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SUMMERY

I am an associate professor of computer science in University of Sharjah (UoS) with more than 13 years of research and development experience, more than 17 years of experience in teaching and training, and have published more than 50 peer reviewed research papers with more than 370 citations according to Google scholar. Previously, I was an associate professor of computer science in Jordan University of Science and Technology (JUST). During my Work at JUST, I have supervised and co-supervised 12 master students in their thesis research who have all finished their degrees successfully with at least on journal publication. I have very good programming experience in assembly, Verilog, C, C++, C#, JAVA, PHP, JSP, and Python. I also have experience in game design and programming. My research concentration is to provide smarter solutions that are based on machine learning in the fields of Video on Demand Systems, Request Scheduling, Video Streaming over Wireless Networks, Automated Video Surveillance Systems, Network Bandwidth Optimization and Allocation, Medical Image Processing and Computer Vision, and Vehicle to Vehicle Networks. I have also conducted research projects in the fields of System Simulation, Distributed Systems, GPU Acceleration, Data Science, Computer Security, and Machine Learning.

EDUCATION

PhD, Computer Engineering **January 2007-April 2013**
Wayne State University, Michigan, USA
Thesis - Maximizing resource utilization in video streaming systems
GPA 4.0

Master of Science, Computer Science **September 2002-December 2003**
New York institute of technology, New York, USA
Project - Stenography as a second level of security
GPA 3.8

Bachelor of Science, Computer Science **September 1998-June 2002**
Jordan University of Science and Technology, Irbid, Jordan
GPA 90.4/100

PROFESSIONAL EXPERIENCE

Associate Professor of Computer Science **September 2020 - until now**
University of Sharjah, Sharjah, UAE

- I am currently performing similar tasks to the ones of my previous position.

Associate Professor of Computer Science **September 2018 - August 2020**
Jordan University of Science and Technology , Irbid, Jordan

- Perform research in the field of multimedia systems and networks. Current research projects include:
  - Deep Learning based computer aided diagnoses systems
  - Machine learning for congestion control in V2V networks
  - Vehicle GPS Location prediction
  - Face recognition in resource limited systems
  - Bio-threat detection
  - Dynamic adaptation in Automated video surveillance system
- Teach graduate and undergraduate computer science courses. I am currently teaching the following courses:
  - Introduction to Programming
  - Image Processing
  - Fundamentals of Multimedia

  And I am willing to teach any of the following courses:
  - Data Structures
  - Java Programming
  - Algorithms
  - Client-server Programming
  - Fundamentals of Programming Languages
  - Digital Design
  - Computer Organization
  - Operating Systems
  - Computer Architecture
  - Matlab Programming
  - Unix shell programming
  - Computer Vision
  - Game Design and Programming
  - Parallel Programming
  - Machine Learning
  - Fundamentals of Multimedia
  - Emerging Computing Systems
  - Computer Networks
  - Computer Security
- Supervise Master and senior undergraduate students in their theses and graduation projects
- Review internal and external grant proposals
- Serve on hiring graduate admissions committees
- Participate in both undergraduate and graduate curriculum design
- Member of department quality assurance and ABET committee
- Member of the department graduate program committee
- Head of faculty student affairs committee

Chairman of the department of Computer Science **September 2017 - September 2019**
Jordan University of Science and Technology , Irbid, Jordan
Beside the teaching and the research activities, the chairman is responsible for the following:

- Consolidate strategic objectives and policies related to the educational process and research activities in the Department and oversee their application as well as assist faculty members in this regard.
- Propose and develop academic and research plans for the Department and oversee their implementation.

- Actively contribute to the College Council as one of its members.
- Prepare a statement on the department needs and submit it to the Dean, at the appropriate time after first presenting it to the Department Council, for his/her consideration when preparing the annual budget.
- Construct different department committees and oversea their performance.
- Oversee the selection of textbooks and references for the courses offered by the Department.
- Construct the department course schedule and Manage the distribution of the faculty teaching load and present it to the Department Council.
- Monitor and maintain the student courses registration process at the beginning of each semester.
- Monitor and maintain the quality of the teaching process during the semester.
- Hire part time lecturers for courses without teachers in the department at the beginning of each semester and monitor their performance during the semester.
- Assign students to academic advisors and follow up on the progress of students, according to their study plans. Prepare all reports as requested by the Deanship and University Administration.
- Prepare documents on the quality of the educational process for academic accreditation.
- Oversee the preparation of a department plan for the assessment and evaluation of courses offered by the Department, consistent with the program study plans in terms of objectives, outcomes and means of implementation.
- Perform continuous curriculum improvements.

Assistant Professor of Computer Science **September 2013 - September 2018**
Jordan University of Science and Technology , Irbid, Jordan

- Perform research in the field of multimedia systems and networks. Research projects include:
  - Security of video streaming system
  - Impact of image quality on fingerprint recognition system
  - CAD for disk herniation diagnosis
  - Bandwidth management in automated video surveillance system
  - Mobile edge computing support for automated video surveillance system
  - Server design for video on demand
  - A Realistic NS3-based Automated Wireless Video Surveillance Simulation Framework
  - Visualization over Cognitive Radio Networks
  - Computation acceleration using GPU
  - Video streaming in a cloud supported environment
- Teach graduate and undergraduate computer science courses. I have tought the following undergraduate courses:
  - C++ Programming
  - Data Structures
  - Fundamentals of Programming Languages
  - Operating Systems
  - Computer Architecture
  - Image Processing using Matlab
  - Fundamentals of Multimedia
  - Emerging Computing Systems

  I have tought the following graduate courses:
  - Operating Systems
  - Multimedia Systems and Networking

Research and Development Engineer **January 2013 - September 2013**
General Motors, Warren, USA
I conducted research on how to utilize V2V communication for car crash avoidance applications. In particular, I conducted research on the scalability and the security of DSRC-based V2V networks. I analyzed current congestion control algorithms and proposed new algorithms to solve the congestion problem in such networks. I also participated in the design of the security system in such networks.

Graduate Teaching Assistant **August 2007-January 2013**
Electrical and Computer Engineering Department
Wayne State University, Detroit, USA

- Taught three laboratory courses, namely: Digital Circuit Laboratory (Undergraduate Sophomore level), Computer Organization Laboratory (Undergraduate Senior level), and Introduction to micro-controller laboratory according to a systematic plan of lectures, demonstrations, and small applied projects.
- Prepared and administered all lab course related exams and projects and marked them according to a plan to assess the student outcomes in compliance with the Accredited Board for Engineering and Technology (ABET) standards.
- Developed the lab course syllabus and I prepared class notes and courses outlines.

Research Assistant **January 2007-January 2013**
Multimedia Computing and Networking Research Lab
Wayne State University, Detroit, USA

- Developed an automated video surveillance system simulator that was based on OPNET.
- Developed a Video-on-Demand server simulator using C.
- Developed a JPEG image decoder using C.
- Developed a Motion JPEG video streamer using C.
- Developed a MIPS processor simulator using Verilog.
- Developed some simple applications using the Motorola 6800 microcontroller.
- Developed an image classification system using MATLAB.
- Designed and developed a 2D game using Microsoft XNA and C# for Windows platform.

Full time Lecturer of Computer Science **September 2003 - December 2006**
Jordan University of Science and Technology , Irbid, Jordan

- Teach undergraduate computer science courses.
- Prepare the courses entirely.
- I taught the following undergraduate courses:
  - C++ Programming
  - Data Structures
  - Introduction to Computer Science
  - UNIX programming

LIST OF REFERENCES

- Full name: Nabil Sarhan
  Current position: Associate Professor of Computer Engineering
  Institution: Wayne State University
  Email: nabil@wayne.edu

Phone number: +1 313 542 2666
Relationship: PhD advisor

- Full name: Yaser Jararweh
  Current position: Assistant Professor of Computer Science
  Institution: Duquesne University
  Email: jararwehy@duq.edu
  Phone number : +1 330 322 2126
  Relationship: Former Vice Dean, Faculty of Information and Computer Technology
- Full name: Mahmoud Al-Ayoub
  Current position: Vice Dean, Faculty of Information and Computer Technology
  Institution: Jordan University of Science and Technology
  Email: malayyoub@gmail.com
  Phone number : +962 7 9699 5466
  Relationship: Vice Dean, Faculty of Information and Computer Technology
- Full name: Mohammad Al-Towaiq
  Current position: Professor of Applied mathematics
  Institution: Jordan University of Science and Technology
  Email: towaiq@just.edu.jo
  Phone number: +962 7 7731 8925
  Relationship: Former Computer Science Department Chair

FUNDED RESEARCH PROJECTS

- Impact of Image Compression on Fingerprint Recognition (Principle Investigator).
- A CAD System for Diagnosing and Classifying Disk Herniation Types from MRI Images (Principle Investigator).
- A Realistic NS3-based Automated Wireless Video Surveillance Simulation Framework (Principle Investigator).

List of Master Students' Thesis Titles

- Computer-Aided Diagnosis of Lumbar Disk Herniation
- DSRC Network Congestion Control using Dynamic Distribution of Safety Messages over EDCA Access Categories
- Agent Based Validation Based on Histological Images in Ductal Carcinoma in situ

- Geometric sequence based multipath load balancing approach for mobile ad hoc networks
- A Realistic NS3-based Automated Wireless Video Surveillance Simulation Framework
- The impact of image compression on fingerprint identification algorithms
- Accelerating White Blood Cells Image Segmentation Using GPU
- Deep Learning based Disk Herniation Computer Aided Diagnosis System from Axial MRI Scans
- Inter-Vertebral Disc Herniation Diagnosis from Three-Dimensional Model's Geometrical Features
- ARIMA based Dynamic Vehicle Location Prediction for DSRC based V2V Communication Systems
- An Agent-Based Model for Multiple Biological Threats Detection
- Systematic Exploration of Transfer Learning, Data Augmentation, and Feature Concatenation Techniques for Medical Image Classification

HONORS

- Member of Tau Beta Pi engineering honor society. Wayne State University, Detroit, MI, November 2011.
- Outstanding Teaching Assistant Service Award, Wayne State University, Detroit, MI, April 2011.
- Full PhD Scholarship, Wayne State University, Detroit, MI, January 2007 - December 2012.
- Full Master degree sponsorship, Jordan University of Science and Technology, Irbid, Jordan, 2002-2003.
- Listed on Dean's Honor List, Jordan University of Science and Technology, Irbid, Jordan, 1998-2002.
- Listed on the President's Honor List, Jordan University of Science and Technology, Irbid, Jordan, 2000-2002.
- Ministry of High Education Sponsorship during my Bachelor study, Jordan University of Science and Technology, Irbid, Jordan, 1999-2002.
- Ranked first in my High school, Ramtha Secondary School, Ramtha, Jordan, 1998.

PUBLICATIONS

Refereed Journal Articles

[1] Shadi AlZu'bi, Sokyna AlQatawneh, Mohammad ElBes, and Mohammad Alsmirat. Transferable hmm probability matrices in multi-orientation geometric medical volumes segmentation. *Concurrency and Computation: Practice and Experience*, 0(0):e5214. e5214 cpe.5214.

[2] Qanita Bani Baker, Mohammad A. Alsmirat, Khaled Balhaf, and Mohammed A. Shehab. Accelerating white blood cells image segmentation using gpus. *Concurrency and Computation: Practice and Experience*, 0(0):e5133. e5133 cpe.5133.

[3] Bilal Hawashin Nabil Sarhan Yousef Sharrab, Mohammad Alsmirat. Machine learning-based energy consumption modeling and comparison of h.264/avc and google vp8 encoders. *International Journal of Electrical and Computer Engineering (IJECE)*, 2021.

[4] Mohammad S. Alzyout and Mohammad A. Alsmirat. Performance of design options of automated arima model construction for dynamic vehicle gps location prediction. *Simulation Modelling Practice and Theory*, page 102148, 2020.

[5] Mohammad Alsmirat Qanita Bani Baker Shadi AlZu'bi Asma'a Al-Mnayyis, Sanaa Abu Alasal. Lumbar disk 3d modeling from limited number of mri axial slices. *International Journal of Electrical and Computer Engineering (IJECE)*, pages 4101–4108, 2020.

[6] Mohammad Al-Zinati, Taha Almasri, Mohammad Alsmirat, and Yaser Jararweh. Enabling multiple health security threats detection using mobile edge computing. *Simulation Modelling Practice and Theory*, page 101957, 2019.

[7] M Alsmirat, Y Jararweh, and M Al-Ayyoub. Speeding DBLP querying using hadoop and spark. *IOP Conference Series: Materials Science and Engineering*, 459:012003, dec 2018.

[8] Mahmoud Al-Ayyoub, Nusaiba Al-Mnayyis, Mohammad A Alsmirat, Khaled Alawneh, Yaser Jararweh, and Brij B Gupta. Sift based roi extraction for lumbar disk herniation cad system from mri axial scans. *Journal of Ambient Intelligence and Humanized Computing*, pages 1–9, 2018.

[9] Mohammad A Alsmirat, Fatimah Al-Alem, Mahmoud Al-Ayyoub, Yaser Jararweh, and Brij Gupta. Impact of digital fingerprint image quality on the fingerprint recognition accuracy. *Multimedia Tools and Applications*, pages 1–40, 2018.

[10] Mohammad A Alsmirat and Nabil J Sarhan. Cross-layer optimization for many-to-one wireless video streaming systems. *Multimedia Tools and Applications*, pages 1–23, 2018.

[11] Yaser Jararweh, Manar Bani Issa, Mustafa Daraghmeh, Mahmoud Al-Ayyoub, and Mohammad A Alsmirat. Energy efficient dynamic resource management in cloud computing based on logistic regression model and median absolute deviation. *Sustainable Computing: Informatics and Systems*, 19:262–274, 2018.

[12] Mohammad A Alsmirat, Yaser Jararweh, Mahmoud Al-Ayyoub, Mohammed A Shehab, and Brij B Gupta. Accelerating compute intensive medical imaging segmentation algorithms using hybrid cpu-gpu implementations. *Multimedia Tools and Applications*, 76(3):3537–3555, 2017.

[13] Mohammad A Alsmirat, Yaser Jararweh, Islam Obaidat, and Brij B Gupta. Automated wireless video surveillance: an evaluation framework. *Journal of Real-Time Image Processing*, 13(3):527–546, 2017.

[14] Mohammad A Alsmirat, Yaser Jararweh, Islam Obaidat, and Brij B Gupta. Internet of surveillance: a cloud supported large-scale wireless surveillance system. *The Journal of Supercomputing*, 73(3):973–992, 2017.

[15] Mohammad A Alsmirat, Islam Obaidat, Yaser Jararweh, and Mohammed Al-Saleh. A security framework for cloud-based video surveillance system. *Multimedia Tools and Applications*, 76(21):22787–22802, 2017.

[16] Yaser Jararweh, Mohammad Alsmirat, Mahmoud Al-Ayyoub, Elhadj Benkhelifa, Ala' Darabseh, Brij Gupta, and Ahmad Doulat. Software-defined system support for enabling ubiquitous mobile edge computing, 2017.

[17] Yaser Jararweh, Mohammad A Alsmirat, Muneer Al-Zaboon, HAYTHEM A SALAMEH, and Osamah S Badarneh. A multi-hop multicasting routing protocol for cognitive radio networks. *Adhoc & Sensor Wireless Networks*, 39, 2017.

[18] Mahmoud Al-Ayyoub, Yaser Jararweh, Ahmad Doulat, Haythem A Bany Salameh, Ahmad Al Abed Al Aziz, Mohammad Alsmirat, and Abdallah A Khreishah. Virtualization-based cognitive radio networks. *Journal of Systems and Software*, 117:15–29, 2016.

[19] Yahya M Tashtoush, Mohammad A Alsmirat, and Tasneem Alghadi. Geometric sequence based multipath routing protocol for multi-hop ad hoc networks. *International Journal of Pervasive Computing and Communications*, 12(4):394–407, 2016.

[20] Mohammad A Alsmirat and Nabil J Sarhan. Detailed performance and waiting-time predictability analysis of scheduling options in on-demand video streaming. *Journal on Image and Video Processing*, 2010:1, 2010.

[21] Nabil J Sarhan, Mohammad A Alsmirat, and Musab Al-Hadrusi. Waiting-time prediction in scalable on-demand video streaming. *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)*, 6(2):11, 2010.

Refereed Conference Publications

[22] Mohammad Alsmirat Yaser Jararweh Izzat Alsmadi, Mahmoud Al-Ayyoub. Using popular search terms in stock price prediction. In *2019 The Sixth International Conference on Social Networks Analysis, Management, and Security (SNAMS)*, pages 279–285, October 2019.

[23] Mohammad Alsmirat Yaser Jararweh Mohammad Al-Zinati, Taha Almasri. A mobile-edge computing bio-surveillance framework for multiple biological threat detection. In *2019 The Sixth International Conference on Internet of Things: Systems, Management and Security (IOTSMS)*, pages 104–109, October 2019.

[24] Mohammad Al-Saleh Mohammad Alzyout, Mohammad Alsmirat. Automated arima model construction for dynamic vehicle gps location prediction. In *2019 The Sixth International Conference on Internet of Things: Systems, Management and Security (IOTSMS)*, pages 308–386, October 2019.

[25] Mahmoud Al-Ayyoub Yousef Shatnawi, Mohammad Alsmirat. Face recognition using eigen-faces and extensionneural network. In *16th ACS/IEEE International Conference on Computer Systems and Applications*, October 2019.

[26] M. Ebrahim, M. Al-Ayyoub, and M. A. Alsmirat. Will transfer learning enhance imagenet classification accuracy using imagenet-pretrained models? In *2019 10th International Conference on Information and Communication Systems (ICICS)*, pages 211–216, June 2019.

[27] D. R. Mohammad, S. Al-Momani, Y. M. Tashtoush, and M. Alsmirat. A comparative analysis of quality assurance automated testing tools for windows mobile applications. In *2019 IEEE 9th Annual Computing and Communication Workshop and Conference (CCWC)*, pages 0414–0419, Jan 2019.

[28] Y. Tashtoush, M. N. AlRashdan, O. Salameh, and M. Alsmirat. Swagger-based jquery ajax validation. In *2019 IEEE 9th Annual Computing and Communication Workshop and Conference (CCWC)*, pages 0069–0072, Jan 2019.

[29] H. Al-Theiabat, M. Al-Ayyoub, M. Alsmirat, and M. Aldwair. A deep learning approach for amazon ec2 spot price prediction. In *2018 IEEE/ACS 15th International Conference on Computer Systems and Applications (AICCSA)*, pages 1–5, Oct 2018.

[30] Q. B. Baker, T. A. Zaitoun, S. Banat, E. Eaydat, and M. Alsmirat. Automated detection of benign and malignant in breast histopathology images. In *2018 IEEE/ACS 15th International Conference on Computer Systems and Applications (AICCSA)*, pages 1–5, Oct 2018.

[31] M. Ebrahim, M. Al-Ayyoub, and M. Alsmirat. Determine bipolar disorder level from patient interviews using bi-lstm and feature fusion. In *2018 Fifth International Conference on Social Networks Analysis, Management and Security (SNAMS)*, pages 182–189, Oct 2018.

[32] Y. Shatnawi, M. Alsmirat, M. Al-Ayyoub, and M. Aldwairi. The impact of the number of eigen-faces on the face recognition accuracy using different distance measures. In *2018 IEEE/ACS 15th International Conference on Computer Systems and Applications (AICCSA)*, pages 1–5, Oct 2018.

[33] Mohammed I Al-Saleh, Mohammad A Alsmirat, Yaser Jararweh, and Islam Obaidat. A unified key distribution and session management protocol for mobile video surveillance systems. In *2018 Fifth International Conference on Internet of Things: Systems, Management and Security*, pages 234–238. IEEE, 2018.

[34] Sanaa Abu Alasal, Mohammad Alsmirat, Qanita Bani Baker, and Yaser Jararweh. Improving passive 3d model reconstruction using image enhancement. In *2018 6th International Conference on Multimedia Computing and Systems (ICMCS)*, pages 1–7. IEEE, 2018.

[35] M Alsmirat, Y Jararweh, and M Al-Ayyoub. Speeding dblp querying using hadoop and spark. In *IOP Conference Series: Materials Science and Engineering*, volume 459, page 012003. IOP Publishing, 2018.

[36] Shadi AlZu'bi, Sokyna Al-Qatawneh, and Mohammad Alsmirat. Transferable hmm trained matrices for accelerating statistical segmentation time. In *2018 Fifth International Conference on Social Networks Analysis, Management and Security (SNAMS)*, pages 172–176. IEEE, 2018.

[37] Maad Ebrahim, Mahmoud Al-Ayyoub, and Mohammad Alsmirat. Determine bipolar disorder level from patient interviews using bi-lstm and feature fusion. In *2018 Fifth International Conference on Social Networks Analysis, Management and Security (SNAMS)*, pages 182–189. IEEE, 2018.

[38] Maad Ebrahim, Mohammad Alsmirat, and Mahmoud Al-Ayyoub. Performance study of augmentation techniques for hep2 cnn classification. In *Information and Communication Systems (ICICS), 2018 9th International Conference on*, pages 163–168. IEEE, 2018.

[39] Siyakha N Mthunzi, Elhadj Benkhelifa, Mohammad A Alsmirat, and Yaser Jararweh. Analysis of vm communication for vm-based cloud security systems. In *Software Defined Systems (SDS), 2018 Fifth International Conference on*, pages 182–188. IEEE, 2018.

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[41] Mohammad A Alsmirat, Musab Al-Hadrusi, and Yaser Jararweh. Multimedia systems power/energy reduction architectural techniques: a survey. In *2017 International Renewable and Sustainable Energy Conference (IRSEC)*, pages 1–6. IEEE, 2017.

[42] Mohammad A Alsmirat, Ethar Qawasmeh, Mahmoud Al-Ayyoub, Nour Alhuda Damer, and Yaser Jararweh. Building an image database for studying image retargeting. In *Computer Systems and Applications (AICCSA), 2017 IEEE/ACS 14th International Conference on*, pages 457–462. IEEE, 2017.

[43] Khaled Balhaf, Mohammad A Alsmirat, Mahmoud Al-Ayyoub, Yaser Jararweh, and Mohammed A Shehab. Accelerating levenshtein and damerau edit distance algorithms using gpu with unified memory. In *Information and Communication Systems (ICICS), 2017 8th International Conference on*, pages 7–11. IEEE, 2017.

[44] Manar Bani Issa, Mustafa Daraghmeh, Yaser Jararweh, Mahmoud Al-Ayyoub, Mohammad Alsmirat, and Elhadj Benkhelifa. Using logistic regression to improve virtual machines management in cloud computing systems. In *Mobile Ad Hoc and Sensor Systems (MASS), 2017 IEEE 14th International Conference on*, pages 628–635. IEEE, 2017.

[45] Yahya M Tashtoush, Majd Al-Soud, Manar Fraihat, Walaa Al-Sarayrah, and Mohammad A Alsmirat. Adaptive e-learning web-based english tutor using data mining techniques and jackson's learning styles. In *Information and Communication Systems (ICICS), 2017 8th International Conference on*, pages 86–91. IEEE, 2017.

[46] Fatimah Al-alem, Mohammad A Alsmirat, and Mahmoud Al-Ayyoub. On the road to the internet of biometric things: a survey of fingerprint acquisition technologies and fingerprint databases. In *Computer Systems and Applications (AICCSA), 2016 IEEE/ACS 13th International Conference of*, pages 1–6. IEEE, 2016.

[47] Mahmoud Al-Ayyoub, Shadi M AlZu'bi, Yaser Jararweh, and Mohammad A Alsmirat. A gpu-based breast cancer detection system using single pass fuzzy c-means clustering algorithm. In *Multimedia Computing and Systems (ICMCS), 2016 5th International Conference on*, pages 650–654. IEEE, 2016.

[48] Mohammad Alsmirat and Nabil J Sarhan. Cross-layer optimization for automated video surveillance. In *2016 IEEE International Symposium on Multimedia (ISM)*, pages 243–246. IEEE, 2016.

[49] Duaa Ekhtoom, Mahmoud Al-Ayyoub, Mohammed Al-Saleh, Mohammad Alsmirat, and Ismail Hmeidi. A compression-based technique to classify metamorphic malware. In *Computer Systems and Applications (AICCSA), 2016 IEEE/ACS 13th International Conference of*, pages 1–6. IEEE, 2016.

[50] Yaser Jararweh, Ahmad Doulat, Ala Darabseh, Mohammad Alsmirat, Mahmoud Al-Ayyoub, and Elhadj Benkhelifa. Sdmec: Software defined system for mobile edge computing. In *Cloud Engineering Workshop (IC2EW), 2016 IEEE International Conference on*, pages 88–93. IEEE, 2016.

[51] Islam Obaidat, Mohammad Alsmirat, and Yaser Jararweh. Completing ieee 802.11 e implementation in ns-3. In *Information and Communication Systems (ICICS), 2016 7th International Conference on*, pages 190–195. IEEE, 2016.

[52] Khaled Alawneh, Mays Al-dwiekat, Mohammad Alsmirat, and Mahmoud Al-Ayyoub. Computer-aided diagnosis of lumbar disc herniation. In *Information and Communication Systems (ICICS), 2015 6th International Conference on*, pages 286–291. IEEE, 2015.

[53] Mohammad A Alsmirat, Saleh Yousef Al-Rifai, and Belal H Sababha. Reducing message loss in dsrc networks using dynamic distribution of safety messages over edca access categories. In *Proceedings of the World Congress on Engineering and Computer Science*, volume 2, 2015.

[54] Yaser Mhaidat, Mohammad Alsmirat, Osamah S Badarneh, Yaser Jararweh, and Haythem A Bany Salameh. A cross-layer video multicasting routing protocol for cognitive radio networks. In *2014 IEEE 10th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob)*, pages 384–389. IEEE, 2014.

[55] Mohammad A Alsmirat and Nabil J Sarhan. Cross-layer optimization and effective airtime estimation for wireless video streaming. In *Computer Communications and Networks (ICCCN), 2012 21st International Conference on*, pages 1–7. IEEE, 2012.

[56] Mohammad A Alsmirat and Nabil J Sarhan. Performance and waiting-time predictability analysis of design options in cost-based scheduling for scalable media streaming. In *International Conference on Multimedia Modeling*, pages 150–162. Springer, Berlin, Heidelberg, 2009.

[57] Mohammad A Alsmirat and Nabil J Sarhan. Predictive cost-based scheduling for scalable media streaming. In *Multimedia and Expo, 2008 IEEE International Conference on*, pages 857–860. IEEE, 2008.

[58] Mohammad A Alsmirat. Musab al-hadrusi, nabil j. sarhan, analysis of waiting-time predictability in scalable media streaming. In *Proceedings of the 15th international conference on Multimedia*, 2007.

[59] Mohammad A Alsmirat, Musab Al-Hadrusi, and Nabil J Sarhan. Analysis of waiting-time predictability in scalable media streaming. In *Proceedings of the 15th ACM international conference on Multimedia*, pages 727–736. ACM, 2007.