Curriculum Vita

Rehab Mustafa Duwairi,
Professor of Computer Science,
Department of Computer Information Systems,
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Senior member of ACM.

Education

Ph.D. in Computer Science: Semantic Interoperability in Object-Oriented Multidatabase Systems from the University of Wales, Cardiff, UK, 1997.

Master of Science (Computer Science): from the University of Wales, Cardiff, UK, 1994**.**

Bachelor of Science (Computer Science) from Yarmouk University, Irbid, Jordan, 1989.

Research Interests

1. Data Science and Artificial Intelligence.
2. Arabic Language Technologies (classification, question answering, speech recognition, …, etc.)
3. Sentiment and emotion analysis.
4. Medical images analysis.

Employment History

Managerial Posts:
1. Dean of the Faculty of Computer and Information Technology, 2012 – 2016.
2. Vice Dean of the Faculty of Computer and Information Technology, 2004 – 2006.
3. Founding Chair of the Department of Computer Science, 1998 – 2000.

Academic Posts:
1. Member of the Board of Trustees for Princess Sumaya University for Technology, Jordan, May 2021 – now.
2. Member of the Advisory Board for the National Information Center for Science and Technology, Jordan, May 2021 – now.
3. Professor of Computer Science at the Department of Computer Information Systems, Jordan University of Science and Technology, 2015 – now.
4. Associate Professor of Computer Science at the Department of Computer Information Systems, Jordan University of Science and Technology**,** September 2012 - September 2016.
5. Associate Professor of Computer Science at the Department of Computer Science and Engineering, Qatar University, Doha, Qatar, September 2007 until August 2012.
6. Associate Professor of Computer Science at the Department of Computer Information Systems, Jordan University of Science and Technology (JUST), Irbid, Jordan, 2005 until 2007.
7. Assistant Professor of Computer Science at the Department of Computer Information Systems, Jordan University of Science and Technology (JUST), Irbid, Jordan, 2003 until 2005.
8. Assistant Professor at the Department of Computer Science, JUST, Jordan, 1998-2003.
9. Assistant Professor of Computer Science at the Department of Applied Mathematics, Jordan University of Science and Technology, 1997 – 1998.
10. Graduate student at University of Wales, Cardiff, UK, 1993 – 1997.
11. Teacher Assistant for Jordan University of Science and Technology - Irbid. 1991 – 1993.
12. Teacher Assistant for Jordan University – Amman, 1989 – 1991.

Career Competencies and Skills

Over the several years of my career I have become professional in numerous competencies related to research, higher education, curriculum design and accreditation, team management and leadership, international collaboration and community service.

Funded Projects

Ongoing Funded Research Projects
1. Gait-based system for the biometric identification of individuals using machine and deep learning: recognizing people by their manner of walking is known as gait recognition.
2. A Deep Learning Framework for Personality Disorders' Detection of Arab Social Media Users.
3. Building a Framework for Question Answering in the Arabic Language Using Deep Learning Techniques.
4. Self-supervised learning for the diagnosis of ophthalmic diseases.

Completed Funded Projects
1. Master in Health Informatics (Heal+): collaboration between a consortium of European and MENA universities. This project aims to develop a curriculum for a joint master program in health

informatics implemented in the MENA region by six universities in partner countries during project period that will enable graduates employ information technology in the health care organization and delivery towards fulfilling the medical market and health demands and challenges. This project also aims to enhance the faculty staff capabilities and infrastructure capacity for partner universities and institutions, to establish an interactive environment with sophisticated modern outcome-based learning approaches and methodologies. Funded by Erasmus+ program. Oct. 2015 to March. 2019, budget approx. 154,000 Euros. Lead investigator for JUST: Rehab Duwairi. Completed.

2. Joint Programs and Framework for Doctoral Education in Software Engineering (PWs@PhD): collaboration between a consortium of European and MENA universities. The long-term objective of the project is to support the development, modernization, international visibility and excellence of higher education, namely education by research at the PhD studies in the area of Software Engineering Research. Funded by Erasmus+ program. Oct. 2015 to Oct. 2018, budget approx. 60,000 Euros lead investigator for JUST: Rehab Duwairi. Completed.

3. Development of Health Informatics integrated curricula in computing and health oriented undergraduate degrees (HiCure). Oct. 2015 to Oct. 2018, budget approx. 167,351 Euros. The idea of this project is to develop pathways (of courses) in the undergraduate curricula of computing and public health majors to equip both types of student which necessary knowledge and skills in health informatics. Lead investigator for JUST: Yousif Khader; Primary researcher: Rehab Duwairi. Completed.

4. Multi-dialect phrase-based speech recognition and machine translation for Qatari broadcast TV: a collaborative effort between Qatar University and University of Illinois-Urbana Champaign. Funded by QNRF: Qatar National Research Fund (~ 1,054,000 USD). Leader Professor Mark Hasegawa-Johnson. Start Date: December 2010. Completed.

5. A comparative study between stemming algorithms for Arabic text. Lead researcher. The project was completed 2009. Budget approx. 30,000 USD. Lead investigator: Rehab Duwairi. Completed.

6. Multi-Robot Players' Coordination using an Adjusted Cultural Algorithms: Evolving Effective Offensive and Defensive Strategies, started 28-1-2014, total budget 5700 JOD (~ USD 8000), funded by Jordan University of Science and Technology, lead investigator: Mostafa Ziad, Principal investigator: Rehab Duwairi. Completed.

7. A framework for the Intelligent Labeling of Arabic Comments posted on Social Media. In this proposal, we suggest an intelligent framework for labeling Arabic comments collected from social media platforms. This framework is based on labeling a small set of seed comments, and then applying syntactical and semantic equivalence rules to extend labels to new comments. In this way, we can end up in labelling really huge amounts of users' comments. In particular, we are interested in labelling comments based on their sentiment orientations. Start date: 29-5-2016. Lead investigator: Rehab Duwairi. Completed.

8. Sentiment Analysis in Social Networks, a two-year project, started 70-7-2013, total budget 7500JOD (~ USD 10,600), funded by Jordan University of Science and Technology, lead investigator: Rehab Duwairi. Completed.

9. Deep learning-based approach for detecting signs of depression from content posted on social media: here we have generated deep learning models to automatically detect signs of depression

based on individuals' interactions on social media. Lead investigator: Rehab Duwairi. Start year: 2019. Completed.
10. An Adaptive Differential Evolution with an Ensemble of Parameters for Multi-objective Optimization, a one year project, started 23-1-2014, total budget 4800 JOD (~ USD 7000), funded by Jordan University of Science and Technology, lead investigator: Rehab Duwairi. Completed.
11. Deep neural network for the diagnoses of ophthalmology diseases based on optical coherence tomography (OCT). This project aims at applying deep learning models to the automatic multi-class classification of OCT images. These images were obtained from King Abdullah University Hospital which is part of Jordan University of Science and Technology. We have 20000 labelled images by ophthalmologists working at the hospital. Lead investigator: Rehab Duwairi. Completed.

Teaching Experience

 I have experience in teaching the following courses:
1. Computational Linguistics (for graduate students)
2. Data science in health informatics (for graduate students)
3. Selection and development of health information systems (for graduate students),
4. Deep Learning (for graduate students),
5. Data Science Essentials (for graduate students),
6. Web mining (for graduate students),
7. Data Mining (for graduate and undergraduate students),
8. Advanced seminar in computer science (Graduate course),
9. Knowledge-based Systems,
10. Fourth Generation Languages (SQL/PL-SQL),
11. Database Systems,
12. Advanced Database Systems ((for graduate students),
13. Data Structures,
14. C/C++/Python Programming,
15. Fortran Programming, and
16. Introduction to Computers.

Community Service

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1. Member of the University Research Committee.
2. Chair of the committee for developing the curriculum for B.Sc. degree in data science.
3. Member of the graduate studies committee.
4. Chair of the International Conference on Information and Communications Systems, 2016.

5. Head of the Steering Committee of the International Conference on Information and Communication Systems (from its 2013 to 2015).
6. Member of the Steering Committee of ACIT (the Arab Conference on Information Technology) from 2012 to 2015.
7. Guest Editor for a Special Issue of Journal of Simulation Modelling Practice and Theory, published by Elsevier.
8. Member of the Editorial Committee of the 1st International Workshop on Big Data Security Intelligence held on December 16-19, 2015 at Jeju National University International Center, Jeju Island, Korea.
9. Member of the Steering Committee of the 1st International Computer Sciences and Informatics Conference (ICSIC 2016), Amman, Jordan 12-13 January 2016.
10. Reviewer for several prestigious journals and conferences.
11. General Co-Chair of the 3rd International Workshop on Social Networks Analysis, Management and Security, Vienna, Austria.
12. General Co-Chair of the 2nd International Workshop on Social Networks Analysis, Management and Security, Rome, Italy.
13. General Co-Chair of the First International Workshop on Social Networks Analysis, Management and Security, Barcelona, Spain, August 2014.
14. Trainer and lecturer for retired personnel from the Army as part a Jordanian program to enhance computer skills among citizens.
15. Trainer and lecturer for several workshops that were held at Jordan University of Science and Technology and Qatar University for students and employees.
16. Judge for Lego international competition in Qatar
17. Judge for Computing Contest: annual event organized by Qatar University
18. Reviewer for promotion applications.

Contributions as a Researcher

Publications in refereed and indexed journals
1. S Shurrab, **R Duwairi**, Self-supervised learning methods and applications in medical imaging analysis: a survey, PeerJ Computer Science, https://doi.org/10.7717/peerj-cs.1045, 2022
2. M Quwaider, A Alabed, **R Duwairi**, Shooter Video Games for Personality Prediction using Five Factor Model Traits and Machine Learning, Simulation Modelling Practice and Theory, 2022.
3. Ftoon Abu Shaqra, **Rehab Duwairi**, Mahmoud Al-Ayyoub, A Multi-modal Deep Learning System for Arabic Emotion Recognition, International Journal of Speech Technology, Springer, 2022.
4. Rehab Duwairi, Zain Halloush, Automatic recognition of Arabic alphabets sign language using deep learning. International Journal of Electrical and Computer Engineering, Vol. 12, No. 3, June 2022, pp. 2996-3004.
5. **Rehab M. Duwairi**, Saad A. Al-Zboon, Rami A. Duwairi, Ahmad Obaidi. A Deep Learning Model and a Dataset for Diagnosing Ophthalmology Diseases. Journal of Information and Knowledge Management, to appear, 2021.

6. **Duwairi R**, Abushaqra F. 2021. Syntactic- and morphology-based text augmentation framework for Arabic sentiment analysis. PeerJ Computer Science 7:e469 https://doi.org/10.7717/peerj-cs.469.

7. **Rehab Duwairi**, Amna Hayajneh, Muhannad Quwaider. A deep learning framework for automatic detection of hate speech embedded in Arabic Tweets, Arabian Journal for Science and Engineering, 46(4), pp. 4001-4014, Springer, 2021.

8. Saeed Shurrab**, Rehab Duwairi.** Effect of Missing Data Treatment on the Predictive Accuracy of the C4.5 Classifier. To appear International Journal on Communications Antenna and Propagation. 2021.

9. Noor H. Awad, Mostafa Z. Ali, **Rehab M. Duwairi**, Multi-objective differential evolution based on normalization and improved mutation strategy, Natural Computing, 16 (4), 661-675, Springer, 2017.

10. Mostafa Z. Ali, Noor H. Awad, **Rehab M. Duwairi**, Multi-Objective Differential Evolution Algorithm with a New Improved Mutation Strategy. International Journal of Artificial Intelligence, Vol. 14, No. 2, pp. 23-41, 2016.

11. Mostafa Ali, Noor Awad, Ponnuthurai Suganthan, **Rehab Duwairi**, Robert Reynolds. A Novel Hybrid Cultural Algorithms Framework with Trajectory based Search for Global Numerical Optimization, Volumes 334–335, 20 March 2016, Pages 219-249. Information Sciences, Elsevier, Netherlands.

12. **Rehab Duwairi**, Hadeel Ammari. An Enhanced CBAR Algorithm for Improving Recommendation Systems Accuracy. Journal of Simulation Modeling Practice and Theory, Vol. 60, pp. 54-68, 2016, Elsevier, Netherland.

13. **Rehab Duwairi**, Mona Hedaya, Automatic Keyphrase Extraction for Arabic News Documents based on KEA System. Journal of Intelligent and Fuzzy Systems, Vol. 30, No. 4, pp. 2101-2110, 2016, IOS Press, Netherlands.

14. **Rehab M. Duwairi**, Islam Qarqaz. A framework for Arabic sentiment analysis using supervised classification. International Journal of Data Mining, Modelling and Management, Vol. 8, No. 4, 2016, Inderscience Publishers, UK.

15. **Rehab Duwairi**, Mohammed Abu Rehmeh. A Novel Approach for Initializing the Spherical K-means Clustering Algorithm, Journal of Simulation Modelling Practice and Theory, Volume 54, May 2015, Pages 49-63, Elsevier, Netherland.

16. **Rehab M Duwairi**, Nizar Mahyoub, Saleh Alrefai, Detecting Sentiment Embedded in Arabic Social Media – A Lexicon-based Approach. Journal of Intelligent and Fuzzy Systems, vol. 29, No. 1 pages: 107-117, 2015, I O S Press, Netherlands.

17. **Rehab Duwairi**, Mahmoud El-Orfali, A Study of the Effects of Preprocessing Strategies on Sentiment Analysis for Arabic Text, Journal of Information Science. Vol. 40(4), pages 501-513, 2014, SAGE Publications, UK.

18. **Rehab Duwairi**, Mohammad Al-Refai, Natheer Khasawneh, Feature Reduction Techniques for Arabic Text Categorization. Journal of the American Society for Information Science and Technology (JASIST), Volume 60, Issue 11, pages: 2347-2352, 2009, Wiley & Sons Inc., USA.

19. **Rehab Duwairi**, Rania Al-Zubaidi, A Hierarchical K-NN Classifier for Textual Data. International Arab Journal for Information Technology (IAJIT), Vol. 8, No. 3, pages 251 – 258, July 2011.

20. **R. M. Duwairi**, Arabic Text Categorization, International Arab Journal for Information Technology (IAJIT), Volume 4, Number 2, pages 125 – 132, 2007.

21. **R. M. Duwairi**, Machine Learning for Arabic Text Categorization. Journal of the American Society for Information Science and Technology (JASIST), Vol. 57, Issue 8, pages 1005-1010, 2006.

22. **R. M. Duwairi**, A Framework for the Computerized Assessment of University Student Essays. International Journal of Computers in Human Behavior, Vol. 22/3 pp 381-388, DOI information: 10.1016/j.chb.2004.09.006, 2006.

23. **R. M. Duwairi**, Clustering Semantically Related Classes in a Heterogeneous Multidatabase System. Journal of Information Sciences 162 (2004) 193-210, 2004.

Publications in refereed and indexed conferences

1. Dania Rahhal, Rahaf Alhamouri, Iman Albataineh and **Rehab Duwairi**, Detection and Classification of Diabetic Retinopathy Using Artificial Intelligence Algorithms. The 13 International Conference on Information and communication Systems, June, 2022.

2. Azzam Radman, Mohammed Atros and **Rehab Duwairi**, Spans Detection of Toxic Phrases in Arabic Tweets. The 13 International Conference on Information and communication Systems, June, 2022.

3. Sayel Abualigah, Ahmad Al-Naimi and **Rehab Duwairi**, DD-SSD: Deep Detector for Strip Steel Defects. The 13 International Conference on Information and communication Systems, June, 2022.

4. Abdalrahman Odeh, Adam Shatnawi and **Rehab Duwairi**. Classification of Respiratory System Diseases using Convolutional Neural Network and Transfer Learning. The 4th International Computer Sciences and Informatics Conference, Amman, Jordan, 2022.

5. Emran Al-Bashabsheh, Huthaifa Al-Khazaleh, Omar Elayan, **Rehab Duwairi**, Commonsense Validation for Arabic Sentences using Deep Learning, The International Arab Conference on Information Technology (ACIT'2021), 21-23 December, 2021, Sultan Qaboos University, Oman.

6. Saeed Shurrab, Rehab Duwairi, Self-supervised learning methods and applications in medical imaging analysis: A survey, arXiv:2109.08685, 2021.

7. Hani Al-Omari, Isra AbedulNabi, Rehab Duwairi, DLJUST at SemEval-2021 Task 7: Hahackathon: Linking Humor and Offense, The 15th International Workshop on Semantic Evaluation, pages 1114-1119, 2021.

8. Mohammed Aljarrah, Mo'ath Zyout, **Rehab Duwairi**, Arabic Handwritten Characters Recognition Using Convolutional Neural Network. 12th International Conference on Information and Communication Systems (ICICS), Irbid, Jordan 2021.

9. Dalia Alzu'Bi, **Rehab Duwairi**. Detecting Regional Arabic Dialect based on Recurrent Neural Network. 12th International Conference on Information and Communication Systems (ICICS), Irbid, Jordan 2021.

10. Saeed Shurrab, Abdulkarem Almshnanah, **Rehab Duwairi**, Tool Wear Prediction in Computer Numerical Control Milling Operations via Machine Learning. 12th International Conference on Information and Communication Systems (ICICS), Irbid, Jordan 2021.

11. Arwa Okaidat, Shatha Melhem, Heba Alenezi, **Rehab Duwairi**, Using Convolutional Neural Networks on Satellite Images to Predict Poverty. 12th International Conference on Information and Communication Systems (ICICS), Irbid, Jordan 2021.

12. R. Al-Ibrahim, **Rehab Duwairi**. Neural Machine Translation from Jordanian Dialect to Modern Standard Arabic, 11th International Conference on Information and Communication Systems, Irbid, 2020.

13. S. Irsheidat, **Rehab Duwairi**, Brain Tumor Detection Using Artificial Convolutional Neural Networks. 11th International Conference on Information and Communication Systems, Irbid, 2020.

14. Bara Bataineh, **Rehab Duwairi** and Malak Abdullah, ArDep: An Arabic Lexicon for Detecting Depression, The 3rd International Conference on Advances in Artificial Intelligence (ICAAI 2019), Istanbul, Turkey, 26-28 Oct. 2019.

15. Ftoon Abu Shaqra, **Rehab Duwairi** and Mahmoud Al-Ayyoub, "The Audio-Visual Arabic Dataset for Natural Emotions", FiCloud 2019: The 7th International Conference on Future Internet of Things and Cloud, 26 – 28 August, Istanbul, Turkey.

16. Raghad Obiedat, **Rehab Duwairi**, Ahmad Al-Aiad, A Collaborative Recommendation System for Online Courses Recommendations", DEEP-ML 2019: The International Conference on Deep Learning and Machine Learning in Emerging Applications, 26 – 28 August, Istanbul, Turkey.

17. Muhannad Quwaider, Abdullah Alabed, **Rehab Duwairi**, "In-Video Game Player's Behavior Measurement using Big Five Personal Traits", FiCloud 2019: The 7th International Conference on Future Internet of Things and Cloud, 26 – 28 August, Istanbul, Turkey.

18. Ftoon Abu Shaqra, **Rehab Duwairi** and Mahmoud Al-Ayyoub, "Recognizing Emotion from Speech Based on Age and Gender Using Hierarchical Models". The 10th International Conference on Ambient Systems, Networks and Technologies, April 29 - May 2, 2019, Leuven, Belgium.

19. Muhannad Quwaider, Abdullah Alabed and **Rehab Duwairi**, "The Impact of Video Games on the Players Behaviors: A Survey". The 10th International Conference on Ambient Systems, Networks and Technologies, April 29 - May 2, 2019, Leuven, Belgium.

20. Ahmad Alaiad, **Rehab Duwairi**, Manar Fraihat , "Survey: Deep Learning Concepts and Techniques for Electronic Health Record", 15th ACS/IEEE International Conference on Computer Systems and Applications AICCSA 2018, October 28th to November 1st, 2018, Aqaba, Jordan.

21. **Rehab Duwairi,** Mosab Alfaqeh, Sentiment Analysis for Arabizi Text. The 7th International Conference on Information and Communication Systems (ICICS), Irbid, Jordan, 5-7 April, 2016.

22. **Rehab Duwairi**, Mohammad A. Alshboul. Negation-aware Framework for Sentiment Analysis in Arabic Reviews, The 2nd International Workshop on Social Networks Analysis, Management and Security (SNAMS - 2015), August 2015, Rome, Italy.

23. **Rehab Duwairi** Mosab Alfaqeh, RUM Extractor: A Facebook Extractor for Data Analysis, The 2nd International Workshop on Social Networks Analysis, Management and Security (SNAMS - 2015), August 2015, Rome, Italy.

24. **Rehab M. Duwairi**. Sentiment Analysis for Dialectical Arabic. The 6th International Conference on Information and Communication Systems (ICICS), Amman, Jordan, 7-9 April, 2015.

25. Mostafa Z. Ali, Noor Awad, **Rehab Duwairi**, Jafar Albadarneh, Robert G. Reynolds, Ponnuthurai N. Suganthan, Cluster-Based Differential Evolution with Heterogeneous Influence for Numerical Optimization. 2015 IEEE Congress on Evolutionary Computation. Sendai, Japan, 25-28 May, 2015.

26. Muhannad Quwaider, Yaser Jararweh, Mahmoud Al-Alyyoub, **Rehab Duwairi**. Experimental Framework for Mobile Cloud Computing System. First International Workshop on Mobile Cloud Computing Systems, Management and Security (MCSMS-2015), London, UK, June 2015.

27. **Rehab M. Duwairi**, Islam Qarqaz, Arabic Sentiment Analysis using Supervised Classification, The 1st International Workshop on Social Networks Analysis, Management and Security (SNAMS - 2014), August 2014, Barcelona, Spain.

28. **Rehab M. Duwairi**, Raed Marji, Narmeen Sha'ban, Sally Rushaidat. Sentiment Analysis in Arabic Tweets, Proceedings of the 5th International Conference on Information and Communication Systems, Irbid, Jordan, April 1-3, 2014.

29. Noor Awad, Mostafa Ali, **Rehab Duwairi**, Cultural Algorithm with Improved Local Search for Optimization Problems. The 2013 IEEE Congress on Evolutionary Computation, Cancun, Mexico, June 19-23, 2013.

30. **Rehab Duwairi**, Statistical Feature Selection Techniques for Arabic Text Categorization. The Fourth International Conference on Information and Communication Systems (ICICS 2013), Irbid, Jordan, April, 23-25, 2013.

31. Mark Hasegawa-Johnson, Elabbas Benmamoun, Eiman Mustafawi, Mohamed Elmahdy and **Rehab Duwairi**, On the Definition of Word Segmental, Speech Prosody (The 6th International Conference of Speech Prosody SP2012), Shanghai, China, May 22-25, 2012.

32. Mohammed Elmadhi, Mark Hasegawa-Johnson, Eiman Mustafawi, **Rehab Duwairi**, Wolfgang Minker, Challenges and techniques for dialectal Arabic speech recognition and machine translation, Qatar Foundation Research Forum, Doha, Qatar, 20-22 November, 2011.

33. Mark Hasegawa-Johnson, Jui-Ting Huang, **Rehab Duwairi**, Eiman Mustafawi, Roxana Girju, and Elabbas Benmamoun, Learning to Recognize Speech from a Small Number of Labeled Examples, Poster presentation. Qatar Foundation Research Forum, Doha, Qatar, 20-22 November, 2011.

34. Rania Al-Sabbagh, Roxana Girju, Mark Hasegawa-Johnson, Abbas Benmamoun, **Rehab Duwairi**, Eiman Mustafawi. Using Web Mining Techniques to Build a Multi-Dialect Lexicon of Arabic. Proceedings of the 3rd Conference on Linguistics in the Gulf, Qatar University, Doha, Qatar, March 6-7, 2011.

35. **Rehab Duwairi**, Ebraheem Elhadad, Mohammed Towaiq, Coupling Web Usage Mining With Content Mining For Recommendation Systems, the 14th International Conference on Systemics, Cybernetics, and Informatics (WMSCI 2010), 29-June to 2-July 2010, Orlando, Florida, USA.

36. Ali Jaoua, **Rehab Duwairi**, Samir Elloumi and Sadok Ben Yahia, Data mining, reasoning and incremental information retrieval through non enlargeable rectangular relation coverage, 11th International Conference on Relational Methods in Computer Science (RelMiCS) and 6th International Conference on applications of Kleene Algebra (AKA), Doha, Qatar, November 2009, pp. 199 – 210.

37. Monther Aldwairi, W. Alqarqaz, **R. M. Duwairi**. A Classification System for Predicting RNA Secondary Structure Elements. International Joint Conference on Bioinformatics, Systems Biology and Intelligent Computing (IJCBS'09), Shanghai, China, 3-6 August, 2009.

38. **Rehab Duwairi**, Amal Kassawneh, A Framework for Predicting Proteins 3D Structures, The 6th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-08), Doha, Qatar, March 31 to April 1 2008.

39. **Rehab Duwairi**, Mohammad Al-Refai, Natheer Khasawneh, Stemming Versus Light Stemming as Feature Selection Techniques for Arabic Text Categorization, 4th International Conference on Innovations in Information Technology, Dubai, UAE, November 18 – 20, 2007.

40. **R. M. Duwairi**, A. Rawashdeh, A User Centered Matchmaking and Ranking System. The 1st International Conference on Digital Communications and Computer Applications (DCCA2007), Irbid, Jordan.

41. **R. M. Duwairi**, K. Al-Jada', Enhancing Cluster Quality Using User Browsing Time, the International Arab Conference on Information Technology (ACIT), Yarmouk University, Irbid, Jordan, December 2006.

42. **R. M. Duwairi**, Fadi Tashtoush, LSC-CHAM: a New Algorithm for Intrusion Detection Systems. The 4th International Multi-Conference on Computer Science and Information Technology, Applied Science University, Amman, Jordan, April 5-7, 2006.

43. **R. M. Duwairi**, A Distance-based Classifier for Arabic Text Categorization. International Conference on Data Mining (DMIN'05: June 20-23, 2005, Las Vegas, USA), 2005.

44. **R. M. Duwairi**, Auto-grader: A Framework for the Automatic Grading of Essays. International Conference on Computer Science and its Applications (ICCSA-2004), June 28-30, San Diego, California, USA, 2004.

45. **R. M. Duwairi**, A Framework for Generating and Maintaining Global Schemas in Heterogeneous Multidatabase Systems. The 2003 International Conference on Information Reuse and Integration (IRI'03), October 27-29, Las Vegas, Nevada, USA, 2003.

46. **R. M. Duwairi**, Discovery of Semantically Relevant Classes in a Heterogeneous Multidatabase System. The 2002 International Conference on Software Engineering Research and Practice (SERP'02), June 24-27, Las Vegas, Nevada, USA, 2002.

47. **Rehab Duwairi**, Basil Mahafzah and Abdel-Elah Al-Ayyoub, A Framework for Performance Assessment of Parallel Bi-Directional Heuristic Search, The 2002 International Conference on Artificial Intelligence (IC-IA), June 24-27, Las Vegas, Nevada, USA, 2002.

48. **R. M. Duwairi**, N. J. Fiddian, W. A. Gray, Views for Heterogeneous Object-Oriented Database Integration. In proceedings of the Second IFCIS International Conference on Cooperative Information Systems (CoopIS'97) Kiawah Island, South Carolina, USA, June 24-27, 1997.

49. **R. M. Duwairi**, N. J. Fiddian and W. A. Gray, Schema Integration Meta-Knowledge Classification and Reuse, Proceedings of the 14th BNCOD Conference, UK, 1996.

50. **R. M. Duwairi**, N. J. Fiddian and W. A. Gray, A Multiple View Definition System for Supporting Interoperability among Heterogeneous and Autonomous Databases, 10th ECRIM Workshop on Heterogeneous Information Management, Prague, Czech Republic, 1996.

51. **R. M. Duwairi**, N. J. Fiddian and W. A. Gray, A Flexible Integration Framework for Supporting User Requirements Changes in a Multi-database Environment, International Symposium of Cooperative Database Systems for Advanced Applications (CODAS), Kyoto, Japan, 1996.

Papers under reviewing:
1. End-to-end speech recognition for Yamani and Jordanian Arabic dialects.
2. Deep Learning for Personality Disorders Detection of Arab social media users.
3. A deep learning-based framework for the automatic detection of drug resistance in TB patients.
4. Auto-encoders for the classification of OCT images.
5. Deep learning models for singular to plural transformation for Arabic words.

Master theses under development
1. Building a Framework for Question Answering in the Arabic Language Using Deep Learning Techniques.
2. Self-supervised learning for the diagnosis of ophthalmic diseases.
3. Deep learning models for the classification of kidney diseases.
4. Building robust deep learning models via adversarial training.

5. Conversational recommendation Systems.
6. Aspect based sentiment analysis.

PhD and MS theses:
1. **R. M. Duwairi**, Views for Heterogeneous Object-Oriented Multidatabase System Integration, Ph.D. Thesis, University of   Wales Cardiff, UK, 1997.
2. **R. M. Duwairi**, Detecting Naming Relationships between Relational Schemas in a Schema Integration Context", M. Sc. Thesis, University of Wales, Cardiff, UK, 1994.

Supervision of Graduate Students

Note: There are no PhD programs in Computer Science at Jordan University of Science and Technology or Qatar University (at the time of my employment).

I had supervised the following MS students:
1. Mr. Fadi Tashtoush, graduated from Jordan University of Science and Technology.
2. Mr. Khalifa Aljadaa, graduated from Jordan University of Science and Technology.
3. Mr. Wael Alhassan, graduated from Jordan University of Science and Technology.
4. Mr. Mohammad Al-Refai, graduated from Jordan University of Science and Technology.
5. Ms. Hadeel Amari, graduated from Jordan University of Science and Technology.
6. Ms. Rania Al-Zubadi, graduated from Jordan University of Science and Technology.
7. Mr. Mohammed Abu Rahmeh, graduated from Jordan University of Science and Technology.
8. Mr. Ebraheem Al-Haddad, graduated from Jordan University of Science and Technology.
9. Mr. Mohammad Arif Diab, graduated from Jordan University of Science and Technology.
10. Ms. Salam Dhou, graduated from Jordan University of Science and Technology.
11. Ms. Amal Khasawneh, graduated from Jordan University of Science and Technology.
12. Ms. Noor Awad, graduated from Jordan University of Science and Technology.
13. Mr. Mahmoud Al-Orfali, graduated from Qatar University
14. Ms. Ftoon Abu Shaqra, currently working on multimodal emotion detection.
15. Ms. Raghad Obiedat: Course recommendation systems based on deep learning models.
16. Ms. Bara Bateineh: Deep Learning Detecting Depression in Twitter for Arabic Users
17. Ms. Amna Hayajneh: Automatic Detection of Arabic Hateful Speech on Twitter
18. Mr. Saad Al-Zboon: Deep neural network for the diagnoses of ophthalmology diseases based on optical coherence tomography.
19. Abdullah Al-Abed, The Impact of Shooter Video Games on Player's Personality Traits using Five-Factor Model.
20. Muntaha Al Asad, Question Answering in Arabic.
21. Saeed Shurrab, self-supervised learning for ophthalmic diseases classification.
22. Hani Alomari, deep learning models for open domain question answering.
23. Seham Nasr, end-to-end speech recognition for Yamani and Jordanian dialects.
24. Zain Halloush, Deep leaning models for the diagnosis of personality disorders.

25. Abdulkarim Al-Meshnaneh, self-supervised learning for medication images segmentation.
26. Azzam Radman, Adversarial training of deep learning models
27. Ghaiyda Al-Kaiber, Conversational recommendation systems
28. Lara Al-samdi, aspect-based sentiment analysis

Honors and Prizes

1. Among top 2% influential researchers in the world in artificial intelligence and information communication, a joint study by Stanford University and Mendeley, 2020 https://data.mendeley.com/datasets/btchxktzyw/2. and for the year 2021.
2. 1985: a scholarship from the Jordanian Ministry of Education that covered the expenses of my B.Sc. degree.
3. 1989: a prize from Yarmouk University, Jordan for excellence in Academic achievements (I graduated with excellent GPA and ranked 3rd on a group of 93 graduates).
4. 1995: a scholarship that covered the difference between home and overseas tuitions (in University of Wales, Cardiff, UK) from Overseas Research Students Awards Scheme, UK.
5. 1992-1993: a scholarship from Overseas Development Agency (UK) that covered the tuition fees for three years in University of Wales, Cardiff, UK.
6. 1992-1997: a scholarship from Jordan University of Science and Technology that covered part of tuitions and living expenses during my study for the M. Sc. and PhD degrees.
7. 2001: a prize from Philadelphia University, Jordan for being part of the organization and scientific committees of the ISIICT conference.
8. 2013: A prize from Jordan University of Science and Technology for being the Steering Committee head for the International Conference on Information and Communication Systems (ICICS 2013).

References
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