of Impact Factor
18	Simulation Modelling Practice and Theory	1	1.482	1.482
19	Computers & Electrical Engineering	1	1.084	1.084
20	Wireless Communications and Mobile Computing	1	1.899	1.899
21	Wireless Personal Communications	1	0.951	0.951
22	Pervasive and Mobile Computing	1	2.349	2.349
23	Journal of Intelligent & Robotic Systems	1	1.583	1.583

Funded Research Projects to Serve the University and Community

1) Principal Investigator (PI) of the Following Projects

Project Budget	Donor	Execution Place	Project Name	No.
1200000 Egyptian Pounds	ICTP project, Management Unit at the Ministry of Higher Education, Egypt	Colleges and institutes of Assiut University	Communications and Information Technology Training at the University of Assiut project (July 1, 2010 – Dec. 31, 2016)	1

2) Team Member of the Following Projects

Project Budget	Donor	Execution Place	Project Name	No.
150000 Egyptian Pounds	Quality Assurance and Accreditation Project (QAAP 1), Project Management Unit at the Ministry of Higher Education, Egypt	Faculty of Engineering, Assiut University	Establishment of Quality Assurance and Accreditation Centre, Faculty of Engineering QAAP 1 (1 July 2008 – 30 June 2009)	1
75000 Egyptian Pounds	Continuous Development and Rehabilitation Project (PCIQA), Project Management Unit at the Ministry of Higher Education, Egypt	Faculty of Engineering, Assiut University	A System for Automating Questionnaires (Project Period is 10 months starts on 1 July 2011)	2
7200000 Egyptian Pounds	Development of Egyptian Universities Project, Council of Ministers Education	Faculty of Engineering, Assiut University	Development of the Faculty of Engineering for the Adoption of Accreditation (1 July 2010 – 30 June 2012)	3

Project Budget	Donor	Execution Place	Project Name	No.
	Development Fund			
1714984 Egyptian Pounds	ICTP project, Management Unit at the Ministry of Higher Education, Egypt	Colleges and institutes of Assiut University	Development of management information systems at the University of Assiut (March 1, 2006 - June 30 , 2010)	4

3) Supervisor of the Following Students Project

Project Budget	Donor	Execution Place	Project Name	No.
10000 Egyptian Pounds	Financially supported by NTRA (awarded the best student Egyptian project award by the Made in Egypt authority and the IEEE)	Faculty of Engineering, Assiut University	Emergency Biomedical Telecommunication System. 2008	1
10000 Egyptian Pounds	Financially supported by NTRA	Faculty of Engineering, Assiut University	System for Blind: Braille Printer and Scanner, 2011	2
10000 Egyptian Pounds	Financially supported by NTRA (awarded the best student Egyptian project award by the Made in Egypt authority and the IEEE)	Faculty of Engineering, Assiut University	Building Smart Private Mobile, 2013	3
10000 Egyptian Pounds	Financially supported by NTRA	Faculty of Engineering, Assiut University	Smart Home Automation Control Unit, 2014.	4
10000 Egyptian Pounds	Financially supported by NTRA	Faculty of Engineering, Assiut University	Applications of Wireless Sensor Networks in Energy Management, 2015.	5
30000 Egyptian Pounds	Financially supported by Itida, NTRA and Cemex Company	Faculty of Engineering, Assiut University	Cloud-based Smart Home and Energy Management System, 2016.	6

Philosophy of Teaching Statement of Prof Sabah M Ahmed

My philosophy of teaching is informed by the material I teach, relevant scholarship, and the lessons I have learned from personal teaching successes and failures. I As a professor, it is my responsibility to know who my learners are, what kinds of knowledge and experience they bring to the group, and what they want to achieve. Over many years, I have paid great attention to expanding my teaching skills. My teaching assignment consists of undergraduate and graduate courses in the electrical engineering department with specialty courses in the biological and biomedical engineering and communication systems. These courses emphasize:

- solving related engineering problems in the application areas of biological and biomedical engineering, interfaces for diagnostics, signal processing and medical imaging.
- basics of designing, interfacing, configuring, and programming embedded systems using microcontrollers, microprocessors, and ADC.
- introducing the building blocks and importance of the integration techniques between mechatronics and living organisms, relevant to Egyptian society.
- Manipulating advanced bio-engineering systems including computational bio-systems, cell and tissue engineering, biomaterials and biomedical devices and technologies,

My philosophy guides most of the activities I do as an instructor; however, in practice my faith in students as self-learners are often shaken. Therefore, I am still trying different approaches in teaching, and improving my story, project, and special problems range. In addition, I have implemented systematic methods for analyzing student feedback and performance in my classes using self-assessments of the course outcomes, overall performances on test problems and assignments. In fact, I use student feedback in my course management and teaching methods.

My classroom activities are strongly influenced by student feedback, which I get directly from the students. As a result of student feedback over the years, the characteristics of my classroom are as follows. I give many quizzes throughout the course rather than a few midterms. The quizzes are graded by me and are returned promptly with comments. I assign, collect, and grade homework assignments. I give some projects and problems that involve students working in groups, and I make class materials available on my web page. Whenever possible, I make students orally present project results, or explain homework solutions to the rest of the class. In order to determine how well students are achieving the course outcomes, I have started a system for grading each assignment according to the outcomes listed for the course. Scores are then averaged over all

students and a class grade assigned for each outcome. This way I can track student outcome achievements vs. what I do in the classroom from semester to semester. I assess student performance relative to the course outcomes through several ways, including student self-assessments of outcome achievement, as well as my assessments through assignments and tests.

I have got information about the MTR courses from the E-just bylaws. The Expected contributions in education at MTR includes the following courses:

1) Embedded Systems

Basics of designing, interfacing, configuring, and programming embedded systems. Microcontrollers vs. Microprocessors. ADC and DEC. Embedded Debugging / ATmega328P Architecture / General-Purpose Input/Output / Timer Ports / Analog Input Ports / Interrupt Processing / Serial Communications / Assembly Language / Non-volatile Memory

2) Introduction to Bio-Mechatronics

Introducing the building blocks and importance of the integration techniques between Mechatronics and Living Organisms (Bio), relevant to Egyptian Society. Topics to be covered include bio-enabled robotic sensing, motion and manipulation; bio-enabled robotic actuation (robot hand), telepresence and human interfaces, enablement of physicality, topics in brain research and interfaces and artificial organs.

3) Advanced Bio-Engineering Systems

Bioprocess engineering, Computational bio-systems, Cell and tissue engineering, Nano-biotechnology and biomaterials, Biomedical devices and technologies, Drug development practices and neuroscience.

4) Bio-Mechatronics Systems

Bio-mechatronics, Bio Interfaces for diagnostics and control. Active and passive prosthetic limbs and joints. Bio electrical signal processing. Haptic Devices. Robot-based surgery. Medical Imaging. Rehabilitation and assistive devices.

Research Statement of Prof. Sabah M. Ahmed

My research focus in biological and bio-medical electronics is on the critical aspects of communication and information technologies, digital and analog signal processing, bioinformatics and electronic systems. This work encompasses improving the cooperation between the hardware and software. I believe that this direction is the key to enabling new levels of performance, and efficiency of embedded systems. My current research interests include: biological, biomedical and genomic signal processing as well as wireless sensor networks. My past and current research work are centered on the following research topics:

- Development of text to speech systems.
- Speech synthesis and recognition.

Recently, I have published a good research work on the following topics:

- Genetic and immune algorithms.
- Remote monitoring and diagnosing of cardiac patients.
- Genomic digital signal processing.

Recently, future research work is centered on the following topics:

- Wireless sensor networks.
- Biometric authentication and recognition.
- Biological and biomedical signal processing.

Research plan for the next 3-5 years that contributes to the MTR can be summarized in the following:

A) Wearable sensors and systems

Recent developments in this area have led to remote health monitoring systems based on wearable technology. A conceptual representation of such systems is centered on the following three main building blocks:

- a) Sensing and data collection hardware
- b) Communication hardware and software: to transmit data to a remote site
- c) Data analysis techniques to extract clinically-relevant information

Applications of wearable sensors and systems:

- a) Fitness & wellness monitoring during exercise.
- b) Safety monitoring and early detection of disorders.

B) On getting energy for medical equipment from human body

Generating the electrical energy from the human body is one of the research topic depending on the temperature of the human body. Studying the effect of different diseases on the characteristics of the blood based on the fact that each cell in the blood had its electrical characteristics. Moreover, any disease has direct effect on either the number, the volume or the shape of the blood cells. The impedance of these blood cells is related to the number, the volume and the shape of the blood cells.

C) Bio-Mechatronics Systems

This includes the following: Development of surgical and medical robots tools, user friendly smart medical devices for intensive care units, and ground emergency response vehicles.