Curriculum vitae

PERSONAL DATA

Name: Professor Emeritus Fawzi Mohammed Munir Ahmad AL-NAIMA ^{Surname}

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fawzi.alnaima@ieee.org,

Nationality: Iraqi

Date of Birth: 22-12-1948, **Place of birth:** Mosul, Iraq

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Scopus Author ID:

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https://publons.com/researcher/1340952/fawzi-al-naima/

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LinkedIn: https://www.linkedin.com/in/fawzi-al-naima-4774b31a/

EDUCATION

1. Doctor of Philosophy: (March 1976)

Newcastle University, Newcastle upon Tyne, UK

Title of PhD Thesis: *The use of optimization techniques in the design of RC active filters*

Area of Specialization**:** Computer-Aided Network Analysis and Design

2. Bachelor of Science: (June 1971), *First Class Honours* in Electrical Engineering,

Newcastle University, Newcastle upon Tyne, UK

WORK EXPERIENCE

1. Professor Emeritus (Since May 2014)
   Professor   **(Dec. 1990 – May 2014))**
   Associate Professor   (Jan 1989 – Dec 1990)
 College of Engineering, Al-Nahrain University, Baghdad, Iraq

- Teaching undergraduate courses in Basic Electronics, Analog Electronics, Circuit Theory, Engineering Mathematics, Numerical Analysis, Signals and Systems, Computer Programming, and Computer-aided Circuit Design.

- Teaching postgraduate courses in Network synthesis, Advanced Digital Computation Techniques, Computer Aided Circuit Analysis and Design, Active Filter Design, Analysis of Large Scale Circuits, Graph Theory, Optimization Techniques, and Advanced Topics in Engineering maths.

- Developing Electronics, Communication, and Computer-aided Design laboratories

- Supervising B.Sc projects, M.Sc and Ph.D. theses in Active Filter Design, Applications of Optimization Techniques in Electronic Circuit Design, Sensitivity and Tolerance Analyses of Analog Filters, ECG Signal Analysis, Solar tracking Systems, Neural Networks, Network Security, Signal Processing and Symbolic Analysis of Analog and Digital Networks.

- Supervisor of the University Library (Jan. 1989 – Nov. 1992)

- Member and Head of Editorial Board for the Scientific Journal of the College of Engineering, Al-NahrainUniversity (Jan. 1994 – Sept. 2006)

- Member of Scientific Committee for Baghdad University Engineering Conference 1997

- Member of the University Importing Committee (June 1999 – May 2003)

- Consultant to many Governmental Establishments in the Ministry of Higher Education and Scientific Research, Ministry of Oil, Ministry of Communication, Ministry of Electricity, and Ministry of Industry (Jan. 1995 – Sept. 2006)

- Consultant to the Arab Science and Technology Foundation (ASTF), Sharjah, UAE, since June 2003

- Member of Scientific Committee for WSEAS conferences since April 2006

- Member of the Scientific Committee for MOSHARAKA conferences since January 2011.

- Member of the International Scientific Board of SCIYO, (the world's first open-access publishing and community platform, providing free online access to its peer-reviewed scientific books, journals, and science-related online videos).

- Organized courses for Continuing Education in the fields of Advanced

Topics in Computer Aided Circuit Design, Optimization Techniques and Active Filter Design in the College of Engineering, Al-Nahrain University (1995 – 2001)

- Visiting Professor, Northumbria University, Newcastle upon Tyne, UK, for two weeks (July 2004) and (July-August 2005).
- Sabbatical Leave, Aleppo University, Syria, (Oct. 2006 – Sept. 2007).
- Visiting Scholar, Arab Science and Technology Foundation (ASTF), Sharjah, UAE, (June 2007- Oct. 2007).
- Fellow, Institute of International Education Scholar Rescue Fund (IIE - SRF), since June 2007. Participating in the following activities: (i) Conferences and workshops held in Amman, Jordan (June 2010, January 2011) and in Erbil, Iraq (June 2011, January 2012, June 2012, February 2013), (ii) Lecture Tours in Seventeen Iraqi Colleges and Universities (2012 – 2014) and (iii) Organize series of Distant Learning Lectures in Al-Nahrain University with Jordanian Universities (2012 – 2013).
- Foreign Faculty Professor, University of Engineering and Technology, Taxila (UETT), Taxila, Pakistan (Oct 2007- July 2008).
- Chairman of the Scientific Promotion Committee, College of Engineering, Al-Nahrain University (October 2009 – September 2011).
- Visiting Professor, National Technical University of Athens (NTUA), Greece, (1–31 March 2011).
- Chairman of the Scientific Committee for the First Int. Conf. on Future Communication Networks, 10-12 April 2012, Al-Nahrain University, Baghdad, Iraq.
- Member of the Scientific Promotion Committee, Mamoun University College (September 2012 – October 2015).
- Consultant to the Dean of Al-Israa University College, Baghdad (January 2014 - October 2015).
- Consultant to the Research and Development Corporation, Ministry of Industry and Minerals, Iraq, since March 2014.
- Chairman of the Scientific Promotion Committee, Al-Esraa University College (May 2014 – Oct. 2015).
- Member of the Editorial Board of the MEST Journal since January 2019.
- Member of the Editorial Board of the INTERNATIONAL JOURNAL OF INFORMATICS TECHNOLOGIES, Turkey, since June 2017.

2. Associate Professor (Dec 1983 – Jan 1989)
Assistant Professor (Lecturer)   (Jan 1977 – Dec 1983)
Department of Electrical and Electronic Engineering (MCE), Baghdad, Iraq

- Teaching undergraduate courses in Basic Electronics, Analog Electronics,

Circuit Theory, Engineering Mathematics, Logic Circuits, Computer Programming and Network Analysis.

- Teaching postgraduate courses in Network synthesis, Advanced Digital Computation Techniques, and Computer Aided Circuit Analysis and Design
- Supervising B.Sc projects, Higher Diploma dissertations, and M.Sc theses in Active Filter Design, Applications of Optimization Techniques in Electronic Circuit Design, and Sensitivity and Tolerance Analyses of Analog Filters
- Member of the Editorial Board for the Scientific Journal of MCE (1983-1989)
- Developing Computer, Measurement, and Electronic Labs. In the MCE
- Translated three textbooks from English in the fields of Network Theory, Two-Ports Electronic Networks, and Automatic Control (1983- 1988).
- Organized courses for Continuing Education in Advanced Topics in Computer Aided Circuit Design and Active Filter Design.

3. Professor (Part-Time)   **(Dec 1990 – Dec 2013)**
Associate Professor (Part-Time)   **(Dec 1983 – Dec 1990)**
Assistant Professor (Part -Time)   **(Jan 1977 – Dec 1983)**
Department of Electrical and Electronic Engineering, UOT, Baghdad, Iraq
Department of Electrical Engineering, University of Baghdad, Baghdad, Iraq
Department of Electrical Engineering, University of Al-Mustansirya, Baghdad, Iraq
Department of Electrical Engineering, University of Basra, Basra, Iraq
Department of Electrical Engineering, University of Mosul, Mosul, Iraq

- Teaching Postgraduate courses in Active Filter Design, Network Synthesis, Network Analysis, Advanced Engineering Mathematics, and Computer Aided Network Design
- Supervising BSc FYP, Higher Diploma projects, MSc dissertations, and PhD theses in Analog and Digital Filter Design, Computer Aided Circuit Design, Sensitivity Optimization, Symbolic Analysis of Large Networks, and Solar Tracking and Monitoring Systems.

4. Instrumentation Engineer   **(Aug 1976 – Jan 1977)**
State Company for Oil Projects (SCOP)**,** Ministry of Oil, Baghdad, Iraq

- Instrumentation and Communication Engineer, Iraqi- Turkish Oil Pipeline Project.

5. Research Officer **(Oct 1975 – July 1976)**
Department of Electrical and Electronic Engineering, The Merz Labs, Newcastle University, NE1 7RU, UK

- Researching the Design of RC Active Filters

POSITIONS HELD

1. Head of the Department of Electronic and Communications Engineering

College of Engineering, Al-Nahrain University, Baghdad, Iraq (Nov 1992 – April 2000)

2. Head of the Department of Computer Engineering,

College of Engineering, Al-Nahrain University, Baghdad, Iraq (Apr 2000 – May 2003)

3. Dean of the College of Engineering,

Al-Nahrain University, Baghdad, Iraq (May 2003 – Oct 2006)

4. Acting Dean of the College of Information Engineering,

Al-Nahrain University, Baghdad, Iraq (Oct 2003 – June 2004)

5. Acting Dean of the College of Information Engineering,

Al-Nahrain University, Baghdad, Iraq (April 2013 – June 2013)

6. Head of Department of Computer Engineering Techniques,

Al-Mamoon University College (Oct. 2016– Sept. 2021).

PROFESSIONAL SOCIETIES

1. Consultant Member of the Iraqi Engineers Union (CMIEU), Iraq

2. Life Fellow Member of the IETE, (FIETE), India

3. Senior Member of the IEEE (SMIEEE), USA.

HONORS AND AWARDS

1. Gledson Prize, 1971

Title: Appreciation award for acquiring B.Sc degree with First Class Honors in Electrical Engineering.

Awarding body: Gledson Electronic Components, Newcastle upon Tyne, UK,

2. Honor Certificate, 1971

Title: Appreciation award for acquiring B.Sc degree with First Class Honors in Electrical Engineering.

Awarding body: Ministry of Oil, Baghdad, Iraq.

3. State Scientific Award, 2001,

Title: Recognition of scientific achievements for the year 2000.

Awarding body: Iraqi Government.

4. Iraqi Patent, No. 3009, 9/12/2001,

Title: Development of Optical Network Models for Quantum Cryptography in Security in Communication Networks.

Awarding body: Ministry of Planning, Iraq.

5. Best Published Paper Award in Information Technology (Ranked First), 2003,

Title: Optical Network Models for Quantum Cryptography in Security in Communication Networks.

Awarding body: Association of Arab Universities, Amman, Jordan.

6. Best Published Papers Award in Information Technology (Ranked Second), 2003,

Title: Quantum Cryptography Key Distribution in Multiple Access Networks.

Awarding body: Association of Arab Universities**,** Amman, Jordan.

7. Higher Education Award, 2009,

 Title: Recognition for published international research work for the year 2008.

Awarding body: Ministry of Higher Education and Scientific Research, Iraq.

8. Higher Education Award, 2010,

 Title: Recognition for published international research work in 2009.

Awarding body: Ministry of Higher Education and Scientific Research, Iraq.

9. Higher Education Award, 2010,

 Title: Recognition for being the Top Rank Professor of Al-Nahrain University in 2009

Awarding body: Ministry of Higher Education and Scientific Research, Iraq.

10. Higher Education Award, 2011,

 Title: Recognition of published international research work in 2010.

Awarding body: Ministry of Higher Education and Scientific Research, Iraq.

11. Higher Education Award, 2012,

 Title: Recognition for published international research work in 2011.

Awarding body: Ministry of Higher Education and Scientific Research, Iraq.

12. Higher Education Award, 2014,

Title: Award Medal of Excellence in Science over many years.

Awarding body: Minister of Higher Education and Scientific Research, Iraq.

13. Higher Education Medal, 2014,

Title: Medal of Distinguished Iraqi Scientists.

Awarding body: Deputy Minister of Higher Education and Scientific Research, Iraq.

CONSULTING EXPERIENCE

1. Consultant to many Governmental Establishments in the Ministry of Higher Education and Scientific Research, Ministry of Oil, Ministry of Communications, Ministry of Electricity, and Ministry of Industry in Iraq since 1997.

2. Chairman of the Council of Engineering Consultancy Bureau, College of Engineering, Al-Nahrain University   (May 2003 – Oct 2006)

 3. Consultant to the Arab Science and Technology Foundation (ASTF), Sharjah UAE, since July 2003.

4. Chairman of the Research Coordination Council with the Ministry of Electricity, Iraq (October 2008 – December 2013).

 5. Consultant to the Communication and Media Commission (CMC), Iraq (May 2006 – December 2006)

PUBLICATIONS

(a) Papers published in refereed scientific journals

[1] **Design of Non-recursive Digital Filter for Complex Signal Processing.** Journal of Antonin Zapotocky Academy, (Sp. Iss). pp. 65-83, 1981, Azam Press Brno Czech Republic.

[2] **Alternative Boundary Element Formulation of Multi-dielectric Field problems.** Sci. Journal of MCE, Vol.1, No.1, pp.18-43, June 1985, Iraq.

[3] **A New Method of Identification of ECG Segments.** Journal of Institute of Engineering (India), IDGE Division Part IDP1, Oct. 1985.

[4] **Improvement of Thermal Stability of Transistor Circuit Design Using Complex Optimization Techniques.** Engineering and Technology, Special Issue, Oct. 1986, University of Technology, Baghdad, Iraq.

[5] **Determination of Various Sensitivity Measurements by Digital Computers.** Scientific Journal of MCE, No.2, 1987, pp.79-99, Baghdad, Iraq.

[6] **Design of High-Frequency Active Filters Using Optimization Techniques.** Scientific Journal of MCE, No.2, 1987, pp.39-57, Iraq.

[7] **A Method to Reduce the Sensitivity of Active R-Filters.** Scientific Journal of MCE, No. 3, 1987, pp.71-90, Baghdad, Iraq.

[8] **Sensitivity Calculations Based on the Bilinear Properties of Network Functions.** Scientific Journal of MCE, No.4, 1988, Baghdad, Iraq.

[9] **Design of Transistor Biasing Using Shrinking Random Search Techniques.** Scientific Journal of MCE, No.4, 1988, Baghdad, Iraq.

[10] **Computer-Aided Techniques for the Extraction of ECG Parameters.** Int. Journal of System Science, 1989, Vol.20, No.5, pp.747-757, UK.

[11] **Spline Function Formulation for the Declination and Equation of Time.** Int. Journal of Solar and Wind Technology, Vol. 1, No.5, 1990,UK.

[12[**A Microprocessor Based Control System for a Sun Tracker.** Int. Journal of Solar and Wind Technology, Vol. 2, No.2, 1991, UK.

[13] **Microwave Amplifiers Design Using Modern Tools.** Engineering and Technology Journal, University of Technology, Vol. 14, No. 6, pp.130-142, Baghdad, Iraq, 1995.

[14] **Implementation of an Adaptive DFE Telephone Channels Using TMS Signal Processor.** Al-Rafidain Scientific Journal, Mosul University (Sp. Iss.), April 1995.

[15] **Automatic Generation of Continuous–Time OTA-C Filters from LC Prototype.** Al- Rafidain Scientific Journal, Mosul University (Sp. Iss.), April 1995.

[16] **Practical Implementation of the Operational Trans-conductance Amplifiers in Continuous-Time Filters.** Scientific Journal, Tikrit University, Tikrit, Iraq, Vol.2, No.1, pp.61-76, 1995.

[17] **A Program for Symbolic Analysis of Current Mode Circuits.** Engineering Journal, Al-NahrainUniversity, Vol.2, pp.75-82, 1996, Baghdad, Iraq

[18] **High Accuracy Charge Coupled Device Sensor for Satellite Altitude Determination System.** Engineering and Technology Journal, University of Technology, Baghdad, Iraq, Vol.15, No.7, pp.26-37, 1996.

[19] **Design and Sensitivity of Second Order–RC Active Filters Containing Current Conveyors.** Engineering and Technology Journal, Vol.17, pp.506-517, 1998, University of Technology, Baghdad, Iraq.

[20] **Nullor Relocation Approach to Current-Mode Circuit Synthesis.** Jour. of the Inst. of Engineers (India), Vol. 80, pp.15-19, Sept. 1999, India

[21] **Symbolic Analysis of Digital Networks.** IETE Journal of Research, Vol. 46, No. 182, Jan.-April 2000, pp.3-8, India.

[22] **Current-Mode Neural Networks for Solving Nonlinear Programming Problems.** Engineering Journal, College of Engineering, University of Qatar, Vol. 13, 2000, Doha, Qatar

[23] **A new Hyper-Stable Adaptive Recursive Filters Algorithms**. IETE Journal of Research, Vol. 47, No. 5, Sept.- Oct. 2001, pp.203-209, India.

[24] **Symbolic Analysis of Large Scale Networks.** Journal of ASME, Series A: Modeling, Measurement and Control, Vol. 74, No.1 & 2, 2001, Lyon, France.

[25] **Optimized Sparse Storage Mode for Symbolic Analysis of Large Networks**. Advances in Engineering Software, Vol. 38, No.2, Feb. 2007, pp.112-120.

[26] **Comparison of Different Neural Network Approaches for the Prediction of Kidney Dysfunction.** International Journal of Biological and Medical Sciences, Vol. 5, No.1, pp 15-21, 2009.

[27] **Symbolic Analysis of Large Circuits Using Discrete Wavelet Transform.** International Journal of Electrical and Information Engineering, Vol.3, No.5, pp 244-250, 2009.

[28] **Probabilistic Neural Network for Breast Biopsy Classification.** MASAUM Journal of Computing (Volume.1, Issue. 2), Oct. 2009, ISSN 2076-0833.

[29] **Developing a Multi-Layer Strategy for Securing Control Systems of Oil Refineries**. Wireless Sensor Network, 2010, 2, 520-527,doi:10.4236/wsn.2010.27064 Published Online July 2010.

[30] **A Modified High Capacity Image SteganographyTechnique Based on Wavelet Transform**. The International Arab Journal of Information Technology (IAJIT), Vol. 7, No. 4, October 2010, pp 358-364.

[31] **Implementation of AES in Voice over Internet Protocol**. Gulf University Journal, Vol. 2, Engineering Div., No. 1, Gulf University, Bahrain, pp. 21-31, 2010.

[32] **An Internet-Based Distributed Control Systems: A Case Study for Oil Refineries**. Energy and Power Engineering, (EPE), 2011, 3, 310-316,doi:10.4236/epe.2011.33038, Published Online July 2011 (http://www.SciRP.org/journal/epe)

[33] **Spline-Based Formulas for the Determination of Equation of Time and Declination Angle**. International Scholarly Research Network, ISRN Renewable Energy Volume 2011, Article ID 217484, 5 pages, doi:10.5402/2011/217484

[34] **Building a Prototype Prepaid Electricity Metering System Based on RFID**. International Journal of Electronics and Electrical Engineering, Volume 1 Issue 1, 2011, pp. 20-36, ISSN: 2277-7040, https://sites.google.com/site/ijeceejournal/

[35] **Vehicle Traffic Congestion Estimation Based on RFID.** International Journal of Engineering Business Management, Vol. 4, November 2012, ISSN: 1847-9790.

[36] **A New Power Line Communication Modem Design with Applications to Vast Solar Farm Management.** Innovative Systems Design and Engineering, ISSN 2222-1727 (Paper) ISSN 2222-2871 (Online), Vol.4, No.14, pp. 34-48, 2013, www.iiste.org

[37] **Design of an embedded solar tracking system based on GPS and Astronomical Equations.** Special Issue on The Role of Information and Communication Technologies In Developing Renewable Energy Processes and Systems, International Journal of Information Technology and Web Engineering, 9(1), pp. 12-31, January-March 2014.

[38] **An efficient multi-stage algorithm for the determination of communication network Reliability**. Int. Journal of Computers and Communications, Vol. 9, pp. 36-43, 2015.

[39] **A Proposed RFID-Based Student Attendance System**. International Journal of Computing and Network Technology Int. J. Com. Net. Tech. Vol. 3, No. 2, pp. 49-58, May 2015.

[40] **Design and Implementation of RFID-based Fuel Dispensing System.** Int. J. Com. Net. Tech. Vol. 3, No. 3, Sept. 2015**.**

[41] **Design of an RFID Vehicle Authentication System: A Case Study for Al-Al-Nahrain University Campus.** International Journal of Scientific and Technological Research journal, Vol. 1, Issue. 7, pp. 62-73, 2015, (ISSN: 2422-8702),

[42] **Design of an RFID-based Students/Employee Attendance System.** Majlesi Journal of Electrical Engineering, Vol. 10, No. 1, March 2016.

[43] **Investigating the Impact of Secure Image Transmission over MIMO-OFDM System.** IOSR Journal of Computer Engineering Vol. 18, Issue 4, Ver. IV (Jul.-Aug. 2016), pp 78-84.

[44] **Monitoring and controlling the Supply of Fuel in Baghdad using RFID.** Iraqi Journal of Electrical and Electronic Engineering, (IJEEE), Vol. 12, No. 2, 2016.

[45] **Indoor RFID Network Planning by Different Intelligent Optimization Strategies.** Journal of Network and Innovative Computing ISSN 2160-2174 Volume 5 (2017) pp. 001-010 © MIR Labs, www.mirlabs.net/jnic/index.html.

[46] **Adoption of Information and Communication Technology for the Advancement of Scientific Research in Iraqi Higher Education Institutions.** Scientific Journal of Al-Mostafa University College, (Special Issue), April 2017.

[47] **Development of scientific creativity among students admitted to Iraqi private colleges in recent years.** Scientific Journal of Al-Mostafa University College, (Special Issue), April 2017.

[48] **Comprehensive Modeling of Photovoltaic Array based on Proteus Software.** International Journal of Applied Engineering Research ISSN 0973-4562 Volume 13, Number 6 (May 2018) pp. 4440-4447 © Research India Publications.

[49] **Web-Based System Design to Monitor and Control the Mismatching Effects in a Vast Solar**

Farm. International Energy Journal, Volume 18, Issue 4, December 2018, pp. 379 – 390.

[50] **Reliability Assessment of the Iraqi National Communication Network**.
Indonesian Journal of Electrical Engineering and Informatics (IJEEI), Vol. 6, No. 4, December 2018, pp. 448~457 ISSN: 2089-3272, DOI: 10.11591/ijeei.v6i1.615.

[51] **Detection and control of power loss due to soiling and faults in photovoltaic solar farms via a wireless sensor network.** International Journal of Engineering & Technology (IJET), 7 (2) (2018) 718-724. DOI: 10.14419/ijet.v7i2.10987

[52] **A Low-cost Solar Farm Monitoring System Based on Cloud Database.** MEST Journal, Vol. 7, No. 2, July 2019, pp. 1-8, DOI: 10.12709/mest.07.07.02.01

[53] **Code of Conduct of Final Year Projects in Engineering Disciplines**, Engineering and Technology Journal, Vol. 37, Part C, No. 4, pp. 441-444, December 2019.

[54] **A hybrid design procedure for fault diagnosis in a PV power plant.** MEST Journal, Vol. 8, No. 1, January 2020, pp. 7-14, DOI: 10.12709/mest.08.08.01.02

[55] **A Photovoltaic Measurement System for Performance Evaluation and Faults Detection at the Field,** International Journal of Automation and Smart Technology, 10(1):409-420, June 2020, DOI: 10.5875/ausmt.v10i1.2144

[56] **Managing the Status of Suffering Pilgrims in Makkah via Mobile Application.** MEST Journal, Vol. 9, No. 2, 15 July 2021, pp. 54-60, DOI: 10.12709/mest.09.09.02.08

[57] **COOT OPTIMIZATION ALGORITHM FOR PARAMETER ESTIMATION OF PHOTOVOLTAIC MODEL, MEST Journal, Vol. 10 No. 2 pp. 177-185, July 2022,
DOI: 10.12709/mest.10.10.02.16**

(b) Papers published in scientific conferences

[1] **Filter Design Employing Op-Amps Having Finite GB.** Coll. on System and Circuit Design, University of Newcastle upon Tyne, April 1975, UK.

[2] **RC – Active Filters Employing Op-Amps: Experimental Results.** Coll. on System and Circuit Design, Univ. of Newcastle upon Tyne, April 1976, UK.

[3] **A New Technique for Reliable Operation of Demand Type Pacemakers.** Paper presented to the Conf. of Medical College, Silver Jubilee, MosulUniversity, (2-4) April 1985, Mosul, Iraq.

[4] **Analysis of ECG Signal Using Mixed Mathematical Basis Functions.** IEEE Melcon 85, Vol.1, Bio-Engineering pp139-142, (8-10) Oct. 1985, Madrid, Spain.

[5] **Computer Extraction of ECG Parameters.** Paper presented to the National Seminar on Medical Electronics, Scientific Research Council, 3rd Dec. 1985, Iraq.

[6] **An Algorithm to Minimize Sensitivity of Active Filters Utilizing a Constrained Shrinking Random Search Strategy,** Iraqi Conf. on Engg., 253-259, (16-19) Dec. 1985, Baghdad, Iraq.

[7] **Computer Aided Interpretation of ECG Signal Using Spline Functions** Iraqi Conf. on Engineering, ICE 85, pp.207-212, (16-19) Dec. 1985, Baghdad, Iraq.

[8] **Nonlinear Programming Approach to Design a PSC Motor Using Random Search Techniques.** Int. Conf. on Electric Machines ICEM'86, (8-10) Sept. 1986, Munich, Germany.

[9] **The Design of Thermally Stable Electronic Circuits Using Random Search Technique.** Proc. of First Inter-Arab Conf. on Electronic Systems, University of Constantine, (19-21) Oct. 1986, Algeria.

[10] **Bilinear Form Sensitivity Analysis.** 4th National Conf. of Scientific Research Council, October. 1986, Baghdad, Iraq.

[11] **Determination of Equation of Time Based on Cubic Spline Functions.** Symposium on Industrial Applications of Micro and Personal Computers, Scientific Research Council, (16-18) Dec. 1986, Baghdad, Iraq.

[12] **RC - Active Filters with Minimal Parasitic Effects.** 1st Scientific Conf. on Radar Systems and Signal Processing, (4-5) July 1987, MCE, Baghdad, Iraq, pp.300-318.

[13] **Computer-Aided Design Procedure for Active Filters Employing Real Operational Amplifiers.** 1st Scientific Conf. on Radar Systems and Signal Processing, (4-5) July 1987, MCE, Baghdad, Iraq, pp.285-299.

[14] **New Approach for Calculating Equation of Time and Declination Angle Based on Spline Functions.** 5th Scientific Conf., Science Research Council (SRC), (7-11) Oct. 1989, Baghdad, Iraq.

[15] **Microprocessor Controlled Astronomically Based Sun Tracker.** 9thMiami Int. Congress on Energy and Environment, Miami, (11-13) Dec. 1989, USA

[16] **Design and Construction of a Single Axis Solar Tracking System.** INREC90, Int. New and Renewable Energy Conf. (16-20) June 1990, Beijing, China.

[17] **A New Moving Template Matching Method for ECG Data Compression.** Sixth Int. Conference on Biomedical Engineering, (6-8) Dec. 1990, the National University of Singapore, Singapore.

[18] **Design of RC-Active Filters Employing Two–Pole Operational Amplifiers Integrator Model.** First Basra Electrical Engineering Symposium, (20-21) April 1992, Basra, Iraq.

[19] **An Adaptive Real-Time TV Tracking System with Prediction Capability.** ROVPIA'94, (26-28) May, 1994, IPOH, Malaysia.

[20] **Design of High-Frequency OTA-C- Filters Based on an Optimization Procedure.** ROVPIA'94, (26-28) May, 1994, IPOH, Malaysia.

[21] **ANew Digital Phase Tracking Loop for Satellite Ranging.** Proceedings of ICECS'95, pp. 463-467, Amman, Jordan, Dec.1995.

[22] **Quasi Optimum Operation of Phase-Locked Loops over a Wide Dynamic Range.** Fourth Iraqi Engineering Conference, Vol. 1, pp.1-16, Baghdad, Iraq, 1997.

[23] **A New Variable Step-Size Algorithm for Adaptive IIR Filtering.** The Fourth Basra Engineering Conference, BEC'97, pp.129-141, Dec.1997, Basra, Iraq.

[24] **A Fast Delay- less Sub-Band Adaptive Filter Architecture with Improved Steady-State Behavior.** Jordan Int. Electrical and Electronic Engineering Conference, JIEEEC'98, pp.118-122, Amman, Jordan, April 1998.

[25] **Two Dimensional Adaptive Filtering in Sub-Bands.** Fourth Int. Conf. on Signal Processing (ICSP'98), CIE, (12-16) Oct. 1998, Beijing, China.

[26] **Nonlinear Constrained Optimization using Current Conveyors Based Neural Networks.** Int. Conference on Neural Networks and Brain Proceedings, China, ICNN & B'98, pp.325-329, Oct. 1998.

[27] **Symbolic Analysis of Circuits Using Wavelet Transform.** Third Int. Conf. on Computational Aspects and Their Applications in Electrical Engineering, CATAEE'99, (19-20) Oct. 1999, Philadelphia University, Amman, Jordan.

[28] **Quantum Cryptographic Key Distribution in Multiple-Access Networks.** 16 th IFIP World Computer Congress WCC2000, (21-25) Aug. 2000, Beijing, China.

[29] **New Design Method of High-Frequency Current-Mode Active   Filters Based on Linear Transformation.** 16 th IFIP World Computer Congress, ICDA2000, (21-25) August 2000, Beijing, China.

[30] **Simulation of Carrier Recovery and Adaptive Equalization Applied to 16-QAM   Modern.** Fourth Int. Conf. on Computational Aspects and Their Applications in Electrical Engineering CATAEE'2002, Philadelphia University, Amman, Jordan, (19-21) March 2002.

[31] **A Comparative Study Between Different Symbolic-Matrix Solution Methods with Applications to Large Network Analysis.** Fourth Int. Conf. on Computational Aspects and Their Applications in Electrical Engineering CATAEE'2002, Philadelphia University, Amman, Jordan, (19-21) March 2002.

[32] **Symbolic Analyzer for Large Lumped and Distributed Networks,** International Workshop on Symbolic-Numeric Computations (SNC2005), Xian, China, (19-21) July 2005.

[33] **Destroying Steganography Content in Image Files.** Fifth Int. Symposium on Communication Systems, Networks, and Digital Signal Processing, CSNDSP 2006, (19-21) July 2006, University of Patras, Patras, Greece.

[34] **Design of H.323 Secure IP-Telephony Framework.** Sixth Int. Conf. on Computational Aspects and Their Applications in Electrical Engineering, CATAEE 2006,(19-21) Sept. 2006, Philadelphia University, Amman, Jordan.

[35] **GPS - GIS Integrated Approach for Vehicle Tracking and Monitoring.** Fourth Conference on Scientific Research Outlook and Technology Development in the Arab World, SROIV, Dec.11-14, 2006, Damascus, Syria.

[36] **Iraqi-Turkish Oil Pipeline Losses Minimization via Accurate FlowMeasurement.** Fourth Conference on Scientific Research Outlook and Technology Development in the Arab World, SROIV, Dec.11-14, 2006, Damascus, Syria.

[37] **Realization of Current-Mode Active Filters Using Active Wave Technique**s. 18th International Conference on Microelectronics ICM 2006, Dhahran, Saudi Arabia, 16-19 Dec. 2006.

[38] **IT Based Oil Transport Secured Monitoring and Control System.**
2nd International Conference on Modeling, Simulation, and Applied Optimization, ICMSAO 2007,(24-27) March 2007, The Petroleum Institute, Abu Dhabi, UAE

[39] **High Capacity Image Steganography Using Wavelet Transform**.
2nd International Conference on Modeling, Simulation, and Applied Optimization, ICMSAO 2007,(24-27) March 2007, The Petroleum Institute, Abu Dhabi, UAE

[40] **Simulation of a New Constraint-Based Routing Algorithm for Multi-protocol Label Switching Networks.** IEEE Third International Conference on Information and Communication Technologies: From Theory to Applications, (ICTTA08), Damascus-Syria, (7-11) April 2008.

[41] **Design and Implementation of a Smart Card Simulator.** International Conference on Computer and Communication Engineering, (ICCCE08), International Islamic University Malaysia, (13-15) May 2008.

[42] **WCDMA Receiver Structure with Smart Antenna System.** International Conference on Computer and Communication Engineering, (ICCCE08), International Islamic University Malaysia, (13-15) May 2008.

[43] **Data Acquisition System for Myocardial Infarction Classification Based on Wavelets and Neural Networks.** Fifth International Multi-conference on Systems, Signals, and Devices (SSD08), Philadelphia University, Jordan, (20-23), July 2008.

[44] **GSM-Based System for the Identification of Distressed Pilgrims.**
The Annual Middle Eastern Simulation and Modelling Conference (MESM 2008), August 26-28, 2008, Philadelphia University, Amman, Jordan.

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No	Thesis Title
1	**Optimization Techniques in Filter Realization, Baghdad University, 1978.**
2	**Computer Aided Design of Active R-Filters, University of Technology, 1981.**
3	**Sensitivity Minimization of Active Filters Utilizing a Constrained Shrinking Random Search Technique, University of Technology, 1985.**
4	**Design and Construction of an Equatorially Mounted Microprocessor-Based Sun Tracker, University of Technology, 1989.**
5	**An Approach to Design Active Filters with Minimum Parasitic Effects, University of Technology, 1990.**
6	**Operational Trans-Conductance Amplifiers and their Applications in Various Active Circuits, University of Technology, 1990.**
7	**An Adaptive Real-Time TV Tracking System with Prediction Capability, Al-Nahrain University, 1992.**
8	**Design of High-Frequency OTA-C Filters Utilizing Optimization Techniques, Al-Nahrain University, 1993.**
9	**Computer-Aided Design of Adaptive Filters for Linear and Nonlinear Channel Equalization, Baghdad University, 1994.**
10	**Microwave Amplifier Design Using Modern Tools, Al-Nahrain University, 1995.**
11	**An Accurate Satellite Altitude Determination System Using a Charge-Coupled Device Sensor, Al-Nahrain University, 1995.**
12	**Design of High Order OTA-C Filters Based on Linear Transformations, Al-Nahrain University, 1995.**
13	**Symbolic Analysis of Current Mode Circuits, Al-Nahrain University, 1995.**
14	**Design and Optimization of Sensitivity of Current-Mode Active Filters, Al-**

	Nahrain University, 1995.
15	Symbolic Analysis of Current Mode Circuits Based on Nullors, Al-Nahrain University, 1997.
16	Improved IIR Algorithms for Adaptive Signal Processing, Al-Nahrain University, 1997.
17	Symbolic Analysis of Digital Filters, Al-Nahrain University, 1997.
18	High-Order Current Mode Active Filter Design, Al-Nahrain University, 1997.
19	Nonlinear Constrained Optimization Using Current Mode Circuits Based NNS, Al-Nahrain University, 1997.
20	Design and Implementation of a Band Saving Analysis by Synthesis Scheme for Speech Applications, Al-Nahrain University, 1998.
21	Design and Implementation of a Synchronous Communication Adapter Based on Bit-Oriented Protocols, Al-Nahrain University, 1998.
22	Improved Sub-Band Adaptive Filtering Technique, Al-Nahrain University, 1998.
23	Current-Mode Neural Networks for Nonlinear Programming Problems, Al-Nahrain University, 1999.
24	Symbolic Analysis of Electronic Circuits Using Wavelet Transform, Al-Nahrain University, 1999.
25	New Approach in Polynomial Root Finding Algorithms, Al-Nahrain University, 2001.
26	Implementation of a Protocol Analyzer for Satellite-Borne Data- Handling Bus, Al-Nahrain University, 2001.
27	Carrier Recovery and Adaptive Equalization for 16-QAM Modems, Al-Nahrain University, 2001.
28	Design and Implementation of a Processing System for Direction of Arrival Estimation, Al-Nahrain University, 2001.
29	Microcontroller Based Wireless Digital Burst Modulation System Using Direct Digital Synthesizer, Al-Nahrain University, 2001.
30	Digital Speech Channel Modulation Using a Dedicated DSP Processor, Al-Nahrain University, 2001.
31	Analysis and Enhancement of Internet Worms, Al-Nahrain University, 2001.
32	Design of a Guidance and Control System Using On Board Computer, Al-NahrainUniversity, 2001.
33	Implementing a Protocol for Packet Switching Satellite Communication,

	Al-Nahrain University, 2001.
34	**Design and Implementation of a Microcomputer for Control and Guidance System, Al-Nahrain University, 2001.**
35	**Local Bus Simulation Process for Burst Radio Frequency System, Al-Nahrain University, 2002.**
36	**Design and Hardware Implementation of Data Entry System, Al-Nahrain University, 2003.**
37	**Data Acquisition for Flight Inspection System, Al-Nahrain University, 2004.**
38	**Development of Remote Data Management and Control via the Internet, Al-Nahrain University, 2005.**
39	**Smart Card Operation Simulator Using PCs, Al-Nahrain University, 2005.**
40	**Wavelet Analysis of ECG Signals for Diagnosis of Heart Diseases, Al-Nahrain University, 2006.**
41	**Map Projection for GPS Based Vehicle Monitoring System, Al-Nahrain University, 2006.**
42	**An FPGA-Based Intelligent Solar Tracking System, Al-Nahrain University, 2010.**
43	**Web-Based HMI Solution for Iraqi Power Plant SCADA System, Al-Nahrain University, 2011.**
44	**Building a Smart Hospital Using RFID Technology, Al-Nahrain University, 2011.**
45	**An RFID-Based Vehicle Location System, Al-Nahrain University, 2011**
46	**Design and Implementation of an RFID Prepaid Electricity metering System, Al-Nahrain University, 2011.**
47	**Indoor RFID Network Planning Based on Intelligent Optimization, Al-Nahrain University, 2013**
48	**Automation of Attendance System Using RFID, Al-Nahrain University, 2013.**
49	**Design of Smart Home Energy Management System, Al-Nahrain University, 2014**
50	**Optimum Spiral Inductor Design Using Particle Swarm Optimization, Al-Nahrain University, 2014.**
51	**Design and Implementation of Students -Employees RFID System, Al-Nahrain University, 2015.**
55	**Design of RFID-based Fuel Dispensing System for Iraqi City, Al-Nahrain University, 2015.**
56	**Design of a Dedicated RFID based Vehicle Authentication System for Al-Nahrain University Campus, Al-Nahrain University, 2015.**
57	**The Utilization of Particle Swarm Optimization in the Design of Electronic Filters, Al-Nahrain University, 2015.**

58	Implementation of Secure MIMO-OFDM System, Mosul University, 2016
59	Indoor RFID Network Planning by Different Intelligent Optimization Strategies, Al-Nahrain University, 2018.
60	Design and Performance Evaluation of Monitoring System for Large Solar Farm, Al-Nahrain University, 2019.
61	Fault Diagnosis in Solar Power Plant based on WSN RFID Hybrid Technology, Al-Nahrain University, 2020.
62	Managing the Status of Pilgrims Via QR Code and Mobile Application, Al-Nahrain University, 2021.

Supervised PhD Theses

No	Thesis Title
1	Satellite Ranging Using Digital Phases Tracking Loops, Al-Nahrain University, 1997.
2	Quantum Cryptographic Key Distribution in Optical Communication Networks, Al-Nahrain University, 1999.
3	Symbolic Analysis of Large Networks, Al-Nahrain University, 1999.
4	High Order Current-Mode Active Filter Design at High Frequency, Al-Nahrain University, 2001.
5	Computer-Aided Design of Wavelet Filters, MCE, 2002.
6	Optimum Symbolic Analysis Algorithms of Large Lumped and Distributed Networks, Al-Nahrain University, 2002.
7	Implementation of Satellite Telemetry Protocol Using FPGAs, Al-Nahrain University, 2003.
8	Information Hiding and Destruction in Still Images, Al-Nahrain University, 2006.
9	Internet-Based SCADA System for Iraqi-Turkish Oil Pipe Line, Al-Nahrain University, 2007.
10	Computer Based Symbolic Analysis for Characterizing and Improving Packet Delivery of Large Scale Heterogeneous Packet Networks, University of Technology, 2007.
11	Enhanced Query Execution and View Maintenance Methods for Data Warehouse System, Al-Nahrain University, 2007.
12	Demodulation Algorithms for Mobile Communication Using DSP Techniques, Al-Nahrain University, 2007.
13	Design a VoIP Security System for H.323 Protocol, Al-Nahrain University,

	2007.
14	**Applications of Smart Antenna Systems for 3G Mobile Communications, Al-Nahrain University, 2008.**
15	**Design and Implementation of a Web-Based SCADA System for the North Oil Refineries in Baiji, Al-Nahrain University, 2011.**
16	**Design of a GPS-based Stand-alone Solar Tracking System, Basra University, 2014.**