Mahmoud M. Hammad

Associate Professor
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Mahmoud Hammad is an Associate Professor in the Software Engineering Department within the Computer and Information Technology School at the Jordan University of Science and Technology (JUST). He is also the director of the Center for E-Learning and Open Educational Resources. Hammad's research interests are in the field of software engineering and natural language processing, specifically in the area of software architecture, self-adaptive software systems, mobile computing, machine learning, and software security. Hammad received his Ph.D. in Software Engineering from the University of California, Irvine (UCI) under the supervision of Prof. Sam Malek. During his Ph.D., Hammad developed a self-protecting Android software system, an Android software system that can monitor itself and adapt (change) its behavior at runtime to keep the system secure and protected from Inter-Component Communication attacks at all times. Hammad received his M.S. in Software Engineering from George Mason University, VA, USA and B.S. in Computer Science from Yarmouk University, Jordan. Hammad is a member of the Association of Computing Machinery (ACM), ACM Special Interest Group on Software Engineering (SIGSOFT), and the Institute of Electrical and Electronics Engineers (IEEE).

EDUCATION

PhD in Software Engineering — GPA: 4.0
University of California, Irvine — August 2018

Master of Science in Software Engineering — GPA: 3.93
George Mason University, Fairfax, VA — January 2014

Graduate Certificate in Web-Based Software Engineering — Fall 2013
George Mason University, Fairfax, VA

Bachelor of Science in Computer Science — GPA: 3.76
Yarmouk University, Irbid, Jordan — August 2005

WEBSITES

- **Personal website:** https://hammadmahmoud.github.io/
- **Google Scholar:** https://scholar.google.com/citations?user=IKOGjtEAAAAJ&hl=en&oi=ao
- **Research Gate:** https://www.researchgate.net/profile/Mahmoud-Hammad-3
- **Academic website:** https://www.just.edu.jo/eportfolio/Pages/default.aspx?email=m-hammad
- **ORCID:** https://orcid.org/0000-0003-2891-0463
- **Scopus profile:** https://www.scopus.com/authid/detail.uri?authorId=57213519446

RESEARCH INTERESTS

- Software Engineering, Mobile Security, Self-Adaptive Software Systems, Software Architecture, Machine Learning, Deep Learning, Natural Language Processing, Aspect-based Sentiment Analysis, and Software Testing.

EMPLOYMENT HISTORY

Oct 2023 – Present	Associate Professor Software Engineering Department Jordan University of Science and Technology
Feb 2022 – Present	Director of the Center for E-Learning and Open Educational Resources Jordan University of Science and Technology
Jan 2019 – Feb 2022	Vice Director of the Center for E-Learning and Open Educational Resources Jordan University of Science and Technology
Sep 2018 – Oct 2023	Assistant Professor Software Engineering Department Jordan University of Science and Technology
Jan 2016 – Aug 2018	Researcher at Software Engineering & Analysis Lab (SEAL) University of California, Irvine CA, USA
Aug 2016 - Dec 2016	Graduate Teaching Assistant University of California, Irvine CA, USA

Aug 2015 - Aug 2016	Researcher at Software Engineering & Analysis Lab (SEAL) University of California, Irvine CA, USA
Jan 2015 - Jul 2015	Researcher at System Design & Analysis Lab George Mason University Fairfax, VA, USA
May 2013 – Dec 2014	Mobile Apps Developer (Developing Android and iOS games for people with disabilities) The Helen A. Keller Institute Fairfax, VA, USA
Apr 2006 – Dec 2011	Senior Software Engineer Information Technology and Communication Center Jordan University of Science & Technology Irbid, Jordan
Aug 2005 – Mar 2006	Software Engineer JoVal for IT Amman, Jordan

AWARDS & HONORS

- Erasmus+ Teaching Mobility at Vytautas Magnus University, Kaunas, Lithuania. September 2024.
- JUST travel grant to attend the 6th World Symposium on Communication Engineering (WSCE), Thessaloniki, Greece, 2023.
- Travel grant from Prince Sultan University to attend the Time Higher Education (THE) Digital Universities MENA: Innovation for a technology-driven sustainable future event as a speaker. Riyadh, Saudi Arabia, October 2023.
- Travel grant from JUST to attend the International Conference on Computer Systems and Applications (AICCSA 2019), November 2019, Abu Dhabi, UAE.
- UCI travel grant to attend the International Conference on Automated Software Engineering (***ASE 2018***), September 2018, Montpellier, France.
- SIGSOFT CAPS Travel grant to attend the ASE 2018
- SIGSOFT CAPS Travel grant to attend the ICSE 2016
- Graduate Research Assistant scholarship from UCI
- Graduate Teaching Assistant scholarship from UCI
- Outstanding student achievement award – GMU, 2013
- Graduate Research Assistant scholarship from GMU
- Fellowship from Jordan University of Science & Technology, 2012 – 2016
- Ranked 1st among the 50 students who graduated on the same term
- Honor student list (Dean's List) – Several times during my bachelor

PUBLICATIONS

BOOKS

ID	Manuscript	Year
B1	Qasem Abu Al-Haija, Ahmad Mustafa, **Mahmoud M. Hammad**. Book title: "Modern Insights on Smart and Secure Software Development ". To be published by IGI Global Publisher and indexed by Scopus [Call for book chapters].	**2024**

JOURNALS

ID	Manuscript	Year
J16	Qanita Bani Baker, **Mahmoud M. Hammad**, Mohammad AL-Smadi, Heba AL-Jarrah, Rahaf Al-hamouri, Sa'ad Al-Zboon. "Enhanced COVID-19 Detection from X-Ray Images with Convolutional Neural Network and Transfer Learning". Journal of Imaging. [Accepted on October 2024].	**2024**
J14	Heb Al-Jarrah, Mohammed, Al-Smadi, **Mahmoud M. Hammad**, Fatima Shannaq. "Using Deep Learning Techniques to Detect Hate and Abusive Language in Arabic Tweets". International Journal of Intelligent Engineering and Systems (IJIES), Vol 17 Issue 5, p553;. [Paper].	**2024**
J13	AlSobeh, Anas MR, Khalid Gaber, Mahmoud M. Hammad, Maryam Nuser, and Amani Shatnawi. "Android malware detection using time-aware machine learning approach." Cluster Computing (2024): pp. 1-22. [Paper]	**2024**
J12	Mohammad AL-Smadi, **Mahmoud M. Hammad**, Sa'ad A. Al-Zboon, Saja AL-Tawalbeh, Erik Cambria *"Gated Recurrent Unit with Multilingual Universal Sentence Encoder for Arabic Aspect-Based Sentiment Analysis" Knowledge-Based System [Paper]*	**2023**
J11	Farah Shatnawi, Malak Abdullah, **Mahmoud M. Hammad**, and Mahmoud Al-Ayyoub "Comprehensive study of pre-trained language models: detecting humor in news headlines" Soft Computing. [Paper].	**2023**
J10	**Hammad, Mahmoud**, Qanita Bani Baker, Mohammed Al-Smadi, and Wesam Alrashdan. "Towards Enhancing the User Experience (UX) of ChIP-Seq Data Analysis Web Tools." International Journal of Electrical & Computer Engineering (2088-8708) (2022). [Paper]	**2022**
J9	Al-Smadi, Mohammed, **Mahmoud M. Hammad**, Qanita Bani Baker, Saja Khaled Tawalbeh, and Sa'ad A. Al-Zboon. "Transfer deep learning approach for detecting coronavirus disease in X-ray images." International Journal of Electrical & Computer Engineering (2088-8708) 11, no. 6 (2021). [Paper]	**2021**
J8	Mohammad, AL-Smadi, **Mahmoud M. Hammad**, A. Sa'ad, AL-Tawalbeh Saja, and Erik Cambria. "Gated Recurrent Unit with Multilingual Universal Sentence Encoder for	**2021**

	Arabic Aspect-Based Sentiment Analysis." Knowledge-Based Systems (2021): 107540. [Paper]	
J7	Al-Smadi, Mohammed, **Mahmoud M. Hammad**, Qanita Bani Baker, and Sa'ad A. Al-Zboon. "A transfer learning with deep neural network approach for diabetic retinopathy classification." International Journal of Electrical & Computer Engineering (2088-8708) 11, no. 4 (2021). [Paper]	**2021**
J6	**Hammad, Mahmoud**, Mohammed Al-Smadi, Qanita Bani Baker, and Sa'ad A. Al-Zboon. "Using deep learning models for learning semantic text similarity of Arabic questions." International Journal of Electrical & Computer Engineering (2088-8708) 11, no. 4 (2021). [Paper]	**2021**
J5	Anas M. R. AlSobeh, Sawsan AlShattnawi, Amin Jarrah, **Mahmoud M. Hammad**, "Weavesim: A Scalable and Reusable Cloud Simulation Framework Leveraging Aspect-Oriented Programming", Jordanian Journal of Computers and Information Technology (JJCIT), Volume 06, Number 02, pp. 182 - 201, June 2020, doi: 10.5455/jjcit.71-1579451674. [Paper].	**2020**
J4	M. Al-Asa'd, N. Al-Khdour, M. B. Younes, E. Khwaileh, **M. Hammad** and M. AL-Smadi, "Question to Question Similarity Analysis using Morphological, Syntactic, Semantic, and Lexical Features," 2019 IEEE/ACS 16th International Conference on Computer Systems and Applications (AICCSA), Abu Dhabi, United Arab Emirates, 2019, pp. 1-6, doi: 10.1109/AICCSA47632.2019.9035248. [Paper]	**2020**
J3	Qanita Bani Baker, **Mahmoud Hammad**, Wesam Al-Rashdan, Yaser Jararweh, Mohammad AL-Smadi, Mohammad Al-Zinati, Comprehensive comparison of cloud-based NGS data analysis and alignment tools, Informatics in Medicine Unlocked, Volume 18, 2020, 100296, ISSN 2352-9148, https://doi.org/10.1016/j.imu.2020.100296. [Paper]	**2020**
J2	**Mahmoud Hammad**, Hamid Bagheri, Sam Malek, DelDroid: An automated approach for determination and enforcement of least-privilege architecture in android, Journal of Systems and Software, Volume 149, 2019, Pages 83-100, ISSN 0164-1212, https://doi.org/10.1016/j.jss.2018.11.049. [Paper]	**2018**
J1	Joshua Garcia, **Mahmoud Hammad**, and Sam Malek. *Lightweight, Obfuscation-Resilient Detection and Family Identification of Android Malware.* ACM Transactions on Software Engineering and Methodology (***TOSEM***). Volume 26, No. 3, Article 11 (January 2018) [Paper] • Integrated in the Software Assurance Marketplace (SWAMP) operated by University of Wisconsin–Madison	**2018**

CONFERENCES

ID	Manuscript	Year
C18	**Mahmoud M. Hammad**, Mohammed Al-Refai, Wafaa Musallam, Sajida Musleh and Esra'a Faouri. "A Taxonomy of AI-Based Assessment Educational Technologies". The 15th International Conference on Information and Communication Systems (ICICS 2024). Jordan.	**2024**
C17	Mohammed AlRefaie, **Mahmoud M. Hammad**. "An Evaluation of ACDC in Recovering JPMS-Compliant Components for Java Applications". The 15th International Conference on Information and Communication Systems (ICICS 2024). Jordan.	**2024**
C16	F. Shannaq, M. Habib, H. Faris and **M. M. Hammad**, "Empirical Study of Filtered-Based Feature Selection Methods for Arabic Text Classification," 2023 6th World Symposium on Communication Engineering (WSCE), Thessaloniki, Greece, 2023, pp. 114-119, doi: 10.1109/WSCE59557.2023.10365965. [Paper]	**2023**
C15	**Mahmoud M. Hammad**, Ibrahim Abueisa, and Sam Malek "Tool-Assisted Componentization of Java Applications" 2022 IEEE 19th International Conference on Software Architecture (ICSA), Honolulu Hawaii, USA 12-15 March 2022. Acceptance rate 20% [Paper]	**2022**
C14	Saja Al-Tawalbeh, **Mahmoud M. Hammad**, Mohammad AL-Smadi "KEIS@JUST at SemEval-2020 Task 12: Identifying Multilingual Offensive Tweets Using Weighted Ensemble and Fine-Tuned BERT" Fourteenth Workshop on Semantic Evaluation (SemEval) Barcelona, Spain December 12-13, 2020 [Paper]	**2020**
C13	Farah Shatnawi, Malak A. Abdullah, **Mahmoud M. Hammad** "MLEngineer at SemEval-2020 Task 7: BERT-Flair Based Humor Detection Model (BFHumor)" Proceedings of the Fourteenth Workshop on Semantic Evaluation (SemEval) Barcelona, Spain December 12-13, 2020 [Paper]	**2020**
C12	Saja Tawalbeh, **Mahmoud M. Hammad**, Mohammed Al Smadi. SAJA at TRAC 2020 Shared Task: Transfer Learning for Aggressive Identification with XGBoost. The Second Workshop on Trolling, Aggression & Cyberbullying (TRAC 2020), May, 2020, Marseille, France.	**2020**
C11	Hafed Zarzour, Yaser Jararweh, **Mahmoud Hammad** and Mohammed Al-Smadi. A long short-term memory deep learning framework for explainable recommendation. The 11th International Conference on Information & Communication Systems [Paper], April, 2020, Irbid, Jordan.	**2020**
C10	Dalal Alharthi, **Mahmoud M. Hammad**, Amelia C Regan. A Taxonomy of Social Engineering Defense Mechanisms. Future of Information and Communications Conference (FICC 2020), March 2020, San Fransisco, USA. [Paper]	**2020**

C9	Muntaha A. Al-As'ad, Nour Alkhdour, Mutaz mohammad Younes, Enas Khwaileh, **Mahmoud M. Hammad**, and Mohammad AL-Smadi. Question to Question Similarity Analysis Using Morphological, Syntactic, Semantic, and Lexical Features. 16th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2019), November 2019, Abu Dhabi, UAE. [Paper]	**2019**
C8	Mohamed Soltani, Zarzour Hafed, Babahenini Mohamed, **Mahmoud M. Hammad**, Mohammad AL-Smadi, and Yaser Jararweh. An Emotional Feedback Based on Facial Action Coding System for MOOCs with Computer-Based Assessment. The Sixth IEEE International Conference on Social Networks Analysis, Management and Security (SNAMS 2019), October 2019, Granada, Spain. [Paper]	**2019**
C7	Heba atta Aljarrah, Muntaha A. Al-As'ad, Saad A. Al-Zboon, Saja Tawalbeh, **Mahmoud M. Hammad**, and Mohammad AL-Smadi. Resolving Conflict of Interests and Recommending Expert Reviewers for Academic Publications Using Linked Open Data. The Sixth IEEE International Conference on Social Networks Analysis, Management and Security (SNAMS 2019), October 2019, Granada, Spain. [Paper]	**2019**
C6	Saad A. Al-Zboon, Saja Tawalbeh, Heba atta Aljarrah, Muntaha A. Al-As'ad, **Mahmoud M. Hammad**, and Mohammad AL-Smadi. Resolving Conflict of Interests in Recommending Reviewers for Academic Publications Using Link Prediction Techniques. International Conference on New Trends in Computing Sciences (ICTCS 2019), October 2019, Amman, Jordan. [Paper]	**2019**
C5	**Mahmoud M. Hammad**, Joshua Garcia, and Sam Malek. *SALMA: Self-Protection of Android Systems from Inter-Component Communication Attacks.* The 33rd IEEE/ACM International Conference on Automated Software Engineering (***ASE 2018***), September 2018, Montpellier, France. (21% acceptance rate) [Paper]	**2018**
C4	Joshua Garcia, **Mahmoud M. Hammad**, and Sam Malek. *Lightweight, Obfuscation-Resilient Detection and Family Identification of Android Malware.* International Conference of Software Engineering (***ICSE 2018 Journal-first***), May 2018, Gothenburg, Sweden. [Paper]	**2018**
C3	**Mahmoud M. Hammad**, Joshua Garcia, and Sam Malek. *A Large-Scale Empirical Study on the Effects of Code Obfuscations on Android Apps and Anti-Malware Products.* International Conference of Software Engineering (***ICSE 2018***), May 2018, Gothenburg, Sweden. (20% acceptance rate) [Paper]	**2018**
C2	Joshua Garcia, **Mahmoud M. Hammad**, Negar Ghorbani, and Sam Malek. *Automatic Generation of Inter-Component Communication Exploits for Android Applications.*	**2017**

	European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (***ESEC/FSE 2017***), September 2017, Paderborn, Germany. (24% acceptance rate) [Paper]	
C1	**Mahmoud M. Hammad**, Hamid Bagheri, and Sam Malek. *Determination and Enforcement of Least-Privilege Architecture in Android.* International Conference of Software Architecture (***ICSA 2017***), Gothenburg, Sweden, April 2017. (22% acceptance rate) [Paper] • *Nominated as best paper (6 out of 95 submissions)*	**2017**
T	**Mahmoud Hammad**, Hamid Bagheri, and Sam Malek. *DELDroid: Determination and Enforcement of Least-Privilege Architecture in Android.* Institute for Software Research, University of California, Technical report # UCI-ISR-18-2 [Paper]	**2018**

RESEARCH GRANTS

- Jordan University of Science and Technology (JUST) research grant. Determination and enforcement of the component-based architecture for the object-oriented software systems.
  Duration: 1/9/2019 – 1/9/2021
  Award amount: 9,500 JOD
- Nazzal, M., Abu Al-Haija, H., Ababneh, E., **Hammad, M**. & Rawwash, R. (7/2021 – 2/2023). Strengthening the right of people with disabilities in participation and integration through awareness, advocacy and creating a digital knowledge sharing platform on accessible places (JUST-ABLE), (Approved for 72,000 CAD), Canadian Fund of Local Initiatives (CFLI), Canadian Embassy to Jordan, Amman, Jordan, Reference number CFLI-2021-AMMAN-0002. https://justablejo.com/en/

TEACHING

- Courses taught at JUST university:
  - Game Design and Development (Developing 3D Games using the Unity game engine)
  - Visual Programming using C#
  - Client/Server Programming using Java
  - Software Security
  - Java Programming
  - Graduation Project 1
  - Graduation Project 2
- **Coursera MOOC Course**
  - I have designed and delivered a fully self-paced online MOOC course entitled "**Object Oriented Development using C#**" [LINK]

INVITED TALKS

- Invited by the Jordan Radio and Television Corporation to talk about the Artificial Intelligence in Media in the "New Day" program. Amman, Jordan, 2024 [LINK].
- Invited by the Jordan Radio and Television Corporation to talk about to talk about the Online Education and E-Learning in the "New Day" program. Amman, Jordan, 2024 [LINK].
- Invited speaker: THE Digital Universities MENA: Innovation for a technology-driven sustainable future, Riyadh, Saudi Arabia, October 2023 [LINK].
- Invited talk at the CORE conference: Experiences at universities with online learning, Dead Sea, Jordan, 2022 [LINK].
- Invited talk by the OC I.E.E.E Cyber Security chapter at Tustin, CA to talk about the Determination and Enforcement of Least-Privilege Architecture in Android. Tustin, CA. March 2017 [LINK].

JOURNAL REVIEWER/EDITORIAL BOARD MEMEBER

- Reviewer, Transactions on Software Engineering and Methodology (TOSEM), distinguished reviewer.
- Reviewer, IEEE Transactions on Software Engineering (TSE).
- Reviewer, ACM Transactions on Autonomous and Adaptive Systems (TAAS).
- Reviewer, Journal of Software: Practice and Experience.
- Reviewer, IET Software Journal
- Reviewer, IET Networks Journal
- Editorial board member, Computer Science and Technology: Current Trends [Link]
- Editorial board member, Journal of Construction Engineering Innovations and Research

COMMITTEES

I have served as a committee chair /member in many committees including:

- The public university excellence award committee at JUST
- Complaints and Suggestions Committee at JUST
- Member of the E-Learning Center's Council of the Jadara University
- The higher committee for establishing a strategic and executive plan for the inclusion of people with disabilities in higher education institutions.
- The Higher Council for the Rights of People with Disabilities Award for Accessible Places committee
- Scientific Research Committee in the Software Engineering department
- University surveys enhancement committee
- Erasmus+ Student Mobility Program Evaluator
- Software Engineering student advisor

- Hiring committee chair
- Jordan National Qualification Framework (JNQF) committee member
- Final Stage Jury for the IEEE NETC Nutrition Entrepreneurship Technical Competition [Link]
- Committee chair for evaluating the implementation of the Jordanian national plan for integrating E-Learning in higher education institutions formed by the Accreditation and Quality Assurance Commission for Higher Education Institutions (AQACHEI) for the following universities:
    - University of Jordan
    - German Jordan University
    - Al Hussein Technical University

CONFERENCES PROGRAM COMMITTEE

- PC Member, Evaluation and Assessment in Software Engineering (EASE), 2023
- PC Member, IEEE International Conference on Software Architecture (ICSA), 2023
- PC Member and track chair, The 13th International Conference on Information and Communication Systems (ICICS), 2022, 2023, 2024
- PC Member, IEEE International Conference on Software Architecture (ICSA), 2022
- PC Member and track chair, The 12th International Conference on Information and Communication Systems (ICICS), 2021
- PC Member, IEEE International Conference on Software Architecture (ICSA), 2021
- PC Member, Artifact Evaluation Track at the 43rd International Conference on Software Engineering (ICSE), 2021
- PC Member and track chair, The 11th International Conference on Information and Communication Systems (ICICS), 2020
- PC Member, IEEE International Conference on Software Architecture (ICSA), 2020
- PC Member, Sixth International Conference on Social Networks Analysis, Management and Security (SNAMS), 2019
- PC Member, Special Issue in Recent Advances on Social Networks Analysis, Management and Security (SNAMS), 2018
- PC Member, Artifact Evaluation Committee, International Conference on Software Engineering (ICSE 2021)
- PC Member, IEEE International Conference on Software Architecture (ICSA 2020)
- PC Member, The 10th International Conference on Information and Communication Systems (ICICS 2019), Irbid, Jordan, June 2019
- PC Member, Artifact Evaluation Committee, 14th International Symposium on Software Engineering for Adaptive and SelfManaging Systems (SEAMS 2019), Montreal, Canada, May 2019
- PC Member, Artifact Evaluation Committee, 13th International Symposium on Software Engineering for Adaptive and SelfManaging Systems (SEAMS 2018), Gothenburg, Sweden, May 2018
- PC Member, Artifact Evaluation Committee, 12th International Symposium on Software Engineering for Adaptive and SelfManaging Systems (SEAMS 2017), Buenos Aires, Argentina, May 2017

- Member, Resilient Autonomic Software Systems (RASS) project, a group of researchers from UCI and George Mason University (GMU) working on conceptualizing a framework called RASS for self-managing autonomic systems.

REVIEWER SERVICE

- 12th Workshop on Distributed Software Development, Software Ecosystems and Systems-of-Systems (WDES), 2018
- 12th European Conference on Software Architecture (FAS), 2018
- The 12th Workshop on Distributed Software Development, Software Ecosystems and Systems-of-Systems (WDES), 2018
- The 12th European Conference on Software Architecture (ECSA), 2018
- The 12th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO), 2018
- 13th International Symposium on Software Engineering for Adaptive and SelfManaging Systems (SEAMS 2018), Gothenburg, Sweden, May 2018.
- 14th IEEE International Conference on Autonomic Computing (ICAC), 2017
- 4th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MobileSoft), 2017
- 4th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft), 2017
- 11th European Conference on Software Architecture (ECSA), 2017
- 2nd eCAS Workshop on Engineering Collective Adaptive Systems (eCAS), co-located with SASO, 2017
- The 1st International Workshop on App Market Analytics (WAMA), 2016
- The 13th IEEE International Conference on Autonomic Computing (ICAC), 2016
- The 10th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO), 2016

TECHNICAL SKILLS

Game design	Unity game engine.
Design Method & Pattern	COMET Design method using UML 2
UML and Architecture Design Tools	Microsoft Visio, Rational Rose, Visual Paradigm
Software Development Platforms	MS .NET framework, Oracle ADF Jdeveloper 11g, Eclipse, Net Beans
Programming Language	Java, Objective-C, C#, ASP.NET, VB .NET, Oracle SQL/PLSQL, PHP, HTML 5, JavaScript, Java EJB 3, Python
Business Intelligence Packages	Oracle BI Discoverer, Oracle BI Designer
Databases	Oracle DBMS, MS SQL, MySQL

Implementation Architecture	MVC architecture using java servlet and struts 2
Mobile Development	Android app development, iOS app development
Web Services	SOAP, RESTful
Network Tools	WireShark, Snort, iptable
OS	Windows, Mac OS, Linux
Application Server	Apatche, Nginx

WORKSHOPS, TRAINING, & CERTIFICATES

- Trainer, Conducting Distance Education, a workshop for the faculty members at JUST university, 2020 [Certificate].
- Problem-Based Learning Workshop, JUST university, 2019 [Certificate].
- Quality of Online Courses- Applying the Quality Matters Rubric, JUST University, 2019 [Certificate].
- Assessment at Wok: Increasing Students Success and Engaging Large Classrooms, JUST university, 2022 [Certificate].
- Designing Effective E-Learning, JUST university, 2023 [Certificate].
- Building Web Applications in PHP, Coursera [Certificate].
- Oracle PL/SQL Developer Certified Associate (OCA).
- C#.NET 2005 at JUST, Irbid, Jordan.
- ASP.NET 2005 at JUST, Irbid, Jordan.
- Microsoft Office SharePoint Server 2007 Configuration at JUST, Irbid, Jordan.
- UML modeling using rational rose at JUST, Irbid, Jordan.
- Project Management Training and Certification Program at Method Corporation using PMI standards.
- Microsoft Project Using PMI Best Practices at Method Corporation, Irbid, Jordan
- Volunteer, Turtle rock school, Irvine, CA, USA. 2016-2018
- Volunteer, Al-Noor Foundation School, Westminster, CA, USA. 2016-2018.

SUPERVISED MASTER STUDENTS

- Sally Al-Ayoub (advisor). Thesis: Automatic Detection of Human Values in Textual Arguments. 2024.
- Noor Abu Ennab (co-advisor). Thesis: An Aspect-Based Sentiment Analysis Model For Arabic Game Reviews Based On Hybrid Transformers Models. 2024.
- Sajeda Banat (advisor). Thesis: A Comprehensive Study of Cloud, Fog, And Edge Computing Technologies For Healthcare IoT Systems. 2022.
- Heba Aljarrah (co-advisor). Thesis: Using Deep Learning Techniques To Detect Hate And Abusive Language In Arabic Tweets. 2021.
- Farah Shatnawi (co-advisor). Thesis: Detecting Humor In English News Headlines: A Comprehensive Study of Pre-trained Deep Learning Models. 2020.