Nema Salem

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EDUCATION

Ph.D., Electrical Engineering, channel program: Calgary University, Canada and Alexandria University, Egypt, 1997
Concentrations: Biomedical Image Processing
Dissertation: Classification of Breast Tumors by Acutance Measure and Shape Factors
Dissertation Advisors: Onsy A. Alim, Ph.D., R.M. Rangayyan, Ph.D., Lee Desatueles, Radiologist

M.Sc., Electrical Engineering, Alexandria University, Egypt, 1991
Concentrations: Biomedical Image Processing
Dissertation: Mitral Valve Stenosis
Dissertation Advisors: Onsy A. Alim, Ph.D., Mohamed Ezz-Al-Arab, Ph.D.

B.Sc., Electrical Engineering, Alexandria University, Egypt, 1987

TEACHING EXPERIENCE

Assistant Professor, ECE, Effat University, KSA, 2009-Now

Assistant Professor, Teaching Electrical Engineering and Robotics to gifted female High-School Students (Mawhiba), Jeddah, (for 7 years)

Assistant Professor, EE, Hadramout University, Yemen, 2007-2008

Assistant Professor, EE, Alexandria University, Egypt, 1997-Now (On leave since 2008)

Assistant Professor, Part-time, Faculty of Science, Alexandria University, Egypt, 1999-2000

Assistant Professor, Part-time, EE, Alexandria High Institute of Technology, AIT, Egypt, 2001-2007

Lecturer, EE, Alexandria University, Egypt, 1991-1996

Teaching Assistant, EE, Alexandria University, Egypt, 1987-1991

Courses:

Introduction to ECE; Foundation of Physics; Numerical Methods Using MATLAB; Computer Programming and Problem Solving; Circuit Analysis I & II; Electronics I & II; Analog ICs; Digital ICs; Electromagnetics; Logic Design; Microprocessor; Computer Architecture; Signals and Systems; Digital Signal Processing; Advanced DSP; Analog Control; Digital Control; Modern Control; Robotics; Electromechanical systems; Fuzzy Control; Capstone Design I & II; Mathematics for Humanities; Mathematics for Business; Mathematics for Architecture

RESEARCH EXPERIENCE

Supervisor of ECE capstone projects

Supervisor of master theses

Reviewer at Journal of Computers in Human Behavior, 2013

Reviewer at L&T conference, Effat University

PUBLICATIONS

1. N.M.Elfaramawy, R.M.Rangayyan, JEL Desautels & O.A.Alim "Shape factors for analysis of breast tumors in mammograms" In Proc. Canadian Conf. Electrical & Computer Engineering, Calgary, AB, Canada. May 1996 PP 355-358.
2. R.M.Rangayyan, N.M.Elfaramawy, JEL Desautels & O.A.Alim "Discrimination between benign & malignant breast tumors using a region-based measure of edge profile acutance" Proc. Of the 3rd International Workshop on digital mammography, Chicago, IL, USA, 9-12 June 1996. PP 213-218.
3. R.M.Rangayyan, N.M.Elfaramawy, JEL Desautels & O.A.Alim "Measures of acutance and shape for classification of breast tumors" IEEE Transaction on medical Imaging, December 1997, Vol. 16, No. 6, PP 799 – 810.
4. Ahmed K. Abou Alsoud, N. Elfaramawy, Mohamed E. Attala & Alaa S. Hafez "High Efficiency silicon LIS/IL solar cells under external back bias". In Nineteenth National Radio Science Conf. NRSC'2002, Faculty of Engineering, Alexandria University, 19-21 March 2002, D11.
5. Ramy Mira, Mohamed El-Sayed, and Nema Elfaramawy "CMOS Implementation of Programmable Logic Gates and Pipelined Full Adders using Threshold Logic Gates Based on NDR Devices." The 21st national radio science conference NRSC2004, 16-18 March 2004, Cairo, Egypt.
6. Nema Elfaramawy, and Amira Awad, "All-Optical Logic Circuits Based on the Non-linear Properties of the Semiconductor Optical Amplifier." The Ninth IEEE Symposium on Computers and Communications ISCC'2004 Alexandria, Egypt June, 29th – July, 1st, 2004.

7. Ahmed Ibrahim Salem, Nema Elfaramawy, and El-Sayed A. El-Badwy "CFAR Different Schemes Behavior and Detection Performance of Moving Targets" The 8th world multi-conference in systemics, cybernetics and informatics SCI-2004, Jul. 18-21, 2004- Orlando, Florida, USA.

8. Ahmed Ibrahim Salem, Nema Elfaramawy, and El-Sayed A. El-Badwy " A robust censoring two-dimensional CFAR detector based data variability" The 9th world multi-conference in systemics, cybernetics and informatics SCI-2005, Orlando, Florida, USA.

9. Nema M. Elfaramawy, El-Sayed A. El-Badawy, and Ahmed I. Salem "Hardware Implementation of CA-CFAR Processor". Proceedings of "International Conference on Computer and Communication Engineering, ICCCE-06, vol. I, pp.573–578, International Islamic University Malaysia (IIUM), Kuala Lumpur, Malaysia, May 9-11, 2006.

10. Nema Elfaramawy, and El-Sayed El-Badawy, " Video De-interlacing: From Spatial to Adaptive Based Motion Detection", World Multiconference on Systemics, Cybernetics and Informatics (WMSCI 2008), Orlando, USA, June 29th to July 2nd, 2008

11. M. Akbar, Nema Salem, S, Hussein, "Thermodynamics of the Bardeen Regular Black Hole", Chinese physics letters" Vol. 29, No. 7, July 2012

12. Nema Salem, Abeer AlSaggaf, Yara Mustafa. "Controlling the Light Intensities of 3D Multitude RGB LEDs Cube", Proceedings of the 19th World Multi-Conference on Systemic, Cybernetics and Informatics (WMSCI 2015), Orlando, USA. July 12-15, PP: 305 – 311, 2015.

13. Nema Salem, Alaa Abu Al-Soud, Ashwaq Hameed, Asmaa Al-Andijani, Bayan Molah, Doaa Bashoah, Lamiya Ali, Sara Afify, Sara Al-Ghamdi, Sara Ba-Abdullah, Shahad Bahareth, Shorog Fatani, Zeineb Elsheikh. ECG Signal Extraction and Software Implementation of an Electrocardiogram System Using MatLab. Saudi Ministry of Labor, 2013 pp. 1:122. Available at: http://docshare03.docshare.tips/files/24310/243101128.pdf

14. Nema M. Salem and Bayan Al-Nahas, "Electroencephalography and Eye Power for Controlling Shooter Game" Indian Journal of Scientific Research and Technology (INDJSRT); ISSN: 2321-9262 (Online) Volume 5 Year 2017 Available at: www.indjsrt.com; pp. 6- 11.

15. Nema Salem, Sahar Hussein, "Data dimensional reduction and principal components analysis", 16th Learning and Technology Conference: "Artificial Intelligence and Machine Learning: Intelligence is Power"; 3-4 March, 2019, Elsevier Publisher.

16. Nema Salem, Hebatullah Malik, Asmaa Shams; "Medical image enhancement based on histogram algorithms", 16th Learning and Technology Conference: "Artificial Intelligence and Machine Learning: Intelligence is Power"; 3-4 March, 2019, Elsevier Publisher.

17. Nema Salem, Saja Alharbi, Raghdah Khezendar, Hedaih Alshami; "Real-time glove and android application for visual and audible Arabic sign language translation"; 16th Learning and Technology Conference: "Artificial Intelligence and Machine Learning: Intelligence is Power"; 3-4 March, 2019, Elsevier Publisher.

18. AlAmoudi Abeer; Allagani Renad; Kaidarova Altynay; Patel Niketan; Przybysz Alexander; Salem Nema; Kosel Jürgen; "Laser Induced Graphene Sensor System in an Aquatic Monitoring Application"; KAUST Research Conference 2019: New Trends in Biosensors and Bioelectronics; 25-27 February, 2019; Poster Session.

19. N. Salem and F. Elnaggar, "RIFD Fibonacci Zeckendorf Hybrid Encoding and Decoding Algorithm for Medical Image Compression and Reconstruction," 2020 Fourth International

Conference on Multimedia Computing, Networking and Applications (MCNA), VALENCIA, Spain, 2020, pp. 66-73, doi: 10.1109/MCNA50957.2020.9264295.

20. Helal, Sara, and Nema Salem. "A Hybrid Watermarking Scheme Using Walsh Hadamard Transform and SVD." *Procedia Computer Science* 194 (2021): 246-254.

21. A. Shah, S. S. Naqvi, K. Naveed, N. Salem, M. A. U. Khan and K. S. Alimgeer, "Automated Diagnosis of Leukemia: A Comprehensive Review," in IEEE Access, vol. 9, pp. 132097-132124, 2021, doi: 10.1109/ACCESS.2021.3114059.

22. M. S. Alsabban, N. Salem and H. M. Malik, "Long Short-Term Memory Recurrent Neural Network (LSTM-RNN) Power Forecasting," 2021 13th IEEE PES Asia Pacific Power & Energy Engineering Conference (APPEEC), 2021, pp. 1-8, doi: 10.1109/APPEEC50844.2021.9687681.

23. Hebatullah M. Malik, Nema Salem, Maha S. Alsabban "A Comparative Study on the Performance of Hidden Markov Model in Appliance Modeling" at the 2021 5th International Conference on Power and Energy Engineering (ICPEE 2021).

24. Raza, Mohsin, Khuram Naveed, Awais Akram, Nema Salem, Amir Afaq, Hussain Ahmad Madni, Mohammad AU Khan, and Mui-zzud din. "DAVS-NET: Dense Aggregation Vessel Segmentation Network for retinal vasculature detection in fundus images." *Plos one* 16, no. 12 (2021): e0261698.

25. Mushtaq, Abeer, Maria Mumtaz, Ali Raza, Nema Salem, and Muhammad Naveed Yasir. "Artificial Intelligence-Based Detection of Human Embryo Components for Assisted Reproduction by In Vitro Fertilization." Sensors 22, no. 19 (2022): 7418

PATENTS

PRESENTATIONS

GRANTS AND FELLOWSHIPS

1. *Effat Research Grant: Screening of Glaucoma Disease from Retinal Vessel Images, 2019*
2. *Effat Research Grant: Automatic Disease Detection System for Leukemia Diagnosis from Blood microscopic images, 2019*

AWARDS AND HONORS

1. Fellow (FHEA) Fellowship, in recognition of attainment against the UK Professional Standards Framework for teaching and learning support in higher education, 2021
2. Queen Effat Award for Excellence in Teaching, Academic year: 2019-2020

3. The best student satisfaction rate award, 2013
4. Awards and appreciations for organizing many events and Workshops as the Science and Engineering Fair, Jeddah (more than 10 years), the 5th GCC Robotics Challenge, Jeddah, 2019, and Programming with Arduino
5. Awards and Appreciation for organizing workshops as Electronics & Robotics, and STEM for students
6. Awards and Appreciation for being a jury member in the first Lego competition of the seventh robotic national Olympiad in Jeddah, 2013-2015
7. Ph.D. research scholarship, 1994-1996

THESIS SUPERVISIONS (sample)

1. Design of All Optical Digital Gates, M.Sc., Alexandria University
2. Analysis and Design of ATM Network Switching, M.Sc., Alexandria University
3. Motion adaptive De-interlacing Techniques, M.Sc., Alexandria University
4. A robust censoring two-dimensional CFAR detector for modern surveillance radars, Ph.D., Alexandria University
5. The augmentation of the building-Integrated Photovoltaic (BIPV) System Technology in Building Architectural, M.Sc., Effat University

PROFESSIONAL MEMBERSHIPS

A Member at the Engineering Association, Alexandria University, Egypt

NCAAA Accreditation active member

ABET Accreditation active member

ECE Curriculum active member

ECOE students' affairs committee chair

RELEVANT SKILLS

Programming ability in C, C++, Excel, Arduino, Assembly Language, VHDL and MATLAB

Fluent in Arabic, and English