Moath Jarrah

Associate Professor
Department of Computer Engineering
College of Computer and Information Technology
Jordan University of Science and Technology (JUST)

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Summary and Highlights

Research: Publications and citation details can be found at:
https://www.scopus.com/authid/detail.uri?authorId=36701294600
https://scholar.google.com/citations?user=3r66tMcAAAAJ&hl=en
https://www.researchgate.net/profile/Moath_Jarrah

- Published many papers in top-tier journals (e.g. ACM Transactions; Computers & Security; Computers and Electrical Engineering; Computer Communications; Information Systems; Multimedia Tools and Applications; Simulation) and conferences (e.g. SECRYPT; ACM SIGMOD; IEEE; AAMAS; AAAI).

- Worked in diverse cutting-edge research areas including data storage and retrieval, cloud computing, GPU computing, optimization, modeling & simulation, machine learning, security, and IoT.

- Collaborated with researchers from different institutes such as: MAX-PLANCK (Germany), University of Berkeley (USA), POSTECH (South Korea), Nanyang Technological University (Singapore), Rolls-Royce @ NTU Corporate Lab.

- Regularly served as a committee member and a reviewer for leading journals and conferences.

- Graduated 12 Master students and currently supervising 5 students and 3 research assistants (RAs) at JUST (There is no Ph.D. program in the department).

Teaching:

- Taught different graduate- and undergraduate-level courses in the areas of distributed systems, computer architecture, operating systems, algorithms, and programming.

- Developed curricula and course material for several courses.

- Achieved high student evaluation scores.

Professional Experience

- **Head of the Department of Computer Engineering, JUST**   *Sep. 2016 - Sep. 2018*

  - Applied for ABET accreditation for the bachelor program of Computer Engineering and successfully received the accreditation.
  - Prepared and scheduled meetings with the department industrial advisory board.
  - Prepared the required surveys for ABET report including: the advisory board survey, the alumni survey, the exit survey, and the employers survey .
  - Prepared the ABET Self-Study Report (SSR).
  - Prepared the necessary tools and equipment for new laboratory courses for the bachelor program.
  - Supervised the admission requirements and polices for the master program in Computer Engineering.
  - Constructed and designed new courses and the curriculum for a new study plan to reflect new technologies, advances, and requirements.

- – Tailored and updated the master study plan to apply new rules and regulations forced by the higher education ministry of Jordan.
- – A member in the department and college council.
- – A member in the research committee at the level of the department and at the level of the college. I have reviewed research proposals, master thesis, and arranged for master defense committees.
- – Supervised the department staff and their workload, including secretaries and teaching assistants.
- – Prepared the course schedule for the fall, spring, and summer semesters for each academic year and distributed the teaching load among the faculty members .
- – Supervised the senior graduation projects and prepared the discussion committees.
- – Supervised the training course and built connections with the private sector to allocate training seats for our senior students.
- – Prepared different administrative reports for the college, the president office, the university quality assurance center, and the higher education ministry of Jordan.

- **Faculty Member - Department of Computer Engineering, JUST**   *Since September 2008*

  - – Associate Professor since June 2016.
  - – Supervised master thesis and senior projects at the undergraduate level as part of bachelor degree completion.
  - – Taught courses in the Computer Engineering program. Please see section "Teaching Experience" below.
  - – Lead the technical Cloud Computing team (2012 – 2014); Worked on IBM CloudBurst 2.1, ESXi/Vmware, Created and partitioned SAN storage datastores; training of Tivoli software stack including: cloud service delivery 7.2.2; IBM TSAM 7.2.1.1, administration and operation; Tivoli Provisioning Manager 7.2, Automation and Monitoring Fundamentals; Image and template creation and deployment; Virtual Center administration.

- **Senior Research Fellow - Rolls-Royce @ NTU Corporate Lab**   *May 2014 – August 2015*
  School of Computer Engineering, Nanyang Technological University, Singapore.

  - – Designed a multi-agent, interactive, and visually rich modeling and simulation framework for rapid simulation of complex business processes at Rolls-Royce.
  - – Provided enhanced industrial solutions and outcomes where reliability and sustainability are of the main KPIs.
  - – Developed new techniques to handle complex project management for different distributed business processes.
  - – Helped in supervising PhD students at NTU, Singapore.

- **Scholar Researcher - POSTECH Database Lab**   *February 2014 – May 2014*
  Department of Creative IT Engineering,
  Pohang University of Science and Technology, South Korea.

  - – Worked on subgraph listing problem, triangulation, and grant proposals at the Database Lab on Big Data at POSTECH university.
  - – Helped in preparation and submission of a great grant proposal to the Microsoft Research Asia that was approved. The grant was received by POSTECH Database Lab in July 2014.

- **Adjunct professor - Computer Engineering**   *February 2011 – January 2013*
  New York Institute of Technology, USA, NYiT campus in Amman, Jordan.

- Taught the following courses: data structures and algorithms, system development project, probability and stochastic processes.

- **Research Assistant - ACIMS Lab** *June 2006 – August 2008*
  Department of Electrical and Computer Engineering (ECE)
  The University of Arizona, Tucson, AZ, USA.

  - Worked at the Arizona Center for Integrative Modeling and Simulation (ACIMS) which is a joined lab between The University of Arizona, Tucson and Arizona State University, Tempe.
  - Developed an automated generic negotiation framework to support different agents' behaviors in multi-agent environments.
  - Developed an automated domain-independent marketplace to support dynamic negotiations.
  - Developed a dynamic structure for the language of encounter based on the domain of interest utilizing ontology structure.
  - Designed and Developed an automatic code generator to map ontology into different domain applications.

- **System Analyst and Network administrator** *June 2006 – August 2008*
  Department of Pediatrics, University Medical Center,
  The University of Arizona, Tucson, AZ, USA.

  - Managed more than 300 computing nodes in the department.
  - Managed software and hardware installation under different platforms: Windows, Linux, and Mac OS.

- **Research Assistant - Autonomic Computing Laboratory** *February 2004 – May 2006*
  Department of Electrical and Computer Engineering (ECE)
  The University of Arizona, Tucson, AZ, USA.

  - Developed monitoring services to keep track of the different components and resources in a grid computing environment.
  - Designed and developed a distributed programmable visualization toolkit to automate the visualization process stages and run different frames generations in a cluster.
  - Developed automatic fault detection and recovery (self-healing) agents implemented on each node in the grid.
  - The work was with SciDAC, Scientific visualization of supernovae simulation data-files. A collaboration between four institutes involved in the project: University of Arizona (Astronomy), University of California (Santa Cruz), University of California (Berkeley), Institut fur Astrophysik in Garching (MAX-PLANCK), Germany.

Education

The University of Arizona, Tucson, AZ, USA

- Ph.D., Electrical and Computer Engineering, August 2008

  - Thesis Title: An Automated Methodology for Negotiation Behaviors in Multi-Agent Engineering Applications.
  - Advisor: Professor Bernard P. Zeigler.
  - Minor in: Industrial Engineering, Advisor: Professor Wei Hua Lin.

- M.S., Electrical and Computer Engineering, May 2006

- Thesis Title: Implementing Scientific Visualization via Programmable Visualization Toolkit within Grid Enabled Framework.
- Advisor: Professor Salim Hariri

Jordan University of Science and Technology

- Bachelor in Electrical and Computer Engineering, February 2002

  - Awarded a full scholarship from JUST to pursue the M.S. and Ph.D. degrees in Computer Engineering in one of the top 50 universities in the USA.

Research Grants

- Prepared and submitted a great research proposal to the Deanship of Research that was approved. The research area is in Arabic fake news. The research fund was received in 2021 and is being used to cover the payrolls of one research assistant over two years.

- Prepared and submitted a great research proposal to the Deanship of Research that was approved. The area of research is graph-based processing structure and algorithms design. The research fund was received in 2016 and used to cover the payrolls of four research assistants over two years.

- Prepared and submitted a great research proposal to the Deanship of Research that was approved. The research area is in image and data processing. The research fund was received in 2016 and used to cover the payrolls of two master students and three research assistants over two years and a half.

- Helped in preparation and submission of a great grant proposal to the Microsoft Research Asia that was approved. The grant was received by POSTECH Database Lab in July 2014. The grant was used to cover PhD students scholarships.

- Prepared and submitted a great research proposal to the Deanship of Research that was approved. The area of research is smart grid optimization. The research fund was received in 2013 and used to cover the payrolls of one master student and three research assistants over two years.

Publications

Publications and citation details can be found at:
  https://www.scopus.com/authid/detail.uri?authorId=36701294600
  https://scholar.google.com/citations?user=3r66tMcAAAAJ&hl=en
  https://www.researchgate.net/profile/Moath_Jarrah

Book chapters:

- **Moath Jarrah** and Omar Al-Jarrah, In progress: DEVS-Based Modeling and Simulation to Reveal Emergent Behaviors of IoT Devices, CRC Press, 2021.

- Basheer Al-Duwairi and **Moath Jarrah**, Botnet Architectures: A State-of-the-Art Review. Kambourakis, Georgios, Marios Anagnostopoulos, Weizhi Meng, and Peng Zhou, eds. Botnets: Architectures, Countermeasures, and Challenges, CRC Press, 2019.

- **Moath Jarrah**, Emergence as a Macroscopic Feature in Man-Made Systems. Rainey, Larry B., and Mo Jamshidi. Engineering emergence: A modeling and simulation approach, CRC Press, 2018.

Peer reviewed journal articles:

1. Basheer Al-Duwairi, **Moath Jarrah**, and Ahmed Shatnawi, "PASSVM: A Highly Accurate Online Fast Flux Detection System", *Computers & Security, Elsevier*, 2021.

2. Ashwaq Khalil, **Moath Jarrah**, Mahmoud Al-Ayyoub, and Yaser Jararweh, "Text Detection and Script Identification in Natural Scene Images Using Deep Learning", *Computers and Electrical Engineering, Elsevier*, 2021.

3. **Moath Jarrah**, Bahaa Al-khatieb, Naseem Mahasneh, Baghdad Al-khateeb, and Yaser Jararweh,"GDBApex: A Graph-Based System to Enable Efficient Transformation of Enterprise Infrastructures", *Software: Practice and Experience, Wiley*, 2021.

4. Majeda Albataineh and **Moath Jarrah**,"DEVS-IoT: Performance Evaluation of Smart Home Devices Network", *Multimedia Tools and Applications, Springer*, 2021.

5. Duaa Mohammad, Inad Aljarrah, and **Moath Jarrah**, "Searching Surveillance Video Contents Using Convolutional Neural Network", *International Journal of Electrical and Computer Engineering (IJECE)*, 2021.

6. Monther Aldwairi, Abdulmughni Y. Hamzah, and **Moath Jarrah**,"KPN-Based Parallelization of Wu-Manber on Multi-Core Machines", *Cluster Computing, Springer*, 2019.

7. Monther Aldwairi, Abdulmughni Y. Hamzah, and **Moath Jarrah**,"MultiPLZW: A Novel Multiple Pattern Matching Search in LZW-Compressed Data", *Computer Communications, Elsevier*, 2019.

8. Salah Harb and **Moath Jarrah**,"FPGA Implementation of ECC over $GF(2^m)$ for Small Embedded Applications", *ACM Transactions on Embedded Computing Systems (TECS), ACM*, 2019.

9. Ali Shatnawi, Bushra AlHajouj, and **Moath Jarrah**,"A New Multi-Threaded and Interleaving Approach to Enhance String Matching for Intrusion Detection Systems", *International Journal of Communication Networks and Information Security (IJCNIS)*, 2018.

10. Monther Aldwairi, Ansam M Abu-Dalo, and **Moath Jarrah**, "Pattern Matching of Signature-Based IDS Using Myers Algorithm Under MapReduce Framework", *EURASIP Journal on Information Security, Springer*, article 9(2017), 2017.

11. **Moath Jarrah**, Muneera Al-Quraan, Yaser Jararweh, and Mahmoud Al-Ayyoub, "MedGraph: A Graph-Based Representation and Computation to Handle Large Sets of Images", *Journal of Multimedia Tools and Applications, Springer*, 2017.

12. Mohammed Shehab, Mahmoud Al-Ayyoub, Yaser Jararweh, and **Moath Jarrah**, "Accelerating Compute-Intensive Image Segmentation Algorithms Using GPUs", *Journal of Supercomputing, Springer*, 2017.

13. **Moath Jarrah**, Manar Jaradat, Yaser Jararweh, Mahmoud Al-Ayyoub, and Abdelkader Bousselham, "A Hierarchical Optimization Model for Energy DataFlow in Smart Grid Power Systems", *Journal of Information systems, Elsevier*, 2015.

14. Mahmoud Al-Ayyoub, Ansam M. Abu-Dalo, Yaser Jararweh, **Moath Jarrah**, and Mohammad Al Sa'd, "A GPU-Based Implementations of the Fuzzy C-Means Algorithms for Medical Image Segmentation", *The Journal of Supercomputing, Springer*, 2015.

15. Yaser Jararweh, **Moath Jarrah**, Mazen kharbutli, Zakarea Alshara, Mohammed N. Alsaleh, and Mahmoud Al-Ayyoub, "CloudExp: A Comprehensive Cloud Computing Experimental Framework", *Journal of Simulation Modelling Practice and Theory, Elsevier*, 2014.

16. Yaser Jararweh, **Moath Jarrah**, and Abdelkader Bousselham, "GPU Scaling: From Personal Supercomputing to the Cloud", *International Journal of Information Technology and Web Engineering, IGI Global*, 2014.

17. Yaser Jararweh, Zakarea Alshara, **Moath Jarrah**, Mazen Kharbutli, and Mohammad N. Alsaleh, "TeachCloud: A Cloud Computing Educational Toolkit". *The International Journal of Cloud Computing, Inderscience*, 2013.

18. **Moath Jarrah** and Bernard Zeigler. "A Modeling and Simulation-based Methodology to Support Dynamic Negotiation for Web Service Applications". *SIMULATION: Transactions of the Society for Modeling and Simulation Journal, Sage*, 2012.

19. Rolf Walder, Adam Burrows, C. D. Ott, E. Livne, I. Lichtenstadt, and **Moath Jarrah**. "Anisotropies in the Neutrino Fluxes and Heating Profiles in Two-dimensional, Time-dependent, Multi-Group Radiation Hydrodynamics Simulation of Rotating Core-Collapse Supernova". *The Astrophysical Journal, IOP Publishing*, 2005.

Peer reviewed conference articles:

1. Majeda Albataineh and **Moath Jarrah**, "DEVS-Based IoT Management System for Modeling and Exploring Smart Home Devices", *In Proceedings of the 6th IEEE International Conference on Internet of Things: Systems, Management and Security (IOTSMS 2019)*, Spain, October 2019.

2. **Moath Jarrah** and Farah Al-Shrida, "A Multi-Objective Evolutionary Solution to Improve the Quality of Life in Smart Cities", *In Proceedings of the 14th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT (HONET-ICT), IEEE*, Jordan, 2017.

3. Salah Harb and **Moath Jarrah**, "Accelerating Square Root Computations Over Large GF(2^m)", *Proceedings of the 14th International Joint Conference on e-Business and Telecommunications (ICETE 2017) - Volume 4: SECRYPT*, Madrid, Spain, July, 2017.

4. Hyeonji Kim, Juneyoung Lee, Sourav S Bhowmick, Wook-Shin Han, JeongHoon Lee, Seongyun Ko, and **Moath Jarrah**, "DUALSIM: Parallel Subgraph Enumeration in a Massive Graph on a Single Machine", *In Proceedings of SIGMOD'16 the 2016 International Conference on Management of Data*, ACM SIGMOD, San Francisco, California, USA, 2016.

5. **Moath Jarrah**, "Modeling and Simulation of Renewable Energy Sources in Smart Grid Using DEVS Formalism", *In Proceedings of the 7th International Conference on Ambient Systems, Networks and Technologies (ANT-2016)*, Madrid, Spain, May, 2016.

6. Zehong Hu, Meng Sha, **Moath Jarrah**, Jie Zhang and Hui Xi, "Efficient Computation of Emergent Equilibrium in Agent-Based Simulation", *In Proceedings of the 30th AAAI Conference on Artificial Intelligence (AAAI)*, Phoenix, Arizona USA, February 2016.

7. **Moath Jarrah** and Jie Zhang, "Trusted Mediator Agents to Better Manage Complex and Competitive Supply Chains", *In Proceedings of the 14th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Istanbul, Turkey, 2015.

8. **Moath Jarrah**, Bernard P. Zeigler, Chi Xu, and Jie Zhang, "A Multi-Agent Simulation Framework to Support Agent Interactions Under Different Domains". *In Proceedings of the 18th Asia Pacific Symposium on Intelligent and Evolutionary Systems*, Singapore, 2015.

9. Manar Jaradat, **Moath Jarrah**, Abdelkader Bousselham, Yaser Jararweh, and Mahmoud Al-Ayyoub, "The Internet of Energy: Smart Sensor Networks and Big Data Management for Smart Grid", *In Proceedings of The 10th International Conference on Future Networks and Communications (FNC 2015)/The 12th International Conference on Mobile Systems and Pervasive Computing (MobiSPC 2015)*, 2015.

10. Manar Jaradat, **Moath Jarrah**, Yaser Jararweh, Mahmoud Al-Ayyoub, and Abdelkader Bousselham, "Integration of Renewable Energy in Demand-Side Management for Home Appliances", *In Proceedings of the 2nd International Renewable and Sustainable Energy Conference, IRSEC'14*, Morocco, October 2014.

11. Mazen Kharbutli, **Moath Jarrah**, and Yaser Jararweh, "SCIP: Selective Cache Insertion and Bypassing to Improve the Performance of Last-Level Caches". *In Proceedings of the 2013 IEEE Conference on Applied Electrical Engineering and Computing Technologies (AEECT)*. Amman, Jordan, December, 2013.

12. Yaser Jararweh, **Moath Jarrah**, Abdelkader Bousselham, and Salim Hariri, "GPU-based Personal Supercomputing". *In Proceedings of the 2013 IEEE Conference on Applied Electrical Engineering and Computing Technologies (AEECT)*, Jordan, December, 2013.

13. **Moath Jarrah** and Bernard Zeigler, "Ontology-Based Marketplace for Supporting Negotiation in Different Scientific Applications", *In Proceedings of the 2012 IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC 2012)*, Seoul, South Korea, October 2012.

14. Hazem Al-Najjar and **Moath Jarrah**, "Smart Job Scheduling with Backup System in Grid Environment", *In Proceedings of the 18th IEEE International Conference on Networks (ICON 2012)*, Singapore, December 2012.

15. Yaser Jararweh, **Moath Jarrah**, and Salim Hariri. "Exploiting GPUs for Compute-Intensive Medical Applications". *In Proceedings of the 2012 International Conference on Multimedia Computing and Systems (ICMCS 12)*, Morocco, May 2012.

16. Yaser Jararweh, Zakarea Alshara, **Moath Jarrah**, Mazen Kharbutli, and Mohammad N. Alsaleh. "TeachCloud: Cloud Computing Educational Toolkit". *In Proceedings of the 1st International IBM Cloud Academy Conference, ICA CON 2012*, North Carolina, USA, April 2012.

17. Yaser Jararweh, Mazen kharbutli, **Moath Jarrah**, Mohammad Alsaleh, and Salim Hariri. "CloudFlow: An Innovative Management Framework for Cloud Computing Systems". *In Proceedings of the 1st International IBM Cloud Academy Conference, ICA CON 2012*, North Carolina, USA, April 2012.

18. **Moath Jarrah**, Lubna Shakhatreh, Halah Barham, and Abeer Batarseh. "An SES-Based Ontology Modeling and Simulation Approach for Distributed Systems Resource Sharing". *In Proceedings of the 22nd IASTED International Symposia on Modeling and Simulation.* Calgary, Canada, July 2011.

19. **Moath Jarrah**, Ameen Jarrah, and Bernard Zeigler. "Comprehensive On-Chip Traffic Generator Model for SoC Design and Synthesis". *In Proceedings of the 2010 Spring Simulation Multi-conference SpringSim '10, ACM*. Orlando, FL, USA, April 2010.

Teaching Experience

8+ years in teaching, developing new courses, and updating existing courses at both graduate and undergraduate levels.

- CPE779: Discrete Event Systems: Modeling and Simulation, (graduate). Taught and developed the course
- CPE780: Seminar, (graduate).
- CPE760: Advanced Operating Systems, (graduate).
- CPE740: High-Performance Computer Architecture, (graduate).
- CPE716: Modeling and Performance Evaluation, (graduate).Taught and developed the course.
- CPE560: Distributed Systems and Middleware (undergraduate), Taught and developed the course.
- CPE472: Operating Systems (undergraduate).
- CPE471: UNIX System Programming (undergraduate), Taught and developed the course.
- CPE452: Microprocessor Interfacing Lab (undergraduate).
- CPE352: Computer Architecture (undergraduate).
- CPE341/NES301: Applied Probability and Queuing Theory (undergraduate).
- CPE252: Computer Organization and Design (undergraduate).
- CPE231/251: Digital Logic Design (undergraduate).
- CPE253: Digital Logic Design Lab (undergraduate).
- CPE211: Scripting Languages Lab (undergraduate).
- CS211: Data Structure and Algorithms (undergraduate).
- CS112: Introduction to Object Oriented Programming (undergraduate).

Mentoring

- Alumni master students:
  1. Ashwaq Khalil. Thesis title: *Text Detection and Script Identification in Natural Scene Images Using Deep Learning.*
  2. Majeda Albataineh. Thesis title: *Modeling and Exploring the Performance of Smart Home Devices Using Discrete Event System Specification Formalism.*
  3. Duaa Mohammad. Thesis title: *Surveillance Video Content Search System Based on Convolutional Neural Network.*
  4. Rawand Al-Foqaha. Thesis title: *Self-Optimized Multi-Agent System to Meet Different Workflows Constraints and Tasks Deadlines.*
  5. Farah Al-Shrida. Thesis title: *A Multi-Objective Approach to Optimize Different Variables in Smart Grid.*
  6. Bushra Al-Hajouj. Thesis title: *A Multi-threaded Interleaving Implementation for the Aho-Corasick Algorithm using GPUs.*
  7. Munera Al-Quraan. Thesis title: *MEDGRAPH: A Graph-Based Representation and Manipulation of Medical Images.*
  8. Manar Jaradat. Thesis title: *Widespread Energy Cooperation Between Societies in Smart Grid.*
  9. Amin Karim Al-Jarrah. Thesis title: *Comprehensive Traffic Generator Model for System on Chip Design and Synthesis.*
  10. Hazim Al-Najjar. Thesis title: *Resolving Jobs Dependency in Smart Grids Using Neural Networks and Statistical Models.*
  11. Zakarea Al-Shara. Thesis title: *An Educational and Experimental Toolkit for Cloud Computing.*

12. Ansam Abu-Dalo. Thesis title: *A Graphic Processing Unit Based Pattern Matching for Intrusion Detection Using MapReduce Framework and Dynamic Programming.*

- I have supervised more than 20 senior projects. Currently, I am advising five master students and three research assistants (RAs). There is no Ph.D. program at JUST.

Professional Services

- IBM-JUST Cloud team to supervise a CloudBurst 2.1 for services provisioning with hands on experience using IBM Tivoli software stack, ESXi hypervisor and script automation.

- Comprehensive exam committee for graduate level degree (Master).

- Serving in Master thesis defense committees.

- Member of the jury board for Jordan national parade competition.

- Member of the examination board of Jordan national public services.

- Member of the Engineering Society in Amman/Jordan.

- Reviewer of research proposals submitted to the college for research grant.

- Course coordinator for probability and stochastic processes, digital logic design, modeling and simulation, computer architecture, and high performance architecture courses.

- Serving in committees at the department and college levels:
    - Academic accreditation services and ABET committee.
    - Faculty staff promotion committee.
    - Graduate studies and scientific research committee.
    - Curricula and course equivalency committee.
    - Reviewing and reformulating the Master program's curriculum Committee.
    - Committee of courses schedule and examinations.
    - Undergraduate projects evaluation committee.
    - Field training committee.
    - Council of the Computer and Information Technology college.
    - Head of the Computer Engineering Department council.

International Societies

- Member of ACM.

- Member of IEEE.

- Member of the Society for Modeling and Simulation (scs.org).

International Conference and Journal Services

- Reviewer for Elsevier and Sage journals (e.g. Simulation Modelling Practice and Theory, SIMULATION: transactions of the society for modeling and simulation).

- Session chair/co-chair in several leading international conferences such as: The Asia Pacific Symposium on Intelligent and Evolutionary Systems, IASTED MS 2011 in Canada, and ICICS.

- Member of the technical program committee of the International Symposium on Theory of Modeling and Simulation (TMS/DEVS), USA. (TMS/DEVS 2012), (TMS/DEVS 2013), (TMS/DEVS 2014), (TMS/DEVS 2015), (TMS/DEVS 2016), (TMS/DEVS 2017), (TMS/DEVS 2018), (TMS/DEVS 2019), (TMS/DEVS 2020), (TMS/DEVS 2021).

- Member of the technical program committee of the International Conference on Information and Communication Systems (ICICS), Jordan. (ICICS 2011), (ICICS 2012), (ICICS 2013), (ICICS 2014), (ICICS 2015), (ICICS 2016).

- Member of the technical program committee the IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT 2011), (AEECT 2012), (AEECT 2018).

Awards

- Awarded a full scholarship from JUST to pursue the M.S. and Ph.D. degrees in computer engineering in one of the top 50 universities in the USA.

- Chancellor's dean list award of The University of Arizona, Tucson, USA.

- PhD tuition waiver fellowship award at The University of Arizona, Tucson, USA.

Workshops and training

- Huawei Certified ICT Associate-Security (HCIA-Security).

- Basics of Distance Education.

- Modern University Instructional Method.

- E-Learning EndNote.

- Statistical Data Analysis Using SPSS.

Technical Computing Certificates

- HTML5, CSS3, and JavaScript Boot camp at Nanyang Technological University.

- Tivoli Provisioning Manager 7.2 Automation Package Development (TP210).

- IBM Tivoli Monitoring Fundamentals (TM021).

- IBM Tivoli Service Automation Manager 7.2.1.1 Administration and Operations Workshop (ZW044).

- Foundations Technologies for Cloud Service Deliver (TP310).

Programming Languages and Environments

15+ years in developing, designing, implementing, testing, and maintaining software systems using C++, Java, and shell scripts.

High-level languages: Python, Java, C/C++.

Modeling, simulation, and visualization tools: DEVSJAVA, AnyLogic, Repast, Jadex, IBM Open DX visualization tool, MenCoder.

Problem Solving: Machine learning, Data structure, Discrete EVent modeling and Simulation (DEVS), System Entity Structure (SES), OOP, Mathematical optimization methods (Linear and integer programming, multi-objective optimization.

HPC: Proficient in using Linux systems, POSIX, SUS standards; Multi-threading, interprocess communication, synchronization, MPI, MapReduce (Hadoop), graph-based DB, OOP, JDBC, JAXB, XML, MySQL, SOA.