



Sorbonne Center for Artificial Intelligence SCAI-Abu Dhabi
Meet our Chair of Excellence Professor

Dr Raed Abu Zitar

Professor



**SORBONNE
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Name: Raed Abu Zitar

Title: Professor

Department and University: Sorbonne Centre for Artificial Intelligence (SCAI Abu Dhabi), Sorbonne University Abu Dhabi

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Research Interests

Artificial Intelligence, Machine Learning, Pattern Recognition, Artificial Intelligence in Software Engineering, Robotics, Computer Networks modeling, Corpuses development, Languages Dictionaries, Emotions Modeling, Pattern Recognition, Emotional Agents, Genetic Algorithms, Neural Networks, Intelligent Control, Scheduling Methods, Speech Recognition, Evolutionary Based Applications, and Fuzzy Logic.

Research Collaborations

Centre of Artificial Intelligence, Ajman University, UAE, projects " Evolutionary based optimization and machine learning for Combinatorial problems, Economic Load dispatch for power generators, and JAYA and its variants in optimization and machine learning".

Publications

R. A. Abu Zitar and M. H. Hassoun, " Neurocontrollers Trained with Rule Extracted by a Genetic Assisted Reinforcement Learning System," IEEE transactions on Neural Networks.Vol 6.No. 4. July 1995. pp 859-879.IEEE Press Publishing.(ISI +Scopus).

R. A. Abu Zitar, and Al-Fahed Nuseirat, A.M. "Neural Network Approach to the Frictionless Grasping Problem, J. of Intelligent and Robotic System" 29:27-45, 2000.Springer/Kluwer Publishing. (ISI+ Scopus)

R. Abu Zitar and A. M. Al-Fahed Nuseirat," A Theoretical Approach of an Intelligent Robot Gripper to Grasp Polygon Shaped Object International Journal . of Intelligent and Robotic Systems 31: 397-422, 2001.Springer/Kluwer Publishing. Scopus

M. Al-Fahed Nuseirat and R. Abu Zitar," A Neural Network Approach to Firm Grip in the Presence of Small Slips ,"International Journal of Robotic Systems, 18(6), 305-315 (2001).Addison Wiley Publishing. (Scopus)

R. Abu Zitar and A. M. Al-Fahed Nuseirat," Performance Evaluation of Genetic Algorithms and Evolutionary Programming in Optimization and Machine Learning," Cybernetics and Systems: An International. Journal.Vol 33 (1), April, 2002.Taylor and Francis Publishing. (Scopus)

Abu Zitar," Application of Neural Generated Error Signal in Classification and Compression of ECG Beats", Engineering Journal of The University of Qatar, Vol. 15. 2002.

F. Nuseirat and R. Abu Zitar, " Trajectory Path Planning using Hybrid Reinforcement and Back Propagation Through Time Training," International Journal of Cybernetics and Systems, Vol. 34, No.8, Dec, 2003 Taylor and Francis Publishing. (Scopus)

R. Abu Zitar and Anwar Al-Shrouf, " Application of Genetic Algorithm in Design of FIR filters," AMSE International Journal, Vol. 77, No. 1,AMSE Press, France, 2004 (Scopus).

A.F. Nuseirat and Raed Abu Zitar, " FIR filter Design via Linear Complementarity Problem, Messy Genetic algorithm, and Ising Messy Genetic Algorithm," International Journal of Signal Processing IJSP, Vol.1, No1. 2004..Enformatika Publishing. (Scopus)

R. A. Abu Zitar, "Optimum Gripper Using Ant Colony Intelligence,"Industrial Robot Journal, Vol 23, No.1, Emerald

publishers, 2004. (Scopus)

R. Abu Zitar, "Towards General Neural Glucose/Insulin model," International Journal of Computing and Information Sciences (IJCIS), Vol. 1, No. 1, Canada, ISSN 1708-0460, 2004.

R. Abu Zitar and A. F. Nuseirat, "Evolutionary Based Method for the Nonlinear Gripper Problem," International Journal of Applications in Science and Engineering, Vol. 2, 2004, Taiwan.

R. Abu Zitar, "Genetic-Neural Approach versus Classical Approach for Arabic Character Recognition Using Freeman Chain Features Extraction," IAJIT Vol. 2, No. 4, October 2005. ISI, Scopus indexed

R. Abu Zitar, "Polynomial Network Approach for Arabic Character Recognition," Information : An International Journal, Vol. 8, No.1, Japan, 2005.

R. Abu Zitar and Abdul Kareem Al-Jabali, "Towards Neural Network Model for Insulin/Glucose in Diabetics-II," Informatica : An international Journal, 29, 2005. ACM Publishing, ACM Publishing. (Scopus)

R. Abu Zitar and A. Nuseirat, "A Rule Based Machine Learning Approach to the Nonlinear Multi-fingered Robot Gripper Problem," Control and Cybernetics, an International Journal, vol. 34, No.2, 2005. Polish Academy of Sciences Publishing. (Scopus)

Khulood Abu Maria and Raed Abu Zitar, "Emotional Agents: A Model and an Application", International Journal, Information and Software Technology, Vol. 49, No. 6, Elsevier Publishing, 2007. (Scopus)

Ayman Al-Dmour and Raed Abu Zitar, "Arabic Writer Identification Based on Power's Spectrum and Law's Filter method, Vol. 19, No. 4, December 2007, 307–332 International Journal of Theoretical and Experimental Artificial Intelligence, Taylor and Francis Publishing. (Scopus)

Raed Abu Zitar, Essam Hanandeh, "Genetic Algorithm with Neighbor Solution Approach for Traveling Salesman Problem, International Journal of Neural Network World, No.5. 2007. VSP Publishers, the Netherlands. (Scopus)

Raed Abu Zitar, "The Ising Genetic Algorithm Based on Gibbs Distribution Sampling: FIR filter Design," the International Journal of Applied Soft Computing, Vol 8/2, pp. 1085-1092, 2008, Elsevier Publishing. (Scopus)

Mai Al-Tahravi and Raed Abu Zitar, "Polynomial networks versus other techniques in text categorization," International Journal of Pattern Recognition and Artificial Intelligence, Volume 22 Number 2 March 2008: World Scientific Publishers. (Scopus)

Hussein Hyassat and Raed Abu Zitar, "Arabic Speech Recognition Using SPHINX engine," International Journal of Speech Technology, December 2006, Volume 9, Issue 3-4, pp 133-150. Springer Publishing. (Scopus)

Hussam Hamad and Raed Abu Zitar, "Development of an Efficient Neural-Based Segmentation Technique for Arabic Handwriting Recognition", Pattern Recognition, Volume 43, Issue 8, August, 2010, Elsevier Publishing. (Scopus)

Adel Hamdan and Raed Abu Zitar, "Application of Genetic Optimized Artificial Immune System and Neural Networks in Spam Detection," Applied Soft Computing, Applied Soft Computing, Volume 11, Issue 4, June 2011, Pages 3827-3845, Elsevier Publishing, 2011. (Scopus)

Isalm Amro, Raed Abu Zitar, and Hussein Bahadili, "Speech Compression Exploiting Linear Prediction Coefficients Codebook and Hamming Correction Code Algorithm," International Journal of Speech Technology, June 2011, Volume 14, Issue 2, pp. 65-76. Springer Publishing. (Scopus)

Raed Abu Zitar (et. al.) "Recognition of Arabic Sign Language Using Recurrent Neural Network," Journal of Intelligent Learning Systems and Applications (JILSA), Vol 4, issue 2, 2012 (Scopus)

Raed Abu Zitar and Adel Hamdan Mohammad, "Spam Detection Using Genetic Assisted Artificial Immune System," International Journal of Pattern Recognition and Artificial Intelligence, Vol. 25, No. 8, (December 2011) issue, World Scientific Publishers. (Scopus).

Raed Abu Zitar and Adel Hamdan Mohammad, "Spam Detection Using Genetic Assisted Artificial Immune System,"

Raed Abu Zitar and Adel Hamdan, "Spam Detection using Genetic Based Artificial Immune System: a review and a model. Artificial Intelligence Review (2011): 1-73 , November 23, 2011, Springer Publishing. (Scopus)

Suha Abed Afaneh and Raed Abu Zitar, "Virus Detection using Clonal Selection Algorithm with Genetic Algorithm (VDC algorithm)," Applied soft Computing Journal, Volume 13, Issue 1, January 2013, Pages 239–246, Elsevier Publishing. (Scopus)

Laith Hamasha, Raed Abu Zitar , Farid AlZboun, "Mitigating Security and Privacy Risks in the Cloud" , International Journal of Electrical Engineering, JEA, 2015.

Ayman Al-Dmour and Raed Abu Zitar, " Word Extraction from Arabic Handwritten Documents Based on Statistical Measures," International Review on Computers and Software (IRECOS), Vol 11, Issue 5, 2016. (Scopus indexed)

AbdelSamad Marghalani and Raed Abu Zitar, "An Evolutionary Optimized Artificial Immune System for Virus Detection" , International Journal of Computer science and Information Security, Vol. 14, No. 10 OCT 2016 (ISI indexed).

Muhammed J.Al-Muhammed and Raed AbuZitar, ' Lookback random-based text encryption technique," Journal of King Saud University - Computer and Information Sciences, Available online 12 October 2017, <https://doi.org/10.1016/j.jksuci.2017.10.002>, Elseveir Publishing.(ISI, scopus)

Muhammed J.Al-Muhammed and Raed AbuZitar, ' Dynamic Text Encryption" International Journal of Security and Its Applications, Vol 11, No 11, November 2017. SERSC Publications, (Scopus).

Muhammed J.Al-Muhammed and Raed AbuZitar, "Probability-Directed Random Search Algorithm for Unconstrained Optimization Problem," Journal of Applied Soft Computing, Elsevier, 71, (2018) 165–182.(ISI and Scopus).

Raed Abu Zitar, Capturing the Brachistochrone: Neural Network Supervised and Reinforcement Approaches, International Journal of Innovative Computing, Information and Control (IJICIC), Vol.15, No.5, October 2019 (ISI and Scopus).

Raed Abu Zitar, El-Hassan, A., Al-Sahlee, O., Deep learning recommendation system for course learning outcomes assessment, Journal of Advanced Research in Dynamical and Control Systems, 10 /special issue, 2019

Raed Abu Zitar and Hanan Hussain, "A Mirroring Neural Network Approach for Encryption/Decryption of Data," ICIC Express Letters Journal, volume 13, number 12, Dec 2019, (Scopus).

Muhammed Al Muhammed and Raed Abu Zitar, "Intelligent convolutional mesh-based encryption technique augmented with fuzzy masking operations," International Journal of Innovative Computing, Information and Control (IJICIC), Vol.16, No.1, February 2020, (ISI and Scopus).

Mounir El Khatib1, Raed Abu Zitar , and Ahmad Al-Nakeeb, "The effect of AI on project and risk management in health care industry projects in the United Arab Emirates (UAE), International Journal of Applied Engineering Research, Vol. 6, No. 1 (January, 2021).

Raed Abu Zitar, Nidal Al-Dmour, Mirna Nachouki, Hanan Hussain and Farid Alzboun, Hashing generation using recurrent neural networks for text documents, ICIC Express Letters, Part B: Applications, 2021, 12(3), pp. 231–241.

Mahmud Salem A lkoffash, Mohammed A. Awadallah, Mohammed Alweshah, Raed Abu Zitar, Khaled Assaleh, Mohammed Azmi Al-Betar, " A non convex economic load dispatch using hybrid Salp Swarm Algorithm," Arabian Journal for Science and Engineering. <https://doi.org/10.1007/s13369-021-05646-z> . Springer Nature. (Scopus Q1).

Osama Ahmad Alomari,Sharif Naser Makhadmeh, Mohammed Azmi Al-Betar, Zaid Abdi Alkareem Alyasseri,Iyad Abu Doush, Ammar Kamal Abasi, Mohammed A. Awadallah, Raed Abu Zitar,"Gene selection for microarray data classification based on Grey Wolf Optimizer enhanced with TRIZ-inspired operators", accepted at Knowledge-Based Systems (2021), doi: <https://doi.org/10.1016/j.knosys.2021.107034>. Springer Nature.

Raed Abu Zitar , Mohammed Azmi Al-Betar, Mohammed A. Awadallah, Iyad Abu Doush, Khaled Assaleh, "An intensive and comprehensive overview of JAYA algorithm, its versions and application", Archives of Computational Methods in Engineering. <https://doi.org/10.1007/s11831-021-09585-8> .Springer, 2021.

Lamees Mohammad Dalbah, Mohammed Azmi Al-Betar, Mohammed A. Awadallah, Raed Abu Zitar, "A modified coronavirus herd immunity optimizer for capacitated vehicle routing problem," accepted by the Journal of King Saud University –Computer and Information Sciences, <https://doi.org/10.1016/j.jksuci.2021.06.013>, 2021.

Raed Abu Zitar, et. al, "Review on COVID-19 Diagnosis Models based on Machine Learning and Deep Learning Approaches" accepted for publication in Expert Systems Journal, John Wiley, 2021.

Book Chapters

- Khulood Abu Maria and Raed Abu Zitar," EMAM: a Model for Emotional Agent", in" Simulation and Modeling: Current Technologies and Applications", Idea Group Publishing, edited by Asim El-Sheikh and Evon Abu Taih, 2007.
- Raed Abu Zitar and Ayman Al-Dmour, " FIR filter design with Genetic Algorithm," chapter in book entitled "Computer vision", by Springer Publishers.Edited by Stefano Cagnoni, et al. 2009.
- Khulood Abu Maria and Raed Abu Zitar,"Modeling of artificial emotions and its application towards a healthy environment," in a book entitled " Environmental Management, Sustainable Development & Human Health" edited by Eddie Laboy, Fred Schaffner, Ahmed Abdelhadi and Mattheus Goosen. Published by Taylor and Francis, 2009.
- Raed Abu Zitar and Muhammad Al-Muhammed, "A Hybrid Neural Table Look-Up Method for Encryption/Decryption of Data " to be published in a book entitled "Implementing Computational Intelligence Techniques for Security Systems Design", by IGI Global, an international publisher of progressive academic research. 2019.

Conference Proceedings

R. A. Abu Zitar and M. H. Hassoun, " Regulator Control via Genetic Assisted Reinforcement Learning," Proceedings of the Fifth International Conference on Genetic Algorithms, pp. 251-260, Urbana-Champaign, Illinois, 1993.

R. A. Abu Zitar and M. H. Hassoun, "Genetic and Reinforcement-Based Rule Extraction for Regulator Control," Proceedings of the 32nd IEEE Conference on Decision and Control, San Antonio, Texas, 1993.

A. M. Al-FahedNuseirat and R. Abu Zitar, " Neural Network Architecture to solve LCP problems: Application to the Grasping problem," proceedings of International Conference on Artificial Intelligence. Las Vegas, Nevada, June 2000.pp. 1587-1593.

R. Abu Zitar," Cascaded Neural Network for Classification of Artificially Modeled ECG Beats Using Error Signal," proceedings of International Conference on Artificial Intelligence.Las Vegas, Nevada, June 2000. pp.1594-1598.

Anwar Al-Shrouf and R. Abu Zitar, "LVQ method to classify Artificial ECG Beats," proceedings of the 4th IEEE Jordanian International conference, April, 2001, pp. 315-319.

R. Abu Zitar," FIR Filter Design using Evolutionary Programming Methods proceedings of the 4th Jordanian International IEEE conference, April, 2001,pp. 93-96.

Anwar Al-Shrouf, Raed Abu Zitar, Ammer Al-hayri , and Mohmmed Abu Arqub ,"Application of Cepstrum Algorithms for Speech Recognition," Lecture Notes in Computer Science, Springer-Verlag the IEA/AIE 2003 conference, England, UK.

Raed Abu Zitar, " FIR filter Design via Random, Messy Genetic algorithm, and Using Messy Genetic Algorithm," proceedings of the 8th World Multiconference on Systems, Cybernetics, and Informatics (SCI 2004), Orlando, USA,

July 18-21, 2004.

Raed Abu Zitar and Hussien Hiyassat, "Optimizing the Ant Colony Optimization with Genetic Algorithm-II", IASTED international Conference on Artificial Intelligence, ACTA press, Austria, Feb, 2005.

Yosef Jbara and Raed Abu Zitar, "Using the Genetic Algorithm with Modified Crossover to Manage Staff Allocation - A Case Study", the 4th International Conference on Computational Intelligence Robotics and Autonomous Systems 2007 (CIRAS 2007), , November 28-30, 2007, New Zealand.

Raed Abu Zitar and Yosef Jbara, "Application of ACO to the Terrain Generation in 3 Dimensional Continuous Search Space", IASTED ASM 2008, Applied Simulation and Modeling Conference, Corfu, Greece, 23-25/June/2008.

Manar Maraqa And Raed Abu Zitar, "Recognition of Arabic Sign Language (ArSL) Using Recurrent Neural Networks," the First IEEE International Conference on the Applications of Digital Information and Web, Aug 4-6, 2008, Ostrava, Czech Republic.

Husam Al Hamad, Raed Abu Zitar, "Over-Segmentation of Handwriting Arabic Scripts using an Efficient Heuristic Technique", Proceedings of World Academy of Science, Engineering and Technology, Volume 36, November 2008, the WASET conference proceedings (ISSN 2070-3740), France, 2008.

Husam Al Hamad, Raed Abu Zitar, "Neural-Based Segmentation Technique for Arabic Handwriting Recognition", Proceedings of World Academy of Science, Engineering and Technology, Volume 36, November 2008, the WASET conference proceedings (ISSN 2070- 3740), France, 2008.

Adel Hamdan and Raed Abu Zitar, "Continuous Learning Approach for Spam Detection using Artificial Neural Network (CLA_ANN)," ICICS 09 conference, Dec 2009, Amman, Jordan.

Ayman Al-Dmour, Ahmed Musa, and Raed Abu Zitar, "Arabic Handwriting Descriptor Using Gaussian Steerable Filters," the 2010 International Conference on Artificial Intelligence (ICAI'10: July 12-15, 2010, USA).

Suha Abed Afaneh, Raed Abu Zitar and Alaa Al-Hamami, "Virus Detection using Clonal Selection Algorithm," The 2011 3rd International Conference on Modeling and Simulation (ICCMS 2011), January 7-9, 2011, Mumbai, India.

Raed Abu Zitar (et. al) , "Artificial Immune Evolutionary Based Virus Detection System," Innovation Arabia 9, Dubai, March 7-9, 2016.

Muhammed Jassem Al-Muhammed and Raed Abu Zitar, "Random-guided search algorithm for complex functions", 10th Jordanian International Electrical and Electronics Engineering Conference (JIEEEEC), Page(s):1- 12, 2017.

Raed Abu Zitar " Implications of Smart Learning on Higher Education" proceedings of the CUCA conference on Smart Learning, April, 25 2018, Ajman, UAE.

Raed Abu Zitar and Ammar El-Hassan " Deep Learning Recommendation System for Courses Learning Outcomes Assessment", Innovation Arabia 12, HBMSU, Feb-2019, UAE.

Muhammad Almuhammed and Raed Abu Zitar, "Mesh-Based Encryption Technique Augmented with Effective Masking and Distortion Operations", Proceedings of the Computing Conference 2019, 16-17 July 2019, London, United Kingdom.(Springer Publishing).

Raed Abu Zitar, Ammar Elhassan, and Oraib Al-Sahlee, Convolution Neural Network Learning for Course Outcome Attainment Improvement', 2019 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), Dec 10-12, Ajman, UAE (Scopus).

Muhammed Almuhammed, Ahmad Al-Daraiseh, Raed Abuzitar, "Tightly Close it–Robustly Secure it: Key–Based Lightweight Process for Propping up Encryption Techniques", the Computing Conference 2020, 16-17 July 2020 in London, United Kingdom. (Springer-Scopus).

Kouka, F.A., Dalbah, L.M., Mounir, S.M., Zitar, R.A., "A Neural-Assessment System Based on Emirates (QFE), ACM International Conference Proceeding Series, 2020, pp. 204–210.

Zitar, R.A., Nachouki, M., Hussain, H., Alzboun, F., " Recurrent Neural Networks for Signature Generation", Proceedings - 2020 13th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics, CISP-BMEI 2020, 2020, pp. 1093–1097, 9263638.

Lamees Dalbaha, Mohammed Al-Betara, Mohammed A. Awadallahb,a, and Raed Abu Zitar, "A Coronavirus Herd Immunity Optimization (CHIO) for Travelling salesman problem," International Conference on Innovative Computing and Communication, Springer AISC series, 2021.

Activities

- Invited Speaker at Ajman Digital Government Nov- 2019.
- Invited speaker at Ajman X 2019 conference and exhibition.
- Reviewer for the Journal of Engineering Research, Kuwait University.
- Co-Chair for the program committee of the ISSPIT conference, Ajman University, Dec. 2019.
- Coordinator for the Master in Artificial intelligence program at Ajman University, 2018-present.
- Editorial Board Member for the Jordanian Journal of Computers and Information Technology. Journal of the Ministry of Higher Education, 2018 –present.
- Representative for Association of Modeling and Simulation in Enterprises (AMSE), Barcelona , Spain.
- Editorial Board for the International Arab Journal for Information Technology (IAJIT), ISSN: 1683-3198.
- Editorial Board, Applied Intelligence Journal, Springer Publishing.
- Editorial Board, Journal of Electrical Engineering, Jordanian Engineering Association.
- Editor of Advances in Advances in Robotics & Automation Journal.
- Editorial Board of the Scientific Journals International (SJI).
- Editorial Board of the Advances in Robotics and Automation Journal.
- Vice General Chair for the IEEE/AICCSA 2007 International conference, Amman, Jordan, May, 2007.

Affiliations

Sorbonne Centre for Artificial Intelligence (SCAI), Abu Dhabi
Thales, www.thalesgroup.com , Endowed Chair of Excellence