

MUHANNAD Q. QUWAIDER

Professor in Computer Engineering
Faculty of Computer and Information Technology
Jordan University of Science and Technology (JUST)
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EDUCATION

- **Ph.D.** in Computer Engineering, May 2010
Michigan State University (MSU), East Lansing, Michigan, USA
 - Dissertation Title: Network-integrated Sensing and Energy-aware Protocols in Wireless Body Area Networks
 - **M.S.** in Computer Engineering, January 2006
Michigan State University (MSU), East Lansing, Michigan, USA
 - **B.S.** in Electrical and Computer Engineering, June 2000
Jordan University of Science and Technology (JUST), Irbid, Jordan
- Full Professor: Since November 2021
➤ Associate Professor: October 2015 – November 2021
➤ Assistant Professor: July 2010 – October 2015

RESEARCH INTERESTS

Current research interests include the broad area of wireless data networking, Internet of Things, Cloud Computing, health applications body area networks, low-power network protocols, application-specific sensor networks, and wireless networks security.

P.S: Listed in the World's Top 2% Scientist List of Stanford University

PROFESSIONAL EXPERIENCE

- Currently, Director of Center of Excellence for Innovative Projects, Jordan University of Science and Technology, Irbid, Jordan, Sep. 2022 – Now
- Vice dean of Faculty of Computer and Information Technology, Jordan University of Science and Technology, Irbid, Jordan for eight years, Sep. 2012 – Sep. 2016 and Sep. 2018 – Sep. 2022.

- Chairman of Computer Engineering Department, Jordan University of Science and Technology, Irbid, Jordan, for four years, Sep. 2018 – Sep. 2022.
- PI for three funded projects from the deanship of research with a budget of more than \$50,000:
 - Real-time Crowdedness avoidance system using Wireless Sensor Networks and Mobile Application
 - Real-time Crowdedness avoidance system using Wireless Sensor Networks and Mobile Application
 - Livestock Activity and Location Monitoring using Wireless Body-Mounted Sensors
- Involved in two Capacity Building Erasmus+ Projects, 2015-2018 for a budget of more than 1,000,000 Euro
 - Capacity-Building projects in the field of Higher Education (E+CBHE) in Software Engineering (ERASMUS+ 561577-FI PWs@PhD)
 - Capacity-Building projects in the field of HEAL+ (aimed at developing a Master program in Health Informatics in the MENA region) Ref: 561818-EPP-1-2015-1-ES-EPPKA2-CBHE-JP
- Department of Computer Engineering, Jordan University of Science and Technology
 - Full Professor: since November 2021
 - Associate Professor: October 2015 – November 2021
 - Assistant Professor: July 2010 – October 2015
 - Courses, I have taught the following courses (sample):
 - Advanced Computer Networks
 - Computer Organization And Design
 - Digital Logic Design
 - Microprocessor Systems
 - Microprocessor Systems (Non Cpe Students)
 - Microprocessor Systems And Assembly Language
 - Microprocessor Systems And Assembly Language Lab
 - Microprocessor Systems Lab
 - Practical Training
 - Seminar In Computer Engineering
 - Software Design And Development Project
 - Special Topics In Computer Engineering
 - Systems Software Design ,Development , And Documentation
 - Systems Software Design Development And Documentation Lab
 - Workshop In Computers Maintenance And Operation
- Technical Program and Steering Committees chair

- International Conference on information and Communication Systems (ICICS'2012, ICICS'2013 ICICS'2014, ICICS'2015, ICICS'2016, ICICS'2017, ICICS'2018, ICICS'2019, ICICS'2020 and ICICS'2022)
 - International Workshop on Mobile Cloud Computing systems, Management, and Security (MCSMS'2015 and MCSMS'2015)
 - International Symposium on Social Networks Analysis, Management and Security (SNAMS'2014, SNAMS'2015 and SNAMS'2016)
- Organizing and hosting
 - International Conference on information and Communication Systems (ICICS'2012, ICICS'2013 ICICS'2014 ICICS'2015, ICICS'2016, ICICS'2017, ICICS'2018, ICICS'2019, ICICS'2020 and ICICS'2022)
 - Organizing the International Workshop on Mobile Cloud Computing systems, Management, and Security (MCSMS'2015 and MCSMS'2015)
 - Organizing the International Symposium on Social Networks Analysis, Management and Security (SNAMS'2014, SNAMS'2015 and SNAMS'2016)
- Publication chair - International Conference on information and Communication Systems (ICICS'2013 ICICS'2014 ICICS'2015, ICICS'2016, ICICS'2017, ICICS'2018, ICICS'2019, ICICS'2020 and ICICS'2022)
- Network Embedded and Wireless Systems Laboratory, Michigan State University (MSU), East Lansing, Michigan, USA
 - Scholar visitor: May 2011 – September 2011
- Network Embedded and Wireless Systems Laboratory, Michigan State University (MSU), East Lansing, Michigan, USA
 - Research consultant: May 2010 – Present
- Network Embedded and Wireless Systems Laboratory, Michigan State University (MSU), East Lansing, Michigan, USA
 - Research Assistant: July 2005 – May 2010
- Department of Electrical and Computer Engineering, Michigan State University (MSU), East Lansing, Michigan, USA
 - Teaching Assistant: September 2003 – December 2008
 - Taught recitation sections; covered classes and labs; held office hours; and graded homeworks, quizzes and exams
 - Courses:
 - Communication Networks (ECE 442)
 - <https://www.egr.msu.edu/ece/students/courses/CourseDetail.php?number=331>Microprocessors and Digital Systems (ECE 331)
 - Digital Logic Fundamentals (ECE 230)

- Circuits and Systems (ECE 201)
- Electronic Instrumentation and Systems (ECE 345)
- Intro to Signal Processing (ECE 366)
- Electronic Design Automation (ECE 411)
- English Language Center, Michigan State University (MSU), East Lansing, Michigan, USA
 - Software Developer: September 2004 – May 2006
 - Tutorial Design for many languages like: English, Arabic, French, .., using Macromedia Flash.
- Department of Electrical Engineering, Jordan University of Science and Technology, Irbid, Jordan.
 - Network Administrator: April 2002 – August 2008
 - Computers Maintenance
 - Web Page Designer
 - Software Installation
- Software Solutions Company (OWSS), Amman, Jordan
 - Software Developer: June 2000 – April 2002
- Department of Computer Engineering, Yarmouk University, Irbid, Jordan.
 - Teacher assistant for many computer engineering courses: Feb 2000 – April 2002

PUBLICATIONS

Books/Book Chapters

1. Mais Tawalbeh, **Muhannad Quwaider** and Lo'ai Tawalbeh, "Case Study on Future Generation IoT Secure Model for IoT-Based Systems—Health Care Example" in Blockchain Technology for Data Privacy Management (1st ed.). CRC Press. <https://doi.org/10.1201/9781003133391>
2. **Muhannad Quwaider** and Subir Biswas, "Wireless Body Area Networks: A Framework of Network-integrated Sensing and Energy-aware Protocols for Resource-constrained Applications in Wireless Body Area Networks," Book published by VDM Verlag, Saarbrucken, Germany, November 2010 – ISBN-13: 978-3-639-30755-9.

Journal/Magazine papers

3. **Muhannad Quwaider**, Abdullah Alabed and Rehab Duwairi, "Shooter video games for personality prediction using five factor model traits and machine learning," Simul. Model. Pract. Theory, Volume 122, January 2023, 102665, doi: <https://doi.org/10.1016/j.simpat.2022.102665>. (Scopus: Q1, TR: SCIE, IF: 4.199)
4. Saleh Abdel-Hafeez, Sanabel Ootom, **Muhannad Quwaider**, "Design of memory Alias Table based on the SRAM 8T-Cell," International Journal of Circuit Theory and Applications, <https://doi.org/10.1002/cta.3284> (Scopus: Q1, IF: 2.378)
5. Lo'ai Tawalbeh, Fadi Muheidat, Mais Tawalbeh, **Muhannad Quwaider**, Ahmed A. Abd El-Latif, "Edge enabled IoT system model for secure healthcare," Measurement, vol. 191,

- p. 110792, Mar. 2022, doi: <https://doi.org/10.1016/j.measurement.2022.110792>. (Scopus: Q1, TR: SCIE, IF: 4)
6. **Muhannad Quwaider** and Yousef Shatnawi, "Congestion Control Model for Securing Internet of Things Data Flow," Elsevier Ad Hoc Networks Journal, May, 2020, Volume 106, doi: <https://doi.org/10.1016/j.adhoc.2020.102160>. (Scopus: Q1, TR: SCIE, IF: 3.643)
 7. **Muhannad Quwaider** and Yousef Shatnawi, "Neural network model as Internet of Things congestion control using PID controller and immune-hill-climbing algorithm," Simul. Model. Pract. Theory, p. 102022, Nov. 2019, doi: <https://doi.org/10.1016/j.simpat.2019.102022>. (Scopus: Q1, TR: SCIE, IF: 4.199)
 8. **Muhannad Quwaider** and Yaser Jararweh, "Multi-tier cloud infrastructure support for reliable global health awareness system," Simul. Model. Pract. Theory, vol. 67, pp. 44–58, Sep. 2016, doi: <https://doi.org/10.1016/j.simpat.2016.06.005>. (Scopus: Q1, TR: SCIE, IF: 4.199)
 9. **Muhannad Quwaider** and Yaser Jararweh, "A cloud supported model for efficient community health awareness," Pervasive and Mobile Computing, Available online 5 August 2015, ISSN 1574-1192, doi: <https://doi.org/10.1016/j.pmcj.2015.07.012>. (Scopus: Q1, TR: SCIE, IF: 2.725)
 10. Rehab Duwairi, Amena Hayajneh and **Muhannad Quwaider**, "A Deep Learning Framework for Automatic Detection of Hate Speech Embedded in Arabic Tweets," Arab. J. Sci. Eng., Feb. 2021, doi: <https://doi.org/10.1007/s13369-021-05383-3>. (Scopus: Q2, TR: SCIE, IF: 1.711)
 11. Lo'ai Tawalbeh, Fadi Muheidat, Mais Tawalbeh and **Muhannad Quwaider**, "IoT Privacy and Security: Challenges and Solutions," *Applied Sciences*, 2020, 10, 4102, doi: <https://doi.org/10.3390/app10124102>. (Scopus: Q2, TR: SCIE, IF: 2.474)
 12. **Muhannad Quwaider** and Yaser Jararweh, "Cloud-assisted Data Management in Wireless Body Area Networks," In Press, To Appear in International Journal of Computational Science and Engineering, 2015.
 13. **Muhannad Quwaider** and Yaser Jararweh, "Cloudlet-based Efficient Data Collection in Wireless Body Area Networks," Simulation Modelling Practice and Theory 0 (2014) 5. doi:10.1016/j.simpat.2014.06.015.
 14. **Muhannad Quwaider**, Subir Biswas, ChaiYong Lim, "Conversation Monitoring via Low-cost Speaker Diarization using Wearable Wireless Sensors ," Journal of Emerging Technologies in Web Intelligence (JETWI, ISSN 1798-0461), vol. , no. , pp. 0-0, 2012.
 15. **Muhannad Quwaider** and S. Biswas, "Delay Tolerant Routing Protocol Modeling for Low Power Wearable Wireless Sensor Networks," Journal of Network Protocols and Algorithms, Volume 4, Issue 3, 2012.
 16. **Muhannad Quwaider**, Mahmoud Taghizadeh and Subir Biswas, "Modeling On-body DTN Packet Routing Delay in the Presence of Postural Disconnections," EURASIP Journal on Wireless Communications and Networking, vol. 2011, p. 3, 2011.
 17. **Muhannad Quwaider**, Courtney Daigle, Subir Biswas, Janice Siegford, and Janice Swanson, "Development of a Wireless Body Mounted Sensor to Monitor Location and Activity of Laying Hens in Non-cage Housing Systems," In Press, To Appear, Transactions of American Society of Agricultural and Biological Engineers, 2010.

18. **Muhannad Quwaider** and Subir Biswas, "Disruption Tolerant Network Routing in Body Sensor Networks with Dynamic Postural Partitioning," In Press, To Appear, Elsevier Ad Hoc Networks Journal, 2010.
19. **Muhannad Quwaider**, Jayanthi Rao and Subir Biswas, "Body Posture based Dynamic Link Power Control in Wearable Sensor Networks," In Press, To appear, IEEE Communication Magazine, 2010.
20. **Muhannad Quwaider**, Jayanthi Rao and Subir Biswas, "Transmission Power Assignment with Dynamic Link Quality Inference for On-Body Wireless Communication," In Press, To Appear, ACM Journal of Transactions on Embedded Computing Systems (TECS), 2010.
21. **Muhannad Quwaider** and Subir Biswas, "Physical Context Detection using Multi-modal Sensing using Wearable Wireless Networks," Journal of Communication Software and Systems, Special Issue on Medical Applications for Wireless Sensor Networks, Vol. 4, pp. 191-201, September 2008.

Peer Reviewed Conference Papers

22. Amira Al-Samawi and **Muhannad Quwaider**, "Transmission Power Control using Vital Signs Data Prediction in Wireless Body Area Networks," in the 13th International Conference on Information and Communication Systems (ICICS2022)
23. Heba Nmmas and **Muhannad Quwaider**, "Yet Efficient Study for Evaluating the Quality of Service of Cloud Gaming Systems," in the 13th International Conference on Information and Communication Systems (ICICS2022)
24. Anwaar Gharaibeh and **Muhannad Quwaider**, "Electrocardiogram Classification Problem Solving using Deep Learning Algorithms," in the 13th International Conference on Information and Communication Systems (ICICS2022)
25. Ayk Al-Shamri and **Muhannad Quwaider**, "A Combination of Dynamic IoT Load Balancing and ISMDA Architecture using Sharing Data," in the 13th International Conference on Information and Communication Systems (ICICS2022)
26. Somaya Alshare, Malak Abdullah and **Muhannad Quwaider**, "Increasing Accuracy of Random Forest Algorithm by Decreasing Variance," in the 13th International Conference on Information and Communication Systems (ICICS2022)
27. Mais Tawalbeh, **Muhannad Quwaider**, Lo'ai A. Tawalbeh, "IoT Cloud Enabled Model for Safe and Smart Agriculture Environment," 2021 12th International Conference on Information and Communication Systems (ICICS).
28. Mais Tawalbeh, **Muhannad Quwaider**, and Lo'ay Tawalbeh, "Authorization Model for IoT Healthcare Systems: Case Study," in 2020 11th International Conference on Information and Communication Systems (ICICS), Apr. 2020, pp. 337–342, doi: 10.1109/ICICS49469.2020.239527.
29. Seham Nasr and **Muhannad Quwaider**, "LEACH Protocol Enhancement for Increasing WSN Lifetime," in 2020 11th International Conference on Information and Communication Systems (ICICS), Apr. 2020, pp. 102–107, doi: 10.1109/ICICS49469.2020.239542.
30. Saleh Abdel-Hafeez and **Muhannad Quwaider**, "A One-Cycle Asynchronous FIFO Queue Buffer Circuit," in 2020 11th International Conference on Information and Communication Systems (ICICS), Apr. 2020, pp. 388–393, doi: 10.1109/ICICS49469.2020.239548.
31. **Muhannad Quwaider**, Abdullah Alabed and Rehab Duwairi, "In-Video Game Player's Behavior Measurement using Big Five Personal Traits," 2019 7th International Conference

- on Future Internet of Things and Cloud (FiCloud)*, Istanbul, Turkey, 2019, pp. 312-317, doi: 10.1109/FiCloud.2019.00052.
32. Yousef Shatnawi and **Muhannad Quwaider**, "Congestion Control in ATM networks using PID Controller with Immune Algorithm," in *2019 10th International Conference on Information and Communication Systems (ICICS)*, 2019.
 33. **Muhannad Quwaider**, Abdullah Alabed, and Rehab Duwairi, "The Impact of Video Games on the Players Behaviors: A Survey," *Procedia Comput. Sci.*, vol. 151, pp. 575–582, The 10th International Conference on Ambient Systems, Networks and Technologies (ANT-2019).
 34. Saleh Abdel-hafeez, Sanabel Otoom and **Muhannad Quwaider**, "Alias Table Memory Circuit For Register Renaming Unit," in *2019 10th International Conference on Information and Communication Systems (ICICS)*, Irbid, Jordan 2019.
 35. Tareq Al-Khraishi and **Muhannad Quwaider**, "Implementation of VLAN via Wireless Networks using Opnet Modeler," 9th International Conference on Computer Science, Engineering and Applications (ICCSEA 2019), December, UAE.
 36. **Muhannad Quwaider**, " Real-time Intruder Surveillance using Low-cost Remote Wireless Sensors," in *2017 8th International Conference on Information and Communication Systems (ICICS)*, 2017 at Irbid, Jordan
 37. **Muhannad Quwaider** and Mosab Alfaqeh, "Social Networks Benchmark Dataset for Diseases Classification," in press to appear, the 4th International Conference on Future Internet of Things and Cloud (FiCloud 2016), at Vienna, Austria.
 38. **Muhannad Quwaider**, Mahmoud Al-Alyyoub and Yaser Jararweh, "Cloud Support Data Management Infrastructure for Upcoming Smart Cities," *Procedia Comput. Sci.*, vol. 83, pp. 1232–1237, 2016.
 39. Mohammad AL-Smadi, Omar Al-Qawasmeh, Bashar Talafha and **Muhannad Quwaider**, "Human Annotated Arabic Dataset of Book Reviews for Aspect Based Sentiment Analysis," in press to appear, the 3rd International Conference on Future Internet of Things and Cloud (FiCloud 2015), at Rome, Italy.
 40. **Muhannad Quwaider**, Yaser Jararweh, Mahmoud Al-Alyyoub, and Rehab Duwairi, "Experimental Framework for Mobile Cloud Computing System," *Procedia Comput. Sci.*, vol. 52, pp. 1147–1152, 2015.
 41. **Muhannad Quwaider** and Yaser Jararweh, "Smart community health awareness model," in *2015 6th International Conference on Information and Communication Systems (ICICS)*, 2015, pp. 228–233.
 42. Mosab Faqeh, Nawaf Abdulla, Mahmoud Al-Ayyoub, Yaser Jararweh and **Muhannad Quwaider**, "Cross-lingual Short-Text Document Classification for Facebook Comments," The 2nd International Conference on Future Internet of Things and Cloud (FiCloud 2014), At Barcelona, Spain.
 43. **Muhannad Quwaider** and Yaser Jararweh, "An efficient big data collection in Body Area Networks," in 2014 5th International Conference on Information and Communication Systems (ICICS), 2014, pp. 1–6.
 44. **Muhannad Quwaider** and Yaser Jararweh, "Cloudlet-based for Big Data Collection in Body Area Networks," in 8th International Conference for Internet Technology and Secured Transactions (ICITST), 2013, 2013, pp. 137–141.
 45. **Muhannad Quwaider** and Subir Biswas, "Modeling Energy Harvesting Sensors using Accelerometer in Body Sensor Networks," in Proceedings of the 8th International Conference on Body Area Networks, 2013, pp. 148–152.

46. **Muhannad Quwaider** and Subir Biswas, "Speaker Diarization using Low-cost Wearable Wireless Sensors," The Third International Conference on Information and Communication Systems, ICICS'12, Apr 2012
47. Samantha K. Baard, Yogesh Pilot Thulasidharan, Marina Pearce, **Muhannad Quwaider**, Tara A. Rench, Dong Bo, Michael T. Braun, Subir Biswas, Richard P. DeShon, & Steve W.J. Kozlowski, "Monitoring Team Effectiveness using Wearable Sensor Network," NASA Behavioral Health and Performance Research Workshop, Houston, Texas, August 2011.
48. **Muhannad Quwaider**, Mahmoud Taghizadeh and Subir Biswas, "Protocol Modeling for On-body Delay Tolerant Routing in Wearable Sensor Networks," In proceedings of the second International Conference on Information and Communication Systems, ICICS, Jordan, May 2011.
49. Courtney Daigle, **Muhannad Quwaider**, Janice Siegford, Subir Biswas, and Janice Swanson, "Monitoring Laying Hen Location and Activity using a Wireless Body-mounted Sensor System," The CZAW-MSU Animal Welfare Forum, Dec 2010
50. **Muhannad Quwaider** and Subir Biswas, "On-body Packet Routing Algorithms for Body Sensor Networks," In proceedings of the First International Conference on Networks and Communications, (NetCom 2009).
51. **Muhannad Quwaider**, Anthony Plummer, Jayanthi Rao, Mahmoud Taghizade and Subir Biswas, "Real-time Posture Detection using Body Area Sensor Networks," In proceedings of the 13th International Symposium on Wearable Computers, (ISWC 2009), Linz, Austria, September 2009.
52. **Muhannad Quwaider** and Subir Biswas, "Probabilistic Routing in On-body Sensor Networks with Postural Disconnections," In proceedings of the 7th ACM International Symposium on Mobility Management and Wireless Access, (MobiWac 2009), Tenerife, Canary Island, October 2009.
53. **Muhannad Quwaider**, Azizah Muhammad, Jongeun Choi, and Subir Biswas, "Link Power Assignment in Wireless Body Networks by Linear Quadratic Gaussian Control with Integrator," In proceedings of the First International Conference on Networks and Communications, (NetCom 2009).
54. **Muhannad Quwaider**, Jayanthi Rao and Subir Biswas, "Neighborhood Route Diffusion: A Novel Mechanism for Improving Packet Delivery in Highly Mobile Ad Hoc Networks," In proceedings of the International Performance Computing and Communications Conference (IPCCC 2009), Austin, Texas, December 2008.
55. **Muhannad Quwaider** and Subir Biswas, "Body Posture Identification using Hidden Markov Model with Wearable Sensor Networks," In proceedings of ACM BodyNets '08, Tempe, Arizona, March 2008.
56. Subir Biswas and **Muhannad Quwaider**, "Remote Monitoring of Soldier Safety through Body Posture Identification using Wearable Sensor Networks," In proceedings of SPIE Defense and Security Symposium, Multisource Information Fusion: Architectures, Algorithms, and Applications, Orlando, Florida, March 2008.

Potential referees

1. Prof. Rehab Duwairi (rehab@just.edu.jo)

Department of Computer Information Systems
Jordan University of Science and Technology
Jordan

2. Prof. Subir Biswas (sbiswas@egr.msu.edu)
Electrical and Computer Engineering
Michigan State University
USA
3. Prof. Helen Karatza (karatza@csd.auth.gr)
Department of Informatics
Aristotle University of Thessaloniki
Greece

SKILLS

- Operating System: Win, UNIX and LINUX
- Programming in Assembly, C/C++, C#, JAVA, Visual Basic, Matlab, ASP, Fortran, Front page, Macromedia Flash, Macromedia Flash MX, Networking simulator NS-2, OMNeT++, cadence tools (Electronics VLSI design), NesC, TinyOs.
- Well known on embedded and wearable systems platforms design
- Trained well in PC's assembling and troubleshooting, Software Testing.