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EDUCATION

Doctor of Philosophy in Computer Engineering
Wayne State University, 2013

Masters in Computer Science
New York Institute of Technology, 2003

BSc in Computer Science
Jordan University of Science and Technology, 2002

TEACHING EXPERIENCE

January 2025 – present, Assistant Professor, College of Science and Engineering, East Texas A&M, USA

September 2020 – December 2024, Associate Professor, College of Computing and Informatics, University of Sharjah, United Arab Emirates.

September 2018 – August 2020, Associate Professor, College of Computer and Information Technology, Jordan University of Science and Technology, Jordan

September 2013 – August 2018, Assistant Professor, College of Computer and Information Technology, Jordan University of Science and Technology, Jordan

PUBLICATIONS

2026

1. M. Alsmirat, M. M. Khaled, and A. A. Sayadi, "Deep learning based contactless fingerprint identification," *Cluster Computing*, vol. 29, no. 1, p. 39, 2026.

2025

2. M. Bagohser, T. Mustafa, M. Alsmirat, A. Al-Ali, and I. M. Al Jawarneh, "A Cost-Effective Framework for Predicting Parking Availability Using Geospatial Data and Machine Learning," in *2025 16th International Conference on Information and Communication Systems (ICICS)*, 2025, pp. 1–6.
3. S. Alzarouni, H. A. AlSuwaidi, M. Alsmirat, and Y. Sharrab, "Performance of Vision Transformers in Automated Supervised Ideal Image Retargeting Technique Identification," in *2025 International Conference on Multimedia Computing, Networking and Applications (MCNA)*, 2025, pp. 81–87.
4. Y. Sharrab, S. Jbaily, S. Al-Zu'Bi, and M. Alsmirat, "Deep Learning-Based Prediction of Music's Physiological Effects Using Muse2 Heart Rate, Mind Calm, and Stillness," in *2025 International Conference on Multimedia Computing, Networking and Applications (MCNA)*, 2025, pp. 64–72.
5. S. Alshamsi, M. Haggag, L. Al Rayes, E. Alhamid, M. Alsmirat, and I. M. Al Jawarneh, "GeoBikeLLM: LLM-Powered Bike Route Planning with Air Quality and Vegetation-Aware Geospatial Intelligence," in *2025 Sixth International Conference on Intelligent Data Science Technologies and Applications (IDSTA)*, 2025, pp. 1–8.

2024

6. Y. O. Sharrab, M. A. Alsmirat, M. A. H. Eljinini, and N. J. Sarhan, "iHELP: a model for instant learning of video coding in VR/AR real-time applications," *Multimedia Tools and Applications*, vol. 83, no. 33, pp. 79397–79436, 2024.
7. M. Ebrahim, M. Alsmirat, and M. Al-Ayyoub, "Advanced disk herniation computer aided diagnosis system," *Scientific Reports*, vol. 14, no. 1, p. 8071, 2024.
8. A. Alsalama, A. Kubba, M. Alsmirat, and I. M. Al Jawarneh, "A novel approximate computing method for efficient search in satellite remote sensing products," in *2024 International Conference on Multimedia Computing, Networking and Applications (MCNA)*, 2024, pp. 21–27.
9. L. Al Rayes, M. Haggag, and M. Alsmirat, "Leveraging local binary patterns with transfer learning for face recognition in low-light conditions," in *2024 International Conference on Multimedia Computing, Networking and Applications (MCNA)*, 2024, pp. 28–34.
10. M. Alsmirat, R. Kharsa, and R. Alzoubi, "Supervised Deep Learning for Ideal Identification of Image Retargeting Techniques," *IEEE Access*, 2024.

2023

11. M. Alsmirat, Y. Sharrab, M. Tarawneh, S. Al-shboul, and N. Sarhan, "Video coding deep learning-based modeling for long life video streaming over next network generation," *Cluster Computing*, vol. 26, no. 2, pp. 1159–1167, 2023.
12. M. A. Alsmirat, E. Qawasmeh, M. Al-Ayyoub, and Y. Jararweh, "Building an image set for modeling image re-targeting using deep learning," *Simulation Modelling Practice and Theory*, vol. 126, p. 102773, 2023.

13. Y. Sharrab, D. Al-Fraihat, and M. Alsmirat, "Deep neural networks in social media forensics: unveiling suspicious patterns and advancing investigations on Twitter," in *2023 3rd Intelligent Cybersecurity Conference (ICSC)*, 2023, pp. 95–102.
14. R. Kharsa, R. Alzoubi, M. Alsmirat, and M. Al-Ayyoub, "Image Retargeting Techniques Identification Using Supervised Deep Learning," in *2023 Fourth International Conference on Intelligent Data Science Technologies and Applications (IDSTA)*, 2023, pp. 15–20.
15. M. Tarabin, M. M. Alketbi, H. R. Alfalasi, M. Alsmirat, and Y. Sharrab, "Detecting distracted drivers using convolutional neural networks," in *2023 Fourth International Conference on Intelligent Data Science Technologies and Applications (IDSTA)*, 2023, pp. 59–66.
16. M. M. Khaled, A. A. Sayadi, M. Alsmirat, and M. Al-Ayyoub, "Fingerprint identification from digital images using deep learning," in *2023 3rd Intelligent Cybersecurity Conference (ICSC)*, 2023, pp. 26–31.

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17. M. Alsmirat, N. Al-Mnayyis, M. Al-Ayyoub, and A. Al-Mnayyis, "Deep learning-based disk herniation computer aided diagnosis system from mri axial scans," *IEEE Access*, vol. 10, pp. 32315–32323, 2022.
18. O. Azeroual, M. Jha, A. Nikiforova, K. Sha, M. Alsmirat, and S. Jha, "A record linkage-based data deduplication framework with datacleaner extension," *Multimodal Technologies and Interaction*, vol. 6, no. 4, p. 27, 2022.
19. H. Zarzour, M. Alsmirat, and Y. Jararweh, "Using deep learning for positive reviews prediction in explainable recommendation systems," in *2022 13th International Conference on Information and Communication Systems (ICICS)*, 2022, pp. 358–362.
20. M. A. Alsmirat, K. Alawneh, M. Al-Ayyoub, and M. Al-Dwiekat, "Building a simulated educational environment for the diagnosis of lumbar disk herniation using axial view MRI scans," *International Journal of Advanced Intelligence Paradigms*, vol. 22, no. 3-4, pp. 295–317, 2022.
21. H. Zarzour, F. Maazouzi, M. Al-Zinati, A. Nusayr, M. Alsmirat, M. Al-Ayyoub, and Y. Jararweh, "Using k-means clustering ensemble to improve the performance in recommender systems," in *2022 International Conference on Intelligent Data Science Technologies and Applications (IDSTA)*, 2022, pp. 176–180.

2021

22. Y. O. Sharrab, M. Alsmirat, B. Hawashin, and N. Sarhan, "Machine learning-based energy consumption modeling and comparing of H. 264 and Google VP8 encoders," *International Journal of Electrical and Computer Engineering (IJECE)*, vol. 11, no. 2, pp. 1303–1310, 2021.
23. S. A. Alasal, M. Alsmirat, A. Al-Mnayyis, M. Al-Ayyoub, et al., "Improving radiologists' and orthopedists' QoE in diagnosing lumbar disk herniation using 3D modeling," *International Journal of Electrical & Computer Engineering*, vol. 11, no. 5, 2021.
24. Q. Bani Baker, M. A. Alsmirat, K. Balhaf, and M. A. Shehab, "Accelerating white blood cells image segmentation using GPUs," *Concurrency and Computation: Practice and Experience*, vol. 33, no. 2, p. e5133, 2021.

25. A. Nuseir, A. Nuseir, M. Alsmirat, M. Al-Ayyoub, M. Mahdi, and H. Al-Balas, "Performance of different machine learning methods for sinus diseases classification," in *2021 12th International Conference on Information and Communication Systems (ICICS)*, 2021, pp. 77–82.
26. M. Ghandour, R. Al-Qurran, M. Al-Ayyoub, A. Shatnawi, M. Alsmirat, and F. Costen, "Classifying Olive Fruits Based on Produced Oil Quality: A Benchmark Dataset and Strong Baselines," in *2021 12th International Conference on Information and Communication Systems (ICICS)*, 2021, pp. 495–501.
27. A. Nuseir, M. Alsmirat, A. Nuseir, M. Al-Ayyoub, M. Mahdi, A. Alomari, and H. Al-Balas, "Building a Large Comprehensive Medical Image Set of Sinus Diseases," in *2021 12th International Conference on Information and Communication Systems (ICICS)*, 2021, pp. 83–89.

2020

28. S. AlZu'bi, S. AlQatawneh, M. ElBes, and M. Alsmirat, "Transferable HMM probability matrices in multi-orientation geometric medical volumes segmentation," *Concurrency and Computation: Practice and Experience*, vol. 32, no. 21, p. e5214, 2020.
29. M. Al-Zinati, T. Almasri, M. Alsmirat, and Y. Jararweh, "Enabling multiple health security threats detection using mobile edge computing," *Simulation Modelling Practice and Theory*, vol. 101, p. 101957, 2020.
30. M. S. Alzyout and M. A. Alsmirat, "Performance of design options of automated ARIMA model construction for dynamic vehicle GPS location prediction," *Simulation Modelling Practice and Theory*, vol. 104, p. 102148, 2020.
31. M. Alsmirat and N. J. Sarhan, "Intelligent optimization for automated video surveillance at the edge: A cross-layer approach," *Simulation Modelling Practice and Theory*, vol. 105, p. 102171, 2020.
32. M. A. Alsmirat, R. A. Al-Hussien, W. T. Al-Sarayrah, Y. Jararweh, and M. Etier, "Digital video forensics: a comprehensive survey," *International Journal of Advanced Intelligence Paradigms*, vol. 15, no. 4, pp. 437–456, 2020.
33. A. Al-Mnayyis, S. A. Alasal, M. Alsmirat, Q. B. Baker, and S. AlZu'bi, "Lumbar disk 3D modeling from limited number of MRI axial slices," *Int. J. Electr. Comput. Eng*, vol. 10, no. 4, pp. 4101–4108, 2020.
34. H. Najadat, M. Ebrahim, M. Alsmirat, O. Shatnawi, M. N. Al-Rashdan, and A. Al-Aiad, "Investigating the Classification of Human Recognition on Heterogeneous Devices Using Recurrent Neural Networks," in *Sustainable and Energy Efficient Computing Paradigms for Society*, Springer, 2020, pp. 67–80.

2019

35. M. A. Alsmirat, F. Al-Alem, M. Al-Ayyoub, Y. Jararweh, and B. Gupta, "Impact of digital fingerprint image quality on the fingerprint recognition accuracy," *Multimedia Tools and Applications*, vol. 78, no. 3, pp. 3649–3688, 2019.
36. 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)*, 2019, pp. 0414–0419.
37. 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), 2019, pp. 211–216.

38. I. Alsmadi, M. Al-Ayyoub, M. Alsmirat, and Y. Jararweh, "Using popular search terms in stock price prediction," in *2019 Sixth International Conference on Social Networks Analysis, Management and Security (SNAMS), 2019, pp. 279–285.*
39. M. Alzyout, M. Alsmirat, and M. I. Al-Saleh, "Automated ARIMA model construction for dynamic vehicle GPS location prediction," in *2019 Sixth International Conference on Internet of Things: Systems, Management and Security (IOTSMS), 2019, pp. 380–386.*
40. M. Al-Zinati, T. Almasri, M. Alsmirat, and Y. Jararweh, "A mobile-edge computing bio-surveillance framework for multiple biological attacks detection," in *2019 Sixth International Conference on Internet of Things: Systems, Management and Security (IOTSMS), 2019, pp. 104–109.*
41. Y. Shatnawi, M. Alsmirat, and M. Al-Ayyoub, "Face recognition using eigen-faces and extension neural network," in *2019 IEEE/ACS 16th International Conference on Computer Systems and Applications (AICCSA), 2019, pp. 1–7.*
42. S. AlZu'bi, M. Alsmirat, M. Al-Ayyoub, and Y. Jararweh, "Artificial intelligence enabling water desalination sustainability optimization," in *2019 7th International Renewable and Sustainable Energy Conference (IRSEC), 2019, pp. 1–4.*

2018

43. M. A. Alsmirat and N. J. Sarhan, "Cross-layer optimization for many-to-one wireless video streaming systems," *Multimedia Tools and Applications*, vol. 77, no. 19, pp. 24789–24811, 2018.
44. M. Al-Ayyoub, N. Al-Mnayyis, M. A. Alsmirat, K. Alawneh, Y. Jararweh, and B. B. Gupta, "SIFT based ROI extraction for lumbar disk herniation CAD system from MRI axial scans," *Journal of Ambient Intelligence and Humanized Computing*, pp. 1–9, 2018.
45. Y. Jararweh, M. B. Issa, M. Daraghmeh, M. Al-Ayyoub, and M. A. Alsmirat, "Energy efficient dynamic resource management in cloud computing based on logistic regression model and median absolute deviation," *Sustainable Computing: Informatics and Systems*, vol. 19, pp. 262–274, 2018.
46. M. Ebrahim, M. Alsmirat, and M. Al-Ayyoub, "Performance study of augmentation techniques for hep2 cnn classification," in *2018 9th International Conference on Information and Communication Systems (ICICS), 2018, pp. 163–168.*
47. S. N. Mthunzi, E. Benkhelifa, M. A. Alsmirat, and Y. Jararweh, "Analysis of VM communication for VM-based cloud security systems," in *2018 Fifth International Conference on Software Defined Systems (SDS), 2018, pp. 182–188.*
48. S. A. Alasal, M. Alsmirat, Q. B. Baker, and Y. Jararweh, "Improving passive 3D model reconstruction using image enhancement," in *2018 6th International Conference on Multimedia Computing and Systems (ICMCS), 2018, pp. 1–7.*
49. M. Alsmirat, Y. Jararweh, and M. Al-Ayyoub, "Speeding DBLP querying using hadoop and spark," in *IOP Conference Series: Materials Science and Engineering*, vol. 459, no. 1, 2018, p. 012003.
50. S. AlZu'bi, S. Al-Qatawneh, and M. Alsmirat, "Transferable hmm trained matrices for accelerating statistical segmentation time," in *2018 Fifth International*

Conference on Social Networks Analysis, Management and Security (SNAMS), 2018, pp. 172–176.

51. M. I. Al-Saleh, M. A. Alsmirat, Y. Jararweh, and I. 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*, 2018, pp. 234–238.
52. 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)*, 2018, pp. 182–189.
53. 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)*, 2018, pp. 1–5.
54. Q. B. Baker, S. Banat, E. Eaydat, M. Alsmirat, et al., "Automated detection of benign and malignant in breast histopathology images," in *2018 IEEE/ACS 15th International Conference on Computer Systems and Applications (AICCSA)*, 2018, pp. 1–5.
55. H. Al-Theibat, 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)*, 2018, pp. 1–5.

2017

56. M. A. Alsmirat, Y. Jararweh, I. Obaidat, and B. B. Gupta, "Automated wireless video surveillance: an evaluation framework," *Journal of Real-Time Image Processing*, vol. 13, no. 3, pp. 527–546, 2017.
57. M. A. Alsmirat, Y. Jararweh, I. Obaidat, and B. B. Gupta, "Internet of surveillance: a cloud supported large-scale wireless surveillance system," *The Journal of Supercomputing*, vol. 73, no. 3, pp. 973–992, 2017.
58. M. A. Alsmirat, Y. Jararweh, M. Al-Ayyoub, M. A. Shehab, and B. B. Gupta, "Accelerating compute intensive medical imaging segmentation algorithms using hybrid CPU-GPU implementations," *Multimedia Tools and Applications*, vol. 76, no. 3, pp. 3537–3555, 2017.
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60. Y. Jararweh, M. Alsmirat, M. Al-Ayyoub, E. Benkhelifa, A. Darabseh, B. Gupta, and A. Doulat, "Software-defined system support for enabling ubiquitous mobile edge computing," *The Computer Journal*, vol. 60, no. 10, pp. 1443–1457, 2017.
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63. K. Balhaf, M. A. Alsmirat, M. Al-Ayyoub, Y. Jararweh, and M. A. Shehab, "Accelerating Levenshtein and Damerau edit distance algorithms using GPU with unified memory," in *2017 8th International Conference on Information and Communication Systems (ICICS)*, 2017, pp. 7–11.
64. A. Ababneh, M. Al-Ayyoub, Y. Jararweh, and M. Alsmirat, "Collision-free anycast transmission scheduling in UWSNs," in *2017 Second International Conference on Fog and Mobile Edge Computing (FMEC)*, 2017, pp. 207–212.
65. M. B. Issa, M. Daraghme, Y. Jararweh, M. Al-Ayyoub, M. Alsmirat, and E. Benkhelifa, "Using logistic regression to improve virtual machines management in cloud computing systems," in *2017 IEEE 14th International Conference on Mobile Ad Hoc and Sensor Systems (MASS)*, 2017, pp. 628–635.
66. M. A. Alsmirat, E. Qawasmeh, M. Al-Ayyoub, N. A. Damer, and Y. Jararweh, "Building an image database for studying image retargeting," in *2017 IEEE/ACS 14th International Conference on Computer Systems and Applications (AICCSA)*, 2017, pp. 457–462.
67. M. A. Alsmirat, M. Al-Hadrusi, and Y. Jararweh, "Multimedia Systems Power/Energy Reduction Architectural Techniques: a Survey," in *2017 International Renewable and Sustainable Energy Conference (IRSEC)*, 2017, pp. 1–6.

2016

68. M. Al-Ayyoub, Y. Jararweh, A. Doulat, H. A. B. Salameh, A. A. A. Aziz, M. Alsmirat, and A. A. Khreishah, "Virtualization-based cognitive radio networks," *Journal of Systems and Software*, vol. 117, pp. 15–29, 2016.
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70. M. Al-Ayyoub, S. M. AlZu'bi, Y. Jararweh, and M. A. Alsmirat, "A gpu-based breast cancer detection system using single pass fuzzy c-means clustering algorithm," in *2016 5th International Conference on Multimedia Computing and Systems (ICMCS)*, 2016, pp. 650–654.
71. F. Al-Alem, M. A. Alsmirat, and M. Al-Ayyoub, "On the road to the Internet of Biometric Things: A survey of fingerprint acquisition technologies and fingerprint databases," in *2016 IEEE/ACS 13th International Conference of Computer Systems and Applications (AICCSA)*, 2016, pp. 1–6.
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73. M. Alsmirat and N. J. Sarhan, "Cross-layer optimization for automated video surveillance," in *2016 IEEE International Symposium on Multimedia (ISM)*, 2016, pp. 243–246.
74. I. Obaidat, M. Alsmirat, and Y. Jararweh, "Completing IEEE 802.11 e Implementation in NS-3," in *2016 7th International Conference on Information and Communication Systems (ICICS)*, 2016, pp. 190–195.
75. Y. Jararweh, A. Doulat, A. Darabseh, M. Alsmirat, M. Al-Ayyoub, and E. Benkhelifa, "SDMEC: Software defined system for mobile edge computing," in

2016 *IEEE International Conference on Cloud Engineering Workshop (IC2EW)*, 2016, pp. 88–93.

2015

- 76. K. Alawneh, M. Al-dwiekat, M. Alsmirat, and M. Al-Ayyoub, "Computer-aided diagnosis of lumbar disc herniation," in *2015 6th International Conference on Information and Communication Systems (ICICS)*, 2015, pp. 286–291.
- 77. M. A. Alsmirat, S. Y. Al-Rifai, and B. 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*, vol. 2, 2015.

2014

- 78. Y. Mhaidat, M. Alsmirat, O. S. Badarneh, Y. Jararweh, and H. A. B. 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)*, 2014, pp. 384–389.

2013

- 79. M. A. Alsmirat, "Maximizing resource utilization in video streaming systems," Ph.D. dissertation, Wayne State University, 2013.

2012

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2010

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2009

- 83. M. A. Alsmirat and N. 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*, 2009, pp. 150–162.

2008

- 84. M. A. Alsmirat and N. J. Sarhan, "Predictive cost-based scheduling for scalable media streaming," in *2008 IEEE International Conference on Multimedia and Expo*, 2008, pp. 857–860.

2007

- 85. M. A. Alsmirat, M. Al-Hadrusi, and N. J. Sarhan, "Analysis of waiting-time predictability in scalable media streaming," in *Proceedings of the 15th ACM International Conference on Multimedia*, 2007, pp. 727–736.

RESEARCH GRANTS AND AWARDS

- *September 2023, Forensics Human Identification Using Ethmoid Bone CT Scans and Machine Learning, Principle Investigator, University of Sharjah, \$30K*
- *December 2022, Building a Deep Learning Compatible Image Re-targeted Set, Principle Investigator, University of Sharjah, \$10K.*
- *December 2019, Advancing Precision Agriculture in Jordan: Using Computer Vision to Support the Sustainability and Quality of Olive Farming, Co-PI, The Royal Academy of Engineering, UK, \$100K.*
- *September 2016, Impact of Image Compression on Fingerprint Recognition, Principle Investigator, Jordan University of Science and Technology, \$14K.*
- *September 2014, A CAD System for Diagnosing and Classifying Disk Herniation Types from MRI Images, Principle Investigator, Jordan University of Science and Technology, \$10K.*