

Curriculum Vitae

Prof. Arafat AWAJAN

Vice President for Scientific Research, Royal Scientific Society(RSS)
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Personal Information and Contact Details

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Education

- **Ph.D.** Computer Science / Artificial Intelligence: Digital Image Processing, July. 1988, University of Burgundy - Franche-Comté (Université Bourgogne Franche-Comté-UBFC) - Besancon- FRANCE. Ph.D. Dissertation: "*Detection and analysis of linear structures in biomedical and industrial images*"
- **M.Sc.** Computer Sciences / June. 1984, University of Burgundy - Franche-Comté (Université Bourgogne Franche-Comté-UBFC) - Besancon- FRANCE
- **B. Sc.** (Electronique, Electrotechnique et Automatique), June 1983, Université of Orléans, Orléans – FRANCE

Administrative Experience

- **Vice President for Scientific Research**, Royal Scientific Society, 2024 - now
- **President of Mutah University**, 2020 – 2023.
- **Vice President**, Princess Sumaya University for Technology, 2017- 2020.
- **Dean of the King Hussein Faculty of Computing Sciences**, PSUT. Founding dean of the faculty from 2004 to 2007 and from 2014 –2017.
- **Dean of Students Affairs**, PSUT, Jordan, 2011- 2014.
- **Advisor to PSUT president for the admission and registration**, 2011- 2015.
- **Registrar General**, PSUT, 2011- 2012.
- **Director of the Information Technology Center**, Royal Scientific Society – Amman - Jordan. 2009 –2010.
- **Chairperson of Department**, Computer Graphics and Animation Department, King Hussein School for Information Technology, PSUT, 2005 –2007
- **Chairperson of Department**, Computer Science Department, King Hussein School for Information Technology, PSUT, 2002 –2005.
- **Head of the PSUT tender Committee, Head of the Employees Affairs Committee, and Head of the Health Insurance Committee** at PSUT - 2017 – 2020
- **Head of the Curriculum Development Committee** at PSUT- 2017-2019

Academic Experience

- **Professor** of computer Sciences, The King Hussein Faculty of Computing Sciences, Princess Sumaya University for Technology, Jordan. 2015 – present.
- **Professor**, Computer Science Department, Faculty of Information Technology, Mutah University for Technology, Jordan. 2020 - 2023
- **Associate Professor**, Computer Science Department, King Hussein Faculty for Computing Sciences, Princess Sumaya University for Technology, Jordan. 2008- 2014.
- **Associate Professor**, School of Engineering and Technology - Department of Computer Science – New York Institute of Technology – Amman Campus. 2007-2009. (Sabbatical leave from PSUT).
- **Adjunct Professor** at New York Institute for Technology –Amman Campus – (2006 – 2007)
- **Assistant Professor**, Computer Science Department, Princess Sumaya University for Technology, Jordan. Sep, 1993- Aug, 2006.
- **Lecturer, (Assistant Associé)** Université of Franche-Comté – France (IUT De Belfort). 1985-1988.

Teaching Experience

- **Undergraduate Courses:** Programming Languages: C, C++, Java and Prolog. Data Structures, Algorithms Analysis and Design. Artificial Intelligence. Computer Graphics. Information System Security
- **M. Sc. Courses:** Natural Language Processing. Digital Image Processing. Advanced Algorithms Analysis and design. Security Risk Management and Analysis
- **Ph. D. Courses:** Natural Language Processing, Statistical Natural Language Processing. Research Methodology and Seminar, Machine Learning
- **E-Learning Experience:**
I had initiated the use of e-learning in PSUT since 2003 by developing the PSUT e-learning platform. I conducted lectures for PSUT staff on the use of e-learning and to introduce the MOODEL technology. I had developed and posted more than 40 different courses on the platform. More than 80% of the PSUT professors are using now this platform at different levels. Currently, I am using the e-learning for almost all my courses. Within the IVLE Tempus project, I have developed a complete online course on e-commerce for a master degree on computer science. In addition, I had been selected as the main lecturer for the e-learning Network Engineering course organized by the Japan International Cooperation Agency (JICA), Menhaj Educational Technologies and three universities: Princess Sumaya University for Technology, University of Jordan and Birzeit University (Palestine).

Awards

- Best Researcher at the School of Computing Science. Award from PSUT - 2018
- Best Researcher of the university. Award from PSUT – 2011
- The El-Hassan award of scientific Excellency in 2006.

Fellowships and Scholarships

- Full B.Sc. Scholarship granted by Ministry of Education (Jordan) and CROUS France (1978 – 1983).
- Full M.Sc. Scholarship granted by CNOUS France (1983-1984).

Languages

- **Arabic** (Mother tongue)
- **English** (Fluent Reading/Writing/Speaking)
- **French** (Fluent Reading/Writing/Speaking)

Consultations:

- **Price WaterHouse Corporation Consulting** (2013-2014). Consultant for the reengineering of processes in Saudi Universities. This work includes the assessment of current situation as related to business processes, application functionalities, quality and excellence, the documentation of the As-Is Business processes, the development of Business processes prioritization frameworks and analysis, the development of the To-Be Architectures (Business processes, application profiles, and providing technical in-depth knowledge of the universities operations and core functions)
- **LEADS Technology (American Company)**- Consultant for image processing and image compression projects from 2002 – 2011.
- **Menhaj Educational Technologies (Jordanian Company)**: Consultant for the IT Curriculum development project for Abu Dhabi Schools – United Arab Emirates from 2001- 2005
- **UNESCO**: The United Nations Educational Scientific and Cultural Organization invited me to join a committee of experts for the preparation of the DRAFT recommendation on the promotion and use of the multilingualism and universal access to cyberspace. Feb. 2002
- **Orphans Fund Development Foundation (Public Organization)**: Consultant for the implementation and automation of the financial system and other business processes. From 1996 to 2000.

Projects and Funds

1. **MEDFORIST Project (from 2002-2005, Fund received by PSUT: 120000 Euro)**: I was the country manager of the MEDFORIST project. MEDFORIST is a Euro Mediterranean project for building a network of universities and professors from European and Mediterranean universities to share IT resources, expertise and know-how. The main results for PSUT were: An E-learning Platform was created, Training 4 people from PSUT in France and Morocco, the organization of the first International Conference on E-Business and E-Learning (Participants from 40 countries), Establishing the MEDFORIST lab. (Unit for research and development in E-Business and E-Learning). **Winner of the El-Hassan award of scientific Excellency in 2006.**
2. **IVLE TEMPUS Project (from 2005 – 2008, Fund Received by PSUT: 20000 Euro)**: I was the coordinator of the Tempus project (IVLE) in PSUT. IVLE (INTEGRATED VIRTUAL LEARNING ENVIRONMENT: LEARNING SUPPORT SYSTEM) is a European funded project for developing new curricula in Mediterranean countries. This project aims at producing a complete curriculum for graduate studies in computer Science. The main advantages for PSUT were providing PSUT with Hardware and software to improve the e-learning capability of the university, 8 courses of the Master degree are developed on line by the partners of the project two of them were by PSUT.
3. **PSUT-GEM MIRA Project (2006-2008)**: I was the PSUT coordinator for this project. MIRA is funded by the Rhone-Alpes region in France for supporting the collaboration between PSUT and the Grenoble School of Management (GEM). It aimed at facilitating

the exchange of professors, programs between the two institutions and organizing meetings and workshops for the MIS and CS departments' students in PSUT.

4. **SERMANTEQ Tempus Project (2009-2011, Fund received by PSUT: 140000 Euro):** As the PST manager of the SERMANTEQ project, I had been in charge in charge of the implementation of the different activities relate to this project as well and to participate in the steering committee. SERAMTEQ is a TEMPUS funded EU project. It main objective was to modernize academic courses through development of new trainings in Technology Management and Marketing of Services; and reinforcement of processes policies concerning the trainings' quality, the students' services capacities, as well as those concerning the Mediterranean partner institutions' management.
5. **MEDAWL (2012-2015):** The MEDAWEL project is a Tempus project that seeks to examine and improve the current student services' approach and structure within the Southern Neighboring Area participating higher education institutions. The project includes partners from Jordan, Lebanon, Egypt and Palestine, and is underpinned by the experience of partners from Spain, Ireland and United Kingdom. As the dean of students' affairs, I am in charge of the implementation of the project in PSUT in order to improve the services provided to students and share PSUT experience with the other partners.
6. **Creating E-portal in Arabic to Support Health care in Jordan (2014-2016, Fund allocated to PSUT 65000 JD):** This project is funded by **Novo Nordisk foundation (Switzerland)** to create medical and social networking portal in order to increase awareness and good practices among patients and their families in Jordan. It includes different activities such as developing an electronic portal and Arabic website, organizing training workshops and awareness meeting and producing publications in Arabic. Arabic Language Content Research Centre in PSUT, Jordan University-Coagulation and Haemostasis, medical experts from the different health services (Ministry of health, Royal Medical Services and University hospitals) and ICT experts will work together to improve medical services, health care and support to patients with Haemophilia in all the regions of the country and surrounded countries.
7. **JOVITAL Project. (from 2017 to 2020, 200,000Euro).** This is an EU funded project that offers Higher Education Institutions (HEIs) in Jordan the possibility to explore, implement, and disseminate state of the art academic practices in e-learning and virtual learning to enhance teaching quality and improve learning outcomes.
8. **FORC Project. (from 2017 to 2020, 120,000 Euro).** This project seeks to build capacities to develop an integrated curriculum in forensic computing as pathways within the undergraduate degrees of the facilities of Information Technology and Law, using a student-centered adaptive learning approach based on the bologna processes.
9. **Developing Semantic Representation Methods for Knowledge Discovery from Arabic Text. (From 2017 to 2020, 15000 JD)** This project is funded by the Scientific Research Fund (Jordanian Ministry of Higher Education and Scientific research). It aims at allowing automatic knowledge extraction from Arabic text. The first phase will be dedicated to collect and build semantically annotated corpus of Arabic texts from different resources. As semantic distinctions are always associated with other linguistic features such as morphological features, part of speech and syntax attributes, different solutions will be developed at the level of morphological analysis, Part of speech tagging and syntax analysis. Freely available resources will be used too to enrich the proposed work such as WordNet Synsets, Wikipedia and other freely available Arabic corpora. The main contribution of this project is to prove that semantic analysis and annotation of text will establish a systematic approach which can be used with success to extract information and knowledge from Arabic text. The expected results of the project will provide researchers and organizations with tools to help them in analyzing and understanding Arabic e-content.

Conferences and Workshops

Conference Chair:

1. **Conference Chair** of the International Conference on Emerging Trends in Computing and Engineering Applications (ETCEA2022) at Al-Karak (Jordan), Indexed in Scopus and IEEE Xplore.
2. **Conference Chair** of the International Conference on new Trends in Computing Sciences (ICTCS2019). Amman, Jordan 9-11 Oct. 2019. Indexed in Scopus and IEEE Xplore.
3. **Conference Chair** of the International Conference on new Trends in Computing Sciences (ICTCS2017). Amman, Jordan 11-13 Oct. 2017. Indexed in Scopus and IEEE Xplore.
4. **Chair of the Local organization committee** of the 4th International Conference on Next Generation Mobile Applications, Services and Technologies (NGMAST2010) organized in Amman on 27-29 July 2010
5. **Chair of the 5th Session (Artificial Intelligence)** – 2nd Jordan International Conference on Computer Science and Engineering. 5-7 December, 2006. Al Balqa' Applied University- Jordan.
6. **Chair of the Organizing Committee** and member of the Scientific Committee. First International Conference on E-Business and E-Learning (EBEL 2005). Amman, Jordan 23-24 May 2005.
7. **Chair of the organizing committee** of the 1st National Scientific Meeting in Informatics. Jordan Computer Society. Amman- Jordan, November, 1997.

Committees' Member: (Some of them)

1. Member of the Technical Program committee of the International Conference on Information and Communication Systems (ICICS 2016). April 5-7, 2016 - Irbid –Jordan.
2. Member of the Technical Program Committee of the Mediterranean Conference on Information and Communication Technologies 2015, May 7-9, Saidia, Morocco.
3. Member of the Program committee of the 5th International conference on Information and Communication Technology and Accessibility, December 21-23, 2015, Marrakech, Morocco.
4. Member of the Program Committee of the Fourth International Conference on Information and Communication Technology and Accessibility, October 24-26, 2013, Hammamet, Tunisia
5. Member of the Technical Program Committee of the International Arab Conference of e-Technology IACe-T' 2012, organized by Zarqa University, Zarqa-Jordan April 25-27, 2012.
6. Member of the Expert Meeting on ESCWA Initiative for Promoting the Digital Arabic Content Industry through Technology Incubators. 1-2 October 2012, Amman, Jordan.
7. Member of the International Program committee of the Fourth IEEE International Symposium on Innovation in Information & Communication Technology (ISIICT 2011), November 29-December 1, 2011, Philadelphia University, Amman Jordan
8. Member of the Scientific Committee of the 2011 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT) organized by the Faculty of Engineering and Technology - University of Jordan, 6-8 December, 2011, Amman, Jordan
9. Member of the scientific committee of the conference of l'Association Francophone de Management Electronique (AFME). March 2008 27th and 28th Grenoble – France.
10. Program committee of the first International Conference on Information and

Memberships

- Member of the Association of Computational Linguistics (ACL)
- Member of the Association of Computing Machinery (ACM)
- Member of the Institute of Electrical and Electronics Engineers (IEEE).
- Member of the IEEE – Computer Society.
- Member of the Jordan Computers Society.
- Founder member of the Jordanian the Intellectual Property Association

Professional Service

- Member of the editorial board of the Jordanian Journal of Computers and Information Technology published by PSUT and sponsored by the Ministry of Higher Education and Scientific Research. (SCOPUS) 2016 – 2021
- Scientific Research Support Fund (Ministry of Higher Education & Scientific Research):
 - a. Member of the Scientific Committee of the SRSF since 2018
 - b. Head of the Scientific committee for the IT sector since 2018
 - c. Member of the Scientific committee for the IT sector from 2016 to 2018
 - d. Reviewers of SRSF projects proposals
- Member of the first executive board of the IEEE section in Jordan (2002)
- Reviewer for the Qatar National Research Fund project (QNRF) -Qatar Foundation
- Reviewer for several international journals, examples:
 - a. Evolutionary Intelligence (SPRINGER)
 - b. IEEE Access
 - c. ACM Transactions on Asian and Low-Resource Language Information Processing
 - d. Malaysian Journal of Computer Science (MJCS)
 - e. Jordan University journal “Dirassat”.
- External Examiner for many Master Thesis in Jordanian Universities (PSUT, Jordan University, Al-Bayt University, Philadelphia University, Al-Balqa’ applied University).

Activities in the local society

- Higher Council for Scientific Research:
 - a. Chair of the Artificial Intelligence sectorial research Committee.
 - b. Chair of the Committee in charge of defining the national research priorities in the ITC and AI research.
 - c. Member of the committee in charge of drafting the new legislation of the Scientific funds for Scientific research
- Employment-Technical and Vocational Education and Training Council
 - a. Member of the National Sector Skills Council for the ICT sector since 2018
- National Center for Human Resources Development:
 - a. Member of the committee in charge of analyzing and describing the jobs in the Information and communication technology (2017)
- Ministry of Higher Education:
 - a. Member of the committee in charge of redefining unified rules for the financial and administrative regulations in the Jordanian Public Universities (2015).
 - b. Member of the National Committee in charge of evaluating the Students deanships activities in Jordanian universities (2013 – 2014).

- c. Member of the committee in charge of redefining the rules of the Computer Science programs accreditation in the Jordanian Universities.
- Jordan Computer Society:
 - a. Appointed by Her Royal Highness Princess Sumaya to represent her in the Jordan Computer Society (JCS) activities and meetings
 - b. Member of the JCS since 1996
 - c. Member of the editorial board of the Al-Hassoub Magazine from 1996- 2002
 - d. Member of the organizing committee of the Middle-East exhibition METS from 1995-1998 and 2003
- The National Information Center
 - a. Member of the legality of electronic documents committee (2001-2002)
 - b. Member of the national ICT committee (2006-)
- The Higher Council for Science and Technology
 - a. Member of the committee for National Observatory for science and technology 2008-2009
 - b. Member of the National Committee in charge of defining the research priorities in the ICT sector 2009-2010
 - c. Member of the National e-Technology Committee – Higher Council for Science and Technology (Jordan) from August 2008
- Ministry of Education: Member of the IT curricula committees and co-Author of electronic commerce books for the IT stream in the secondary schools
- Ministry of Health: Member of the National Hemophilia Committee from 2002-now
- Institute of Public Administration: Trainer and lecturer in several workshops and training courses on the use of ITC in public administration and public sector (2004-2006).
- Member of the steering committee of the Jordan UK Get-Connected initiative (2000-2005)
- Amman Chamber of Commerce: I was invited to give lectures (a week of training courses in 2006) on e-business and e-commerce.
- The Jordanian the Intellectual Property Association:
 - a. One of the founders of JIPA.
 - b. Member of the first executive boards and Chair of the Cultural committee.
- Member of the ICT planning Committee for the Al Hussein Bin Talal University – Ma'an – Jordan (2003-2005).
- Member of the International Society for Engineering education and Coordinator of the National Monitoring Committee of the ISEG in Jordan.
- Board member and vice president of the Jordan Thalassemia and Hemophilia Society and chair of the Hemophilia committee at the of the Jordan Thalassemia and Hemophilia Society from 2005 - now.
- Member of the National Hemophilia Committee in the Ministry of health from 2005-2012 and from 2018 – now.

Curricular and extra-curricular activities

- Head of the committee in charge of writing the proposal for implementing a Ph.D. program in computer science in King Hussein Faculty of Computing Sciences (PSUT) 2014.
- Head of ABET accreditation committee- King Hussein Faculty of Computing Sciences, Princess Sumaya University for Technology, 2014- 2017.
- Head of the curriculum committee in KHFCs in charge of updating and developing the undergraduates' curricula (B.Sc. Computer Sciences, Software Engineering) and graduates curricula (computer Sciences, Information Systems Security and Digital Criminology).

Scientific Research

- Natural Language Processing, Arabic NLP, Computational Linguistics, Text Mining
- Artificial Intelligence: Machine Learning, Image Processing

Publications in International Journals:

2025

1. Younis R., **Awajan A.**, Bani Younes M. 2025. A New Data Reduction Technique for Efficient Arabic Data Sentiment Analysis, Accepted for publication by The International Arab Journal of Information Technology, Vol. 18, No. 3A, Special Issue 2021. Pages 381-392. (ISI, Scopus).
2. Samar Al-Saqa, **Arafat Awajan**, Bassam Hammo. 2025. Hate speech detection in Arabic social networks using deep learning and fine-tuned embeddings. International Journal of Data and Network Science. Vol. 9 (2025) Pages 587–600. DOI: 10.5267/j.ijdns.2024.8.008

2024

3. Biltawi MM, **Awajan A.**, Tedmori S. Improved bidirectional attention flow (BIDAF) model for Arabic machine reading comprehension. Natural Language Processing. Published online 2024:1-29. doi:10.1017/nlp.2024.46.
4. **Awajan, A. A.** 2024. Offensive Language Detection from Arabic Texts. In: Arai, K. (eds) Intelligent Computing. SAI 2024. Lecture Notes in Networks and Systems, vol 1018. Springer, Cham. https://doi.org/10.1007/978-3-031-62269-4_6
5. Samar Al-Saqa, **Arafat Awajan**, Bassam Hammo, A Survey of Hate Speech Detection for Arabic Social Media: Methods and Datasets, Procedia Computer Science, Volume 251, 2024, Pages 224-231, ISSN 1877-0509, <https://doi.org/10.1016/j.procs.2024.11.104>.
6. Alhijawi B., **Awajan, A.**, 2024. Genetic algorithms: theory, genetic operators, solutions, and applications. Evolutionary Intelligence. Volume 17, No. 3, pp. 1245–1256. <https://doi.org/10.1007/s12065-023-00822-6>.
7. Abdel-Nabi, H., Ali, M., **Awajan, A.** (2024). Multi-scale Dual-Attention-Based U-Net for Breast Cancer Segmentation in Ultrasound Images. In: Wang, CC., Nallanathan, A. (eds) 6th International Conference on Signal Processing and Information Communications. ICSPIC 2023. Signals and Communication Technology. Springer, Cham. https://doi.org/10.1007/978-3-031-43781-6_3 - Book Chapter.
8. **Awajan, A. A.** 2024. A New Model for the Arabic Language Based on the Semantic Representation of Words and Sentences. In: Arai, K. (eds) Intelligent Systems and Applications. IntelliSys 2023. Lecture Notes in Networks and Systems, Vol. 825. Springer, Cham. https://doi.org/10.1007/978-3-031-47718-8_3

2023

9. Abdel-Nabi, H., Ali, M., **Awajan, A.** 2023. A multi-scale 3-stacked-layer coned U-net framework for tumor segmentation in whole slide images. Biomedical Signal Processing

- and Control. Volume 86, September 2023, Article number 105273. <https://doi.org/10.1016/j.bspc.2023.105273>.
10. Abdel-Nabi, H., Al-Naymat, G., Ali, M., **Awajan, A.** 2023. HcLSH: A Novel Non-Linear Monotonic Activation Function for Deep Learning Methods. IEEE Access. Volume 11, Pages 47794 – 47815. <https://doi.org/10.1109/ACCESS.2023.3276298>.
 11. Abdel-Nabi, H., **Awajan, A.**, Ali, M. 2023. Deep learning-based question answering: a survey. Knowledge and Information Systems. Volume 65, Issue 4, Pages 1399 – 1485 April 2023. <https://doi.org/10.1007/s10115-022-01783-5>
 12. Alhijawi, B., Fraihat, S., **Awajan, A.** 2023. Adaptable inheritance-based prediction model for multi-criteria recommender system. Multimedia Tools and Applications Volume 82, Issue 21, Pages 32421 - 32442 September 2023. <https://doi.org/10.1007/s11042-023-14728-z>.
 13. Fraihat S., Abu Tahoun B. Alhijawi B., Awajan A, 2023. Deep encoder–decoder-based shared learning for multi-criteria recommendation systems. Neural Computing and Applications. Volume 35, Issue 34, Pages 24347 – 24356. December 2023. <https://doi.org/10.1007/s00521-023-09007-9>.
 14. Alian, M., **Awajan, A.** 2023. Syntactic-Semantic Similarity Based on Dependency Tree Kernel. Arabian Journal for Science and Engineering. Volume 48, Issue 8, Pages 10937 – 10948. August 2023. <https://doi.org/10.1007/s13369-023-07694-z>.
 15. Biltawi M., **Awajan A.**, Tedmori S., 2023. Arabic Span Extraction-based Reading Comprehension Benchmark (ASER) and Neural Baseline Models. ACM Transactions on Asian and Low-Resource Language Information Processing. Vol. 22, No. 5, 127 <https://doi.org/10.1145/3579047>.
 16. Etaiwi W., **Awajan A.**, 2023. SemanticGraph2Vec: Semantic graph embedding for text representation. Array. Volume 17, March 2023, Article number 100276. <https://doi.org/10.1016/j.array.2023.100276>.
 17. Abdel-Nabi H., Ali M.Z., **Awajan A.**, Alazrai R. , Daoud M.I., Suganthan P. N. 2023. An iterative cyclic tri-strategy hybrid stochastic fractal with adaptive differential algorithm for global numerical optimization. Information Sciences. Volume 628, May 2023, Pages 92-133. <https://doi.org/10.1016/j.ins.2023.01.065>.
 18. Alhijawi B., **Awajan, A.**, Fraihat S., 2023. Survey on the Objectives of Recommender System: Measures, Solutions, Evaluation Methodology, and New Perspectives. ACM Computing Surveys. Volume 55. Issue 5. Article No.: 93 pp 1–38 <https://doi.org/10.1145/3527449>. (ISI, Scopus)
 19. Alhijawi, B., Fraihat, S., **Awajan, A.** 2023. Multi-factor ranking method for trading-off accuracy, diversity, novelty, and coverage of recommender systems. International Journal of Information Technology. Volume 15, Issue 3, Pages 1427 – 1433. March 2023. <https://doi.org/10.1007/s41870-023-01158-1>.
 20. Alian, M., **Awajan, A.** 2023. Arabic word sense disambiguation using sense inventories. International Journal of information Technology (2023). <https://doi.org/10.1007/s41870-022-01147-w>.
 21. Abdel-Nabi, H., Ali, M., **Awajan, A.** Daoud M., Alazrai R., Suganthan P. N., Ali T. 2023. A comprehensive review of the deep learning-based tumor analysis approaches in histopathological images: segmentation, classification and multi-learning tasks. Cluster Computing (2023). Volume 26, Issue 5, Pages 3145 – 3185. October 2023. <https://doi.org/10.1007/s10586-022-03951-2>.

22. Abdel-Nabi, H., **Awajan, A.** & Ali, M.Z. 2022 Deep learning-based question answering: a survey. Knowledge and Information Systems. <https://doi.org/10.1007/s10115-022-01783-5>
23. Alhijawi, B., Obeid, N., **Awajan, A.**, Tedmori, S., 2022. New hybrid semantic-based collaborative filtering recommender systems. International Journal of Information Technology (Singapore). DOI: 10.1007/s41870-022-01011-x.
24. Etaiwi, W., **Awajan, A.**, 2022. SemG-TS: Abstractive Arabic Text Summarization Using Semantic Graph Embedding. Mathematics, 2022, 10(18), 3225.
25. Suleiman D., **Awajan A.**, 2022. Multilayer encoder and single-layer decoder for abstractive Arabic text summarization. Knowledge-Based Systems 237 (2022) 107791. doi.org/10.1016/j.knosys.2021.107791 doi.org/10.1016/j.knosys.2021.10779. (ISI, Scopus).
26. Almaiah M.A., Al-Otaibi S., Lutfi A., Almomani O., **Awajan A.**, Alsaaidah A., Alrawad M., Awad A.B, 2022. Employing the TAM Model to Investigate the Readiness of M-Learning System Usage Using SEM Technique. Electronics 2022, 11,1259. <https://doi.org/10.3390/electronics11081259>
27. Halabi D., Fayyumi E., **Awajan, A.** 2022. I3rab: A new Arabic Dependency Treebank Based on Arabic Grammatical Theory. ACM Transactions on Asian and Low-Resource Language Information Processing (TALLIP), Volume 21, Issue 2, March 2022, Article No.: 23, pp 1–32, <https://doi.org/10.1145/3472295>, (ISI, Scopus)

2021

28. Alian, M., **Awajan, A.** 2021. Arabic sentence similarity based on similarity features and machine learning. Soft Computing (Springer Nature). <https://doi.org/10.1007/s00500-021-05754-w>. (ISI, Scopus)
29. M. M. Biltawi, S. Tedmori and **A. Awajan**, 2021, "Arabic Question Answering Systems: Gap Analysis," in IEEE Access, vol. 9, pp. 63876-63904, 2021, doi: 10.1109/ACCESS.2021.3074950. (ISI, Scopus).
30. Alian, M., **Awajan, A.**, Al-Hasan A., Akuzhia R. 2021. Building Arabic Paraphrasing Benchmark based on Transformation Rules. ACM Transactions on Asian and Low Resource Language Information Processing, Volume 20, Issue 4, June 2021. Article No. 63, pp 1-17, <https://doi.org/10.1145/3446770> (ISI, Scopus)
31. Suleiman D., Etaiwi W., **Awajan A.**, 2021. Recurrent Neural Network Techniques: Emphasis on Use in Neural Machine Translation. Informatica, Vol 45, Number 7, Pages 107–113. <https://doi.org/10.31449/inf.v45i7.3743> (ISI, Scopus)
32. Etaiwi W., Suleiman D., **Awajan A.**, 2021. Deep Learning Based Techniques for Sentiment Analysis: A Survey. Informatica, Vol 45, Number 7, Pages 89–95. <https://doi.org/10.31449/inf.v45i7.3674>. (ISI, Scopus)
33. Alian, M., **Awajan, A.**, 2021. Generating Sense Inventories for Ambiguous Arabic Words. The International Arab Journal of Information Technology, Vol. 18, No. 3A, Special Issue 2021. Pages 446-451. (ISI, Scopus)
34. Halabi D., **Awajan, A.**, Fayyumi E. 2021. Syntactic Annotation in the I3rab Dependency Treebank. The International Arab Journal of Information Technology, Vol. 18, No. 3A, Special Issue 2021. Pages 381-392. (ISI, Scopus)
35. Alhijawi B., **Awajan, A.**, 2021. Novel textual entailment technique for the Arabic language using genetic algorithm. Computer Speech & Language, volume 68, July 2021, Volume 96, <https://doi.org/10.1016/j.csl.2021.101194>. (ISI, Scopus).

36. Alhijawi B., Al-Naymat G., Obeid N., **Awajan, A.**, 2021. Novel predictive model to improve the accuracy of collaborative filtering recommender systems, Information Systems, Volume 96, 2021, 101670, DOI 10.1016/j.is.2020.101670. (ISI, Scopus).
37. Hamdan S., Hudaib A., **Awajan A.**, 2021. Detecting Sybil Attacks in Vehicular Ad Hoc Networks. International Journal of Parallel, Emergent and Distributed Systems, Volume 36, Issue 2 (2021). TAYLOR & FRANCIS (ISI) DOI: 10.1080/17445760.2019.1617865.

2020

38. Suleiman D., **Awajan A.**, 2020. Deep Learning Based Abstractive Text Summarization: Approaches, Datasets, Evaluation Measures, and Challenges. Mathematical Problems in Engineering. Volume 2020, Article ID 9365340, 29 pages. DOI 10.1155/2020/9365340. (ISI, Scopus).
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