

Ayman A. AbuBaker, Professor.

CURRICULUM VITAE

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ADDRESS Electrical and Computer Engineering Dept., Applied Science Private University, 11931, Jordan.
Tel.+962 6 560-9999 Ext. 1165 (work) , +962 79 2854755 (Mobile)
FAX +962 6 5232899 **E-mail** a_abubaker @asu.edu.jo

PERSONAL DATA **Born:** Dec. 5, 1976; **Place:** Kuwait **Nationality:** Jordanian

EDUCATION

M.S. & Ph.D. Electronic Imaging and Media Communications (EIMC), University of Bradford, **Bradford, UK, (2004-2008).**

B. S. **Electrical Engineering,** Mechatronics Systems, Al-Balqa' Applied University, **Amman, Jordan, (1994-1999).**

M. S. (as an Extra Degree) **Industrial Engineering- Management,** University of Jordan, **Amman, Jordan, (1999-2002).**

TITLES OF THESIS

M.S. & Ph. D. Automatic Detection of Breast Cancer Microcalcifications in Digitized X-ray Mammograms.

Extra M.S. An Intelligent Mobile Robot Controller Using Neuro-Fuzzy Techniques.

JOB HISTORY

2021-Present **Professor,** Electrical and Computer Engineering Dept., Applied Science Private University, Amman-Jordan.

2019- 2021 **Faculty of Engineering Dean, Professor.**

2017- 2019 **Faculty of Engineering Dean, Associate Professor.**

2015-2017: **Faculty of Engineering Vice Dean, Head of Electrical and Computer Engineering Dept. Associate Professor, Electrical and Computer Engineering Dept.**

2013-2015: **Associate Professor,** Electrical and Computer Engineering Dept., Applied Science Private University, Amman-Jordan.

2008-2013: **Assistance Professor,** Electrical and Computer Engineering Dept., Applied Science Private University, Amman-Jordan.

2001-2004: **Teaching Assistant,** Electrical and Computer Engineering Dept., Applied Science Private University, Amman-Jordan.

1999-2001: **Research Assistance,** Faculty of Engineering., The University of Jordan.

RESEARCH PROJECTS

The PhD research entitled “Automatic Detection of Breast Cancer Microcalcifications in Digitized X-ray Mammograms” aims to develop an intelligent technique that is capable of analyzing mammogram images to provide accurate prediction and classification of suspicious regions in the mammogram images. This research can be a helpful tool to aid specialists in cancer diagnoses through mammogram image analysis.

Graduate thesis title "An Intelligent Mobile Robot Controller Using Neuro-Fuzzy Techniques". In this work the robot move along a collision free trajectory until it reaches its target by utilizing a hybrid neuro-fuzzy controller. On the other hand in this research a mobile robot was built in

order to implement this hybrid neuro-fuzzy controller.

Undergraduate research project title "CNC Lathe Machine". In this project the design and development of all the necessary mechanical parts for the CNC Lathe Machine, the electrical drive (Interface cards) and supply circuits and software including the controller and GUI parts, have been considered.

TEACHING EXPERIENCE

Undergraduate Courses:

- Embedded Systems
- Python
- Microprocessor
- Computer Architecture
- Knowledge-Based Systems
- Object Oriented I, C++
- Computer Organization
- Digital Logic
- Multimedia Systems
- Digital Image Processing
- Computer Skills
- Fuzzy Logic
- Neural Networks
- Genetic Algorithms
- Neuro-Fuzzy Systems
- Java Programming 1
- Machine Learning for Master Students
- IOT for Master Students

RESEARCH INTERESTS

Machine Learning applications, Deep learning, Image processing, medical and solar image processing, machine learning, intelligent mobile robot navigation system, Fuzzy logic and Neural Networks and their applications, design and implement embedded systems, genetic algorithm applications.

• ABET Facilitator

Led the ABET accreditation effort in the Faculty of Engineering at ASPU for five engineering programs (Electrical Engineering/ Communication and Computer Engineering, Power and Control Engineering, Industrial Engineering, Mechanical Engineering, and Civil Engineering). Regular meeting with the ABET coordinators of all programs to ensure the quality of the assessment data and the reporting. Complete responsibilities of writing the Readiness report for initial accreditation and the self-study report afterward.

• Accreditation and Quality Assurance Commission for higher Education Institution Quality Assurance Certificate Facilitator

Team leader of faculty of Engineering Team which has built the faculty strategic plan, mission and vision, Goals, and Key Performance Indicators (KPIs). In addition, I was responsible of writing the faculty of Engineering self-assessment report that includes:

- Leadership
- Strategy
- Academic Programs
- Invocation and Entrepreneurship
- People and Resources
- Students Services
- Local Society Development
- Quality Assurance

- **European Foundation for Quality Management (EFQM) Assessor. (King Abdullah II Center for Excellence)**
- **Funded Project:**
Project Title: Vocational Training Diploma on Electrical and Hybrid Vehicles.
Sponsor :Erasmus+/EU
Period of the project (2021-2024)
Fund: 1 Milion Euro.

MEMBERSHIP OF UNIVERSITY COMMITTEES

- Head of Graduation Project committee, Applied Science University, 2010 – 2012.
- Editor at the Jordanian Journal of Applied Science, Applied Science University, Aug 2009 – present.
- Editorial Board at the International Journal of Multimedia & Its Applications, Sept 2010-present

List of Publications

Published Refereed International Journals

1. **Ayman Abu Baker**, Yazeed Yasin Ghadi, Nader Santarisi, *Intelligent computer aided diagnosis system to enhance mass lesions in digitized mammogram images*, International Journal of Electrical and Computer Engineering, 12(3), PP.2564-2570 (2022) (SCOPUS Q2)
2. **Ayman Abu Baker**, Yazeed Yasin Ghadi ,*Cancerous Lung Nodule Detection in CT-Images*, TELKOMNIKA Telecommunication Computing Electronics and Control, 18(5), 2020, PP. (SCOPUS Q2)
3. **Ayman Abu Baker**, Yazeed Yasin Ghadi, *Autonomous system to control a mobile robot*, Bulletin of Electrical Engineering and Informatics (BEEI) , 9(4),PP: 1711-1717, (2020). (SCOPUS Q2)
4. **Ayman AbuBaker**, Yazeed Ghadi, *Novel CAD System to Automatically Detect Cancerous Lung nodules Using Wavelet Transform and SVM*, International Journal of Electrical and Computer Engineering (IJECE), 10(5: Part I), (2020), PP:4745-4751. (SCOPUS Q2)
5. **Ayman A Abu Baker**, Yazeed Ghadi, *Mobile Robot Controller Using Novel Hybrid System*, International Journal of Electrical and Computer Engineering, 10 (1:Part II) 2020: 1027-1034. (SCOPUS Q2)
6. Ali M Baniyounes, Yazed Yasin Ghadi, **Ayman Abu Baker**, *Energy performance of fuzzy logic controllers in Smart Buildings*, International Journal of Energy Economics and Policy, 9(1). 2018.pp. 41-47. (SCOPUS Q1)
7. Ali M Baniyounes, Yazed Yasin Ghadi, **Ayman Abu Baker**, *Institutional Smart Buildings Energy Audit*, International Journal of Electrical and Computer Engineering (IJECE). 9 (2), 2018, PP.31-37. (SCOPUS Q2)
8. **Ayman AbuBaker**, nMPRA-MT Hardware Rate Monotonic Scheduling, International Journal of Applied Engineering Research, 12 (18), 2017, pp.7449-7454. (SCOPUS Q3)
9. **Ayman AbuBaker**, *An Adaptive CAD System to Detect Microcalcification in Compressed Mammogram Images*, International Journal of Advanced Computer Science and Applications, 8 (6), 2017, pp.133-138. (SCOPUS Q2)
10. **Ayman AbuBaker**, Mohammad Eshtay, Maryam AkhoZahia, *Comparison Study of Different Lossy Compression Techniques Applied on Digital Mammogram Images*, International Journal of Advanced Computer Science and Applications,7(12), 2016,pp. 149-155.
11. **Ayman AbuBaker**, *Adaptive Enhancement Technique for Cancerous Lung Nodule in Computed Tomography Images*, International Journal of Engineering and Technology (IJET), 8 (3), 2016, pp. 1444-1450.
12. Mohammad H. Alomari, **Ayman AbuBaker**, Aiman Turani, Ali M. Baniyounes, Adnan Manasreh, *EEG Mouse:A Machine Learning-Based Brain Computer Interface*, International Journal of Advanced Computer Science and Applications, 5 (4), 2014, pp. 193-198.
13. Adnan Manasreh, **Ayman AbuBaker**, Mohammad H. Alomari, Ali M. Baniyounes, *Cascade Neural Network to Control A Mobile Robot in Non-Structured Environment*, European Journal of Scientific Research, 119(4),2014, pp.110-119.
14. Aiman Turani, **Ayman AbuBaker**, Faiz Alshrouf,*Modeling Virtual Meetings within Software Engineering Environment*, International Journal on Computer Science and Engineering (IJCE), 2014,6(4), pp.164-168.

15. **Ayman AbuBaker**, Faiz Alshrouf, aiman Al Torani, Maryam AkhuZahia, Samer Issa, *Microcalcification Enhancement and Detection using Texture Features and Support Vector Machine*, European Journal of Scientific Research, 119(1),2014, pp.85-97.
16. Faiz Alshrouf, aiman Al Torani, **Ayman AbuBaker**, Ahmad Alomari, Analysis of Mobile Agent Optimization Patterns, British Journal of Applied Sciences and Technology, 4 (12), 2014, pp.1841-1857.
17. **Ayman AbuBaker**, *Neuro-Fuzzy Approach to Microcalcification Contrast Enhancement in Digitized Mammogram Images*, The International Journal of Multimedia & Its Applications (IJMA), 4(4),2012,pp.61-75.
18. **Ayman AbuBaker** and Ali Mehdi, *Estimating the Position, Number and Length of Forehead Wrinkles Using Neural Network*, Research Journal of Applied Sciences, Engineering and Technology, 4(15), 2012, pp. 2584-2589.
19. **Ayman AbuBaker**, *A Novel Mobile Robot Navigation System Using Neuro-Fuzzy Rule-Based Optimization Technique*, Research Journal of Applied Sciences, Engineering and Technology, 4(15), 2012, pp. 2577-2583.
20. **Ayman AbuBaker**, *Mass Lesion Detection Using Wavelet Decomposition Transform and Support Vector Machine*, International Journal of Computer Science and Technology (IJCSIT),Vol. 4, No. 2. 2012, pp. 33-46.
21. **Ayman AbuBaker**, *Microcalcification Enhancement In Digitized Mammogram Images Using Fuzzy Logic Approach*, Ubiquitous computing and communication Journal (UBICC), Vol. 7, No. 2, 2012. pp. 1255-1261.
22. Doried Mismar, **Ayman AbuBaker**, *Neural Network Based Algorithm of Soft Fault Diagnosis in Analog Electronic Circuits*, International Journal of Computer Science and Networks Security, IJCSNS, Vol 10, No. 1, 2010. pp. 107-111.
23. Moussa H. Abdallah, **Ayman A. AbuBaker**, Rami S. Qahwaji and Mohammed H. Saleh, *Efficient Technique to Detect the Region of Interests in Mammogram Images*, Journal of Computer Science, Vol. 4, No. 8, 2008, pp. 652-662.
24. **Ayman, AbuBaker**, Rami, Qahwaji, Musbah, Aqel, Moh., Saleh. *Efficient Pre-processing of USF and MIAS Mammogram Images*, Journal of Computer Science, Science Publications, Vol. 3, No. 2, 2006, pp. 67-75.
25. **Ayman, AbuBaker**, Rami, Qahwaji, Musbah, Aqel, Moh., Saleh. *Mammogram Image Size Reduction Using 16-8 bit Conversion Technique*, International Journal of Biomedical Sciences, Enformatica, Vol. 1, No. 2, 2006, pp. 103-110.

Published Refereed International Conferences

1. **Ayman AbuBaker**. *Automatic Microcalcification Detection Using Wavelet Transform*, Euro-Asia Conference on Computational Intelligence and Communication Networks (EACCI2014), 2014.
2. **Ayman AbuBaker**. *Intelligent Cad System To Detect And Classify Masses Inmammograms Using Wavelet Transform*, Proceedings of 8th International Symposium on Intelligent and Manufacturing Systems (IMS 2012), Sakarya University Department of Industrial Engineering, Adrasan, Antalya, Turkey", 2012, pp. 64-76.
3. **Ayman AbuBaker**, *Fuzzy Logic Reasoning to Control Mobile Robot in Non-structured Environment*, 2nd Annual International Conference on Control, Automation and Robotics CAR 2012, 2012, pp. 19-22
4. **Ayman AbuBaker**, *Hybrid Neuro-Fuzzy System For Mobile Robot Reactive Navigation*, The 4th International Conference on Information Technology ICIT2009, ISBN 9957-8583-0-0, 2009.
5. **Ayman,AbuBaker**, Rami, Qahwaji, Stan, Ipson. *Mass Lesion Detection Using Statistical and Morphological Techniques*, 7th IEEE International Conference on Cybernetic Intelligent Systems, 2008, pp. 20-24.
6. **Ayman,AbuBaker**, Rami, Qahwaji, Stan, Ipson, *Texture-based Feature Extraction for the Microcalcification from Digital Mammogram Images*, pp. 896-899, IEEE International Conference on Signal Processing and Communication, 2007.
7. **Ayman,AbuBaker**, Rami, Qahwaji, Stan, Ipson. *Mammogram Image Segmentation Using Statistical and Morphological based Techniques*, pp.8-11, 8th informatics workshop, University of Bradford, UK, 2007.
8. **Ayman,AbuBaker**, Rami, Qahwaji, Stan, Ipson, Mohmmad, Saleh. *One Scan Connected Component Labelling Technique*, pp. 1283-1286, IEEE International Conference on Signal Processing and Communication, 2007.
9. **Ayman,AbuBaker**, Rami, Qahwaji, Musbah, Aqel, Mohmmad, Saleh. *Mammogram Image Segmentation Using Morphological Thresholding Method*, pp. 320-324, the 6th Jordanian International Electrical and Electronics Engineering Conference, Amman, Jordan, 2005.
10. **Ayman,AbuBaker**, Rami, Qahwaji, Musbah, Aqel, Mohmmad, Saleh. *Average Row Thresholding Method for Mammogram Segmentation*, PP. 3288 – 3291, the 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2005.
11. Monaf, Al-Din, Khaldoun, Tahboub, **Ayman, Abu-Baker**. *A novel fuzzy like PI controller*, pp. 253-258, First International Industrial Engineering Conference, 2001.