Mahmoud *Al-Ayyoub* Al Shboul

Academic Rank

Professor

Qualifications

- PhD in Computer Science, Stony Brook University, USA, 2010
- MSc in Computer Science, Stony Brook University, USA, 2006
- BSc in Computer Science, Jordan University of Science and Technology, Jordan, 2004

Research field(s)

- Data Science and Analytics
- Machine/Deep Learning
- Natural Language Processing
- Computer Vision
- Cloud/Edge Computing and Analytics

Publications *(Last five years)*

- Rasha Obeidat, Yara Al-Harahsheh, **Mahmoud Al-Ayyoub** and Maram Gharaibeh. ArEntail: Manually-curated Arabic Natural Language Inference Dataset from News Headlines. *Language Resources and Evaluation*. To appear.
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- Rasha Obeidat, Marwa Al-Harbi, **Mahmoud Al-Ayyoub** and Luay Alawneh. ArQuAD: An Expert-annotated Arabic Machine Reading Comprehension Dataset. *Cognitive Computation*. To appear.
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- Adam Kolides, Alyna Nawaz, Anshu Rathor, Denzel Beeman, Muzammil Hashmi, Sana Fatima, David Berdik, **Mahmoud Al-Ayyoub** and Yaser Jararweh. Artificial Intelligence Foundation and Pre-Trained Models: Fundamentals, Applications, Opportunities, and Social Impacts. *Simulation Modelling Practice and Theory* 126: 102754, July 2023.
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- Emran Al-Bashabsheh, Ahmad Al-Aiad, **Mahmoud Al-Ayyoub**, Othman Beni-Yonis, Raed Abu Zitar and Laith Abualigah. Improving Clinical Documentation: Automatic Inference of ICD-10 Codes from Patient Notes Using BERT Model. *Journal of Supercomputing* 79(11): 12766-12790, July 2023.
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- Ayat Abedalla, Ali Fadel, Ibraheem Tuffaha, Hani Al-Omari, Mohammad Omari, Malak Abdullah and **Mahmoud Al-Ayyoub**. MTRecS-DLT: Multi-Modal Transport Recommender System using Deep Learning and Tree Models. In *the Sixth International Conference on Social Networks Analysis, Management and Security (SNAMS)*, 2019.
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- Shadi AlZu'bi, Abdalraheem Alsmadi, Sokyna Alqatawneh, **Mahmoud Al-Ayyoub**, Bilal Hawashin and Yaser Jararweh. A Brief Analysis of Amazon Online Reviews. In *the Sixth International Conference on Internet of Things: Systems, Management and Security (IOTSMS)*, 2019.
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- Shadi AlZu'bi, Omar Badarneh, Bilal Hawashin, **Mahmoud Al-Ayyoub**, Nouh Alhindawi and Yaser Jararweh. Multi-Label Emotion Classification for Arabic Tweets. In *the Sixth International Conference on Internet of Things: Systems, Management and Security (IOTSMS)*, 2019.
  https://doi.org/10.1109/SNAMS.2019.8931715

- Bashar Talafha, **Mahmoud Al-Ayyoub**, Analle Abuammar and Yaser Jararweh. Outperforming State-of-the-Art Systems for Aspect-Based Sentiment Analysis. In *the 16th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA)*, 2019.
  https://doi.org/10.1109/AICCSA47632.2019.9035290

- Bashar Talafha, Mohammad Al-Smadi, **Mahmoud Al-Ayyoub**, Yaser Jararweh and Patrick Juola. Using a Hierarchical Softmax based on the Huffman Coding Tree for Authenticating Arabic Tweets. In *the 16th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA)*, 2019.
  https://doi.org/10.1109/AICCSA47632.2019.9035303

- Yousef Shatnawi, Mohammad Alsmirat and **Mahmoud Al-Ayyoub**. Face Recognition using Eigen-faces and Extension Neural Network. In *the 16th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA)*, 2019.
  https://doi.org/10.1109/AICCSA47632.2019.9035343

- Ftoon Abu Shaqra, Rehab Duwairi and **Mahmoud Al-Ayyoub**. The Audio-Visual Arabic Dataset for Natural Emotions. In *the 7th International Conference on Future Internet of Things and Cloud (FiCloud)*, 2019.
  https://doi.org/10.1109/FiCloud.2019.00054

- Aisha Al-Sadi, Bashar Talafha, **Mahmoud Al-Ayyoub**, Yaser Jararweh and Fumie Costen. JUST at ImageCLEF 2019 Visual Question Answering in the Medical Domain. In *CLEF2019 Working Notes, CEUR Workshop Proceedings*, 2019.

- Bashar Talafha, Ali Fadel, **Mahmoud Al-Ayyoub**, Yaser Jararweh, Mohammad Al-Smadi and Patrick Juola. Team JUST at the MADAR Shared Task on Arabic Fine-Grained Dialect Identification. In *the Fourth Arabic Natural Language Processing Workshop (WANLP)*, 2019.
  http://doi.org/10.18653/v1/W19-4638

- Maad Ebrahim, **Mahmoud Al-Ayyoub** and Mohammad Alsmirat. Will Transfer Learning Enhance ImageNet Classification Accuracy Using ImageNet-Pretrained Models? In *the 10th International Conference on Information and Communication Systems (ICICS)*, 2019.
  https://doi.org/10.1109/IACS.2019.8809114

- Ftoon Abu Shaqra, Rehab Duwairi and **Mahmoud Al-Ayyoub**. Recognizing Emotion from Speech Based on Age and Gender Using Hierarchical Models. In *the 10th International Conference on Ambient Systems, Networks and Technologies (ANT)*, 2019.
  https://doi.org/10.1016/j.procs.2019.04.009

- Bashar Talafha and **Mahmoud Al-Ayyoub**. IoH-RCNN: Pursuing the Ingredients of Happiness using Recurrent Convolutional Neural Networks. In *The Workshops of The Thirty-Third AAAI Conference on Artificial Intelligence*, 2019.

- Ali Fadel, Ibraheem Tuffaha, Bara' Al-Jawarneh and **Mahmoud Al-Ayyoub**. Arabic Text Diacritization using Deep Neural Networks. In *The 2nd International Conference on Computer Applications & Information Security (ICCAIS)*, 2019.
  https://doi.org/10.1109/CAIS.2019.8769512

- Luay Alawneh, Mohammed Shehab, **Mahmoud Al-Ayyoub** and Yaser Jararweh. A GPU-Based Smith-Waterman Approach for Genome Editing. In *the 16th International Conference on Information Technology: New Generations (ITNG)*, 2019.
  https://doi.org/10.1007/978-3-030-14070-0_47

Courses Taught *(Last five years)*

- Undergraduate Level:
    - Introduction to Data Analytics
    - Programming in C++
    - Programming Lab
    - Calculus for Information Technology
    - Discrete Mathematics
    - Linear Algebra
    - Statistical Modeling
    - Analysis and Design of Algorithms
    - Artificial Intelligence
    - Web Technologies
    - Selected Topics in Data Analytics
    - Selected Topics in Information Systems
- Postgraduate Level:
    - Advanced Algorithms
    - Advanced Artificial Intelligence
    - Intelligent Biomedical Systems
    - Machine Learning
    - Natural Language Processing with Deep Learning

Professional Experience

- Professor, Information Technology Department,   2022 – now
  Ajman University (AU), Ajman, UAE
- Director, Center of Excellence for Innovative Projects,   2021 – 2022
  Jordan University of Science and Technology (JUST), Irbid, Jordan
- Deputy Director, Center of Excellence for Innovative Projects,   2020 – 2021
  Jordan University of Science and Technology (JUST), Irbid, Jordan
- Visiting Researcher, Electrical & Electronic Engineering Division,   2019 – 2020
  University of Manchester, Manchester, UK
- Professor, Computer Science Department,   2019 – 2022
  Jordan University of Science and Technology (JUST), Irbid, Jordan
- External Consultant   2018 – 2018
  Samsung R&D Institute of Jordan, Amman, Jordan
- Vice Dean, Faculty of Computer and Information Technology,   2017 – 2019
  Jordan University of Science and Technology (JUST), Irbid, Jordan
- Department Chairperson, Computer Science Department,   2015 – 2017
  Jordan University of Science and Technology (JUST), Irbid, Jordan
- Associate Professor, Computer Science Department,   2015 – 2019
  Jordan University of Science and Technology (JUST), Irbid, Jordan

- Assistant Professor, Computer Science Department,   2010 – 2015
  Jordan University of Science and Technology (JUST), Irbid, Jordan

Committees Work

- At Ajman University:
  - Research Reward Committee: Member
  - CEIT Strategic Plan 2022-2027 Task Force: Co-Chair
  - Faculty Promotion Committee: Member
  - GenAI Taskforce: Member
  - Task Force for preparing AU Response to the CAA report for the initial accreditation of the BSc-AI Program: Member
  - Academic Reputation Coordinator for CEIT
  - Task Force for General AI Course Development: Member
  - AIRC Conference Organizing Committee: Chair
  - IT Department Council: Member
  - Adhoc Committee for Establishing BSc Program in AI: Member
  - Ad hoc Committee for the 2023-2024 Promotion Cycle: Member
  - ABET Accreditation Task Force for Data Analytics Program: Member
  - Internship Assessment Committees: Member
  - Adhoc Committee for SGRA Selection in the MSAI Program: Member
  - Ad hoc committee for guidelines on the use of GenAI: Member
  - Adhoc committee for suggesting a general IT program: Member
  - MSAI Graduation Committee: Member
  - Adhoc committee responsible for writing the questions for the Coding Battle: Member
- At Jordan University of Science and Technology (Last five years):
  - CS Department Council: Member
  - CS Department's Graduate Studies & Research Committee: Member
  - CS Department's Curriculum Committee: Chair
  - CS Department's Special Committee for Establishing BSc Program in AI: Chair
  - CS Department's Special Committee for Establishing MSc Program in AI: Chair
  - CS Department's Special Committee for Newly-Appointed Faculty Members Evaluation: Chair
  - CS Department's QA Focus Groups: Member of Several Groups
  - External Advisory Board for the Computer Science (CS) Department: Member
  - External Advisory Board for the Network Engineering and Security (NES) Department: Member
  - CIT Faculty Council: Vice Chair
  - CIT Faculty's Department Heads Committee: Member
  - CIT Faculty's Graduate Studies Committee: Member
  - CIT Faculty's Research Committee: Member
  - CIT Faculty's Innovative Programming Committee: Chair
  - CIT Faculty's Promotions Committee: Member
  - CIT Faculty's Special Committee for Practical Training Rules Revision: Member
  - CIT Faculty's Distinguished Teacher Award Committee: Chair

- CIT Faculty's Special Committee for Establishing BSc Program in AI: Member
- CIT Faculty's Special Committee for Revising BSc Program in AI Application: Chair
- CIT Faculty's Special Committee for Establishing Certificate Programs in AI: Chair
- CEIP's Internal Committee for Strategic Planning: Chair
- CEIP's Special Committee for MoUs Followup: Chair
- CEIP's Special Committee for Regulations Revision: Chair
- Consultative Center for Science and Technology (CCST) Council: Member
- Special Selection Committees for Erasmus+ Mobility Programs Participation by Faculty Members and Students: Member
- Distinguished Teacher Award Committee: Member
- 5-Min Thesis Committee: Chair
- Special Committee to Switch to E-Learning: Member
- Others (Last five years):
  - Jordan HEAC's Accreditation Committee for the MSc in AI at Yarmouk University
  - Jordan HEAC's Accreditation Committee for the BSc in AI at Irbid National University
  - Jordan Scientific Research and Innovation Support Fund (SRISF)'s Information and Communication Technology Committee: Member
  - Scientific Culture and Innovation Committee for the "Irbid as the Capital of Arab Culture" Festivities: Member

Honors and Awards

- Ajman University Excellence Awards: Long-Term Research Achievement Award: 2023
- Jordan University of Science and Technology's Recognition for Its Top Researchers: 2021, 2022
- Consistently featured among the top CS researchers within Jordan (e.g., according to UoJ Ranking of Jordanian Researchers) and globally (e.g., according to Research.com's Ranking of Top Scientists in CS and Rising Stars of Science Award).
- AICCSA 2015's Best Paper Award Nomination: Maged Refat, Mohammed Shehab, Yaser Jararweh and Mahmoud Al-Ayyoub. Accelerating Needleman-Wunsch Global Alignment Algorithm with GPUs.
- AICCSA 2014s' Best Paper Award: Kholoud Alsmearat, Mahmoud Al-Ayyoub and Riyad Al-Shalabi. An Extensive Study of the Bag-of-Words Approach for Gender Identification of Arabic Articles.

Other Contributions and Achievements

- Associate Editor of several reputable journals, such as:
  - Information Processing & Management: WoS SCIE, Scopus Q1 (97%), SJR H104
  - Simulation Modelling Practice and Theory: WoS SCIE, Scopus Q1 (92%), SJR H73
  - Cognitive Computation: WoS SCIE, Scopus Q1 (89%), SJR H56
  - Cluster Computing: WoS SCIE, Scopus Q2 (68%), SJR H54
- Guest Editor for several special issues in reputable journals, such as:
  - Information Processing & Management: WoS SCIE, Scopus Q1 (97%), SJR H104
  - Language Resources and Evaluation: WoS SCIE, Scopus Q1 (95%), SJR H54
  - Knowledge-Based Systems: WoS SCIE, Scopus Q1 (92%), SJR H135

- o Journal of Healthcare Engineering: WoS SCIE, Scopus Q2 (65%), SJR H37
- o Concurrency Computation Practice and Experience: WoS SCIE, Scopus Q2 (67%), SJR H69
- o International Journal of Information Technology and Web Engineering: WoS ESCI, Scopus Q2 (54%), SJR H14
- Chair/Member of the organization team in 20 different conferences/workshops (63 editions)
- Reviewer for 61 different journals and conferences.