Curriculum Vita

Name: Abdel-Razzak M. Al-Hinnawi
Marital Status: Married
Address: Amman, Jordan
Date of Birth: 24 – 11 – 1968
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Qualifications:

1- Ph.D. 1999, ***Bio-medical physics and Bioengineering***, Department of Bio-Medical Physics and Bio-Engineering, University of Aberdeen, Scotland, UK.
Thesis: **Computer Aided Detection of Clustered Micro-Calcification in the Digitised Mammogram**
** (The PhD specialty was in applying Digital Image Analysis on Medical Images)*

2- M.Sc. 1995, ***Medical Imaging***, Department of Bio-Medical Physics and Bio-Engineering, University of Aberdeen, Scotland, UK.
Thesis: **Relaxation Times Measurements at 7 Tesla NMR experimental small animal system**

3- B.Sc. 1991, ***Bio-Medical Engineering***, Department of Bio-medical Engineering, Damascus University, Syria.

Academic Training Courses:

1- (2006) **"Electronic Distance Learning using MOODLE technology"** Amman, Jordan.
2- (2006) **"Design and Development of Electronic Academic Courses –Demorgan University, UK"** Kalamoon University, Damascus, Syria.
3- (2003) **"Digital Image Processing (Application & Architecture)"** Summer University 18-26 Jully 2003, University of Balamand, Lebanon.
4- (2002) **Training Course in the applications of Radio-Isotopes and Radiation Protection**, MIDDLE EASTERN RADIO-ISOTOPES CENTER FOR ARAB COUNTRIES, Cairo, Egypt.
5- (2000) **Basic Web Technology Skills For Courseware Development**. AN ACTIVITY OF THE UNESCO (CAIRO OFFICE) USEE PROGRAMME, The Arab School of Science and Technology, Damascus Syria.

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Academic Employment:

University & Period	Courses	Affiliation
1991-1994 Biomedical Engineering Dept. Damascus University Damascus, Syria	Medical Electronics Medical Measurements Medical Instrumentation.	Teaching Assistant

1994-1995 Department of Bio-Medical Physics and Bio-Engineering University of Aberdeen, UK	Medical Imaging Medical Physics Digital Image Processing	Postgrad. Student, Researcher
1999-2013 Biomedical Engineering Dept. Damascus University. Damascus, Syria.	Digital Image Processing Medical Imaging Systems Nuclear Medicine	Assistance Prof. Associate Prof. Full Time
2004-2006 Biomedical Engineering Dept. Al-Ahliyya Amman Univ. Amman, Jordan	Digital Image Processing Medical Imaging Systems Computer Applications in Medical Sciences	Associate Prof. Full Time
2013-2019 College of Medical Applied Sciences Medical Imaging Department The Hashemite University Jordan	Screen-Film Radiography Nuclear Medicine Imaging Digital Radiography Quantitative Analysis of Med. Images Radiation Protection Essentials of Medical Imaging	Lecturer Full Time
2019-now College of Medical Applied Sciences Medical Imaging Department Isra Private University Jordan	Medical Imaging Academic and Research Consultant	Associate Prof. Full Time

Main Academic Strength:

During my 20 years academic life, I have gained comprehensive knowledge and experience in following topics:

1. Digital Image Processing (***Enhancement, Segmentation, Morphology, Analysis, Classifications, … etc.***) & Signal Processing
2. Computer-Aided Detection and Diagnosis
3. All Medical Imaging Systems (***Physics, Instrumentation, and clinical applications***) including:
   - 3.1. X-Ray Diagnostic Imaging (General Radiography, Mammography, Dental, Fluoroscopy, X-Ray Digital detectors, and CT)
   - 3.2. Magnetic Resonance Imaging
   - 3.3. Nuclear Medicine Imaging
     - 3.3.1. Gamma Camera
     - 3.3.2. Single Photon Emission Computerized Tomography (SPECT)
     - 3.3.3. Positron Emission Tomography (PET)
     - 3.3.4. PET/CT
   - 3.4. Ultrasound Imaging.
   - 3.5. None Ionizing Imaging (LASER, ophthalmology)
4. Radiobiology & Radiation Protection

Conferences:

(2006) Al-Hinnawi AR. Current State of PET/CT Medical Imaging Scanner. International Medical Informatics and Biomedical Engineering. The first Jordanian European Symposium. IMIBE'06. Yarmouk University, pp-222-224.

(1998) Al-Hinnawi AR., Undrill PE and Needham G. The auto-detection of cluster micro-calcifications in digital mammograms using texture energy. Proc. 4TH International Workshop on Digital Mammography. Eds. Karssemeijer N., Thijssen M., Hendriks J., Nijmegen NETHERLAND, DOI: 10.1007/978-94-011-5318-8_81

(1997) Al-Hinnawi AR., Undrill PE and Needham G. The use of Image Texture Analysis in the Detection of Micro-Calcifications within the Mammogram. ***IEE Image Processing and its***

Applications IPA97, 15-17 July, Conference Publication No. 443, IEE 1997. Dublin IRLAND, DOI: 10.1049/cp:19970900

Research Interests:

Quantitative analysis of medical images is my field. My favorable interest is the design of automatic detection/diagnosis of abnormalities within variety of medical images. This includes CT, MRI, Digital Radiography, Nuclear medicine, laser, and ultrasound. However, I can help colleagues doing their research activities by suggesting ideas to enrich any research challenge in the field of ***Biomedical Imaging***. My recent research interest was in ***3D Visualization*** of diseases in medical images.

Journal Publications:

1. Gharaibeh, N. Y., De Fazio, R., Al-Naami, B., **Al-Hinnawi, A. R.**, & Visconti, P. (2024). Automated Lung Cancer Diagnosis Applying Butterworth Filtering, Bi-Level Feature Extraction, and Sparce Convolutional Neural Network to Luna 16 CT Images. *Journal of Imaging*, *10*(7). https://doi.org/10.3390/jimaging10070168

2. Mahmoud Abufadda, M., Radaideh, M., Al-Hiari, A. and **Al-Hinnawi A.-R. M.** (2024). Perspectives of artificial intelligence in radiology in Jordan: CROSS-SECTIONAL study by radiologists and residents' sides. Informatics in Medicine Unlocked. https://doi.org/10.1016/j.imu.2024.101538

3. **Al-Hinnawi, A. -R. M.**, Al-Latayfeh, M. and Tavakoli, M. (2023). Innovative Macula Capillaries Plexuses Visualization with OCTA B-Scan Graph Representation: Transforming OCTA B-Scan into OCTA Graph Representation. Journal of Multidisciplinary Healthcare, 16, pp. 3477-3491. https://doi.org/10.2147/JMDH.S433405

4. **Al-Hinnawi, A. -R. M.**, BaniMustafa, A., Al-Latayfeh, M. and Tavakoli, M. (2023). Reconstruction and Visualization of 5µm Sectional Coronal Views for Macula Vasculature in OptoVue OCTA. *IEEE Access*, 11, pp. 28280-28293. https://ieeexplore.ieee.org/document/10070766

5. Almazloum AA, **Al-Hinnawi A-R**, De Fazio R, Visconti P. Assessment of Multi-Layer Perceptron Neural Network for Pulmonary Function Test's Diagnosis Using ATS and ERS Respiratory Standard Parameters. *Computers*. 2022; 11(9):130. https://doi.org/10.3390/computers11090130

6. De Fazio, Roberto, **Al-Hinnawi, A. -R.**, De Vittorio, M., & Visconti, P. (2022). An Energy-Autonomous Smart Shirt Employing Wearable Sensors for Users' Safety and Protection in Hazardous Workplaces. *Applied Sciences*, *12*(6), 2926. https://doi.org/10.3390/app12062926

7. Al-Naami, Bassam, Fraihat, H., Al-Nabulsi, J., Gharaibeh, N. Y., Visconti, P., & **Al-Hinnawi, A.-R**. (2022). Assessment of Dual-Tree Complex Wavelet Transform to Improve SNR in Collaboration with Neuro-Fuzzy System for Heart-Sound Identification. *Electronics*, *11*(6), 938. https://doi.org/10.3390/electronics11060938

8. Al-Naami, Bassam, Abu Owida, H., Abu Mallouh, M., Al-Naimat, F., & **Al-Hinnawi, A.-R.** (2021). *A New Prototype of Smart Wearable Monitoring System Solution for Alzheimer's Patients*. Medical Devices: Evidence and Research, 2021(14), 423-433. https://doi.org/10.2147/MDER.S339855

9. Al-Naami, Bassam, Al-Naimat, F., Raja, A.-M., Almalty, M., Visconti, P., & **Al-Hinnawi, A.-R.** (2021). *A Prototype of an Electronic Pegboard Test to Measure Hand-Time Dexterity with Impaired Hand Functionality*. Applied System Innovation, 5(1), 2. https://doi.org/10.3390/asi5010002

10. Al-Naami, B., Fraihat, H., Gharaibeh, N., & **Al-hinnawi, A. M.** (2020). A Framework Classification of Heart Sound Signals in PhysioNet Challenge 2016 Using High Order Statistics and Adaptive Neuro-Fuzzy Inference System. *IEEE Access*. https://doi.org/10.1109/ACCESS.2020.3043290

11. **Al-hinnawi, A. R. M.**, Al-Bashir, A., & Alqasem, A. M. (2020). New computerized volume measurement method for optic nerve head (ONH) region comparison with measurements by Heidelberg SPECTRALIS optical coherence tomography. *Informatics in Medicine Unlocked*, *20*. https://doi.org/10.1016/j.imu.2020.100383

12. **Al-hinnawi, A.-R. M.**, Alqasem, A. M., & Al-Naami, B. O. (2019). Three-dimensional surface presentation of optic nerve head from SPECTRALIS OCT images: observing glaucoma patients. *International Ophthalmology*, *39*(9). https://doi.org/10.1007/s10792-018-1023-y

13. **Al-hinnawi, A.-R. M.**, Al-Naami, B. O., & Al-azzam, H. (2018). Collaboration between interactive three-dimensional visualization and computer aided detection of pulmonary embolism on computed tomography pulmonary angiography views. *Radiological Physics and Technology*, *11*(1), 61–72. https://doi.org/10.1007/s12194-017-0438-x

14. **Al-Hinnawi, A.-R. M.,** Al-Naami, B. O., & Al-Latayfeh, M. M. (2016). Optic nerve head slope-based quantitative parameters for identifying open-angle glaucoma on SPECTRALIS OCT images. *International Ophthalmology*. https://doi.org/10.1007/s10792-016-0362-9

15. Al-Naami, B., **Al-Hinnawi, A.-R.,** Al-Kiswani, A., Dahabreh, A., Al-Assaf, F., & Kullab, M. (2016). Toward incorporating the infant weight into incubator's automatic temperature control. *Journal of Medical Devices, Transactions of the ASME*, *10*(1). https://doi.org/10.1115/1.4032633

16. **Al-Hinnawi, A. R.**, & Daear, M. (2015). Assessment of bilateral filter on low NEX open MRI views. *Signal, Image and Video Processing*, *9*(1). https://doi.org/10.1007/s11760-012-0417-y

17. **Al-Hinnawi, A. R.,** Daear, M., & Huwaijah, S. (2013). Assessment of bilateral filter on 1/2-dose chest-pelvis CT views. *Radiological Physics and Technology*, *6*(2). https://doi.org/10.1007/s12194-013-0212-7

18. Shouka, Nada, Akkad, A., & **Al-Hinnawi, A. -R.**, (2012). 3-D Fetus Image Reconstruction from 2-D Ultrasound Imaging Device. *Damascus University Journal for Engineering Sciences*, 28(2), pp. 159-169.

19. **Al-Hinnawi, A. -R.**, & Daear, M., (2012). Image Texture Descriptors to Quantify Bilateral Filter on Low Dose Computerized Tomography. *International Journal for Signal Processing, Image Processing and Pattern Recognition*, 5(3), pp123-136.

20. **Al-Hinnawi, A. -R.**, (2006). Current State of PET/CT Medical Imaging Scanner. *International Medical Informatics and Biomedical Engineering. The first Jordanian European Symposium. IMIBE'06.* Yarmouk University, pp-222-224.

21. **Al-Hinnawi, A. -R.**, (2004). Computer Aided Measurements to Discern Malignant from Benign Micro-Calcifications within Digital Mammograms. *Damascus University Journal for Engineering Sciences*, 20(2).

22. **Al-Hinnawi, A. -R.**, (2004). Standard Statistical Methods for the Evaluation of Radiologist's Performance on Radiological Images. *Journal of Arabic Board for Medical Specialists*, 6(1).

23. **Al-Hinnawi, A. -R.**, (2003). Al-Hinnawi AR. Design of Computer Aided Algorithm for the detection of Clustered Micro-Calcifications within digitised Mammograms. Damascus University Journal for Engineering Sciences, Vol 19 , No.2.
24. **Al-Hinnawi, A. -R.**, (2000). Al-Hinnawi AR and Diab M. Computer-Human Interface Solutions

for Emergency Medical Care. *Syrian Scientific Informatics Association (Informatics),* 9(September), pp 119-131. (Translation to Arabic).

Electronic chapter (e-book):

Al-Hinnawi, A. -R., (2019). In e-book Angiography: Computer-Aided Detection, Pulmonary Embolism, Computerized Tomography Pulmonary Angiography: Current Status. InTechOpen, DOI:10.5772/intechopen.79339.

Electronic Academic Course:

(2018-2019) I designed a Nuclear Medicine Electronic Course during my employment at Hashemite University. This include explanation of physics, instrumentation, and clinical applications of Gamma Camera, SPECT, PET, and PET/CT. They are installed at the university private network. I have all electronic lectures saved in my private PC.

Computer Skills:

- MATLAB Programming Language, IDL, ImageJ. or any Image Software Platform
- WEB Technology Skills for Courseware Development, MOODLE, or any software used for electronic course teaching.
- Microsoft Office 2013 ... etc.

Languages:

- Arabic (Native Language)
- English (very good listening, reading, writing)

References:

1) Dr. Bassam Naami (Associate Prof.), Hashemite University, Biomedical Engineering Dept., JORDAN. b.naami@hu.edu.jo
2) Dr. Khaled Rababeh. (Associate Prof.), Medical Imaging Department, Hashemite University, JORDAN. khalidr@hu.edu.jo