

## CURRICULUM VITAE



Position/Designation: HoD & CQMO/Associate Professor

Department: Mathematical and Physical Sciences

College: Arts and Sciences

University of Nizwa, Sultanate of Oman

### Personal Information

Name: Khizar Hayat  
 Marital Status: Married  
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### Academic Qualifications

PhD in Computer Science

### Teaching Activities, Current / Previous Experience

Course Name	BA-MA-PhD	College/University	Number of times taught
Cryptography and Network Security	MSc	UoN/CU	5
Data Science Essentials	MSc	UoN	2
Advanced Algorithm Design and Analysis	MSc	UoN/CU	6
Digital Image Processing	MSc	UoN/CU	6
Research Methods	PhD/MSc	CU	1
Multimedia Security	PhD/MSc	CU	1
Design and Analysis of Algorithm	BSc	CU	3
Introduction to Programming C++	BSc	UoN	8
Object Oriented Programming	BSc	UoN	3
Introduction to Databases	BSc	UoN	2
Finite automata and Computation theory	BSc	UoN	5
Discrete Mathematics	BSc	UoN	3
Computer Skills	BSc	UoN	8
Numerical Methods in Computing	BSc	UoN	3

## Research Activities

1. S. Al Ajmi, **K. Hayat**, A. Al Obaidi, M. Salim, "Voice Mimicry based Audio forensics," Submitted.
2. H. Talaoubrid, M. Vert, **K. Hayat** and B. Magnier, "Human Tracking in Top-view Fisheye Images: Analysis of Familiar Similarity Measures via HOG and against various Color Spaces", MDPI J. Imaging (Accepted).
3. T. Qazi, M. Ali, **K. Hayat** and B. Magnier, "Seamless Copy–Move Replication in Digital Images", MDPI J. Imaging, Mar. 2022, vol. 8(3):69, <https://doi.org/10.3390/jimaging8030069>
4. A. Aslam, K. Hayat, A. I. Umar, B. Zohuri, P. Zarkesh-Ha, D. Modisette, S. Z. Khan, B. Hussian, "Wavelet-based Convolutional Neural Networks for Gender Classification," in [Journal of Electronic Imaging](#), vol. 28(1), 013012 (2019).
5. K. Hayat, "Multimedia super-resolution via deep learning: A survey" in [Digital Signal Processing](#), vol. 18, pp 198-217, Oct. 2018.
6. K. Hayat, and T. Qazi, "Forgery Detection in Digital Images via Discrete Wavelet and Discrete Cosine Transforms", [Computers and Electrical Engineering](#), vol. 62, no. C, pp 448 – 458, Aug. 2017.
7. K. Hayat, N. A. Al-Shukaili and K. Sultan, "Alice in Oman: A Study on Object-First Approaches in Computer Science Education", [Education and Information Technologies](#), vol. 22, no. 4, Jul. 2017.
8. U. Habib, K. Hayat and G. Zucker, "Complex building's energy system operation patterns analysis using bag of words representation with hierarchical clustering", [Complex Adaptive Systems Modeling](#), vol. 4, no. 8, 2016.
9. K. Bilal, S. U. Khan, M. Manzano, E. Calle, S. A. Madani, K. Hayat, D. Chen, L. Wang, and R. Ranjan, "Modeling and Simulation of Data Center Networks," in Handbook on Data Centers, S. U. Khan and A. Y. Zomaya, Eds., Springer-Verlag, New York, USA, 2015, ISBN 978-1-4939-2091-4, Chapter 31.
10. O. Khalid, S. U. Khan, S. A. Madani, K. Hayat, L. Wang, D. Chan, and R. Ranjan, "Opportunistic Databank: A Context-aware on-the-fly Data Center for Mobile Networks," in Handbook on Data Centers, S. U. Khan and A. Y. Zomaya, Eds., Springer-Verlag, New York, USA, 2015, ISBN
11. S. Swati, **K. Hayat** and Z. Shahid, "A Watermarking Scheme for High Efficiency Video Coding (HEVC)", [PLoS ONE](#) vol 9, no. 8: e105613, Aug. 2014.
12. S. H. Shirazi, N. Haq, **K. Hayat**, S. Naz and I. Haq, "Curvelet Based Offline Analysis of SEM Images", [PLoS ONE](#) vol 9, no. 8: e103942, Aug. 2014.
13. H. Akbar, N. Haq, **K. Hayat** and U. I. Bajwa, "Bilateral Symmetry Detection on the Basis of Scale Invariant Feature Transform", [PLoS ONE](#) vol 9, no. 8: e103561, Aug. 2014.
14. S. Naz, **K. Hayat**, I. Razzak, M. W. Anwar, S.A. Madani and S.U. Khan, "The Optical Character Recognition of Urdu-like Cursive Scripts", [Pattern Recognition](#), vol. 47, no. 3, pp 1229-1248, Mar. 2014.
15. S. Naz, M.I. Razzak, K. Hayat, M.W. Anwar and S.Z. Khan. Intelligent Systems for Science and Information Studies in Computational Intelligence, vol. 542, pp. 181-196, Chapter: Challenges in Baseline Detection of Arabic Script Based Languages, Springer International Publishing, **2014** (ISBN 978-3-319-04701-0).
16. R. Irfan, G. Bickler, S. U. Khan, J. Kolodziej, H. Li, D. Chen, L. Wang, **K. Hayat**, S. A. Madani, B. Nazir, I. A. Khan, and R. Ranjan, "Survey on Social Networking Services," [IET Networks](#), vol. 2, no. 4, pp 224–234, Dec. 2013.
17. M. Ajmal, S.A. Madani, K. Bilal, T. Maqsood, B. Nazir and **K. Hayat**, "Coordinated Opportunistic Routing Protocol for Wireless Mesh Networks", [Computers and Electrical Engineering](#), vol.39, no. 8, pp 2442-2453, Nov. 2013.
18. T. Qazi, **K. Hayat**, S.A. Madani and I. A. Khan et al., "A Survey on Blind Image Forgery Detection", [IET image Processing](#), vol. 7, no. 7, pp 660–670, Oct. 2013.

19. K. Bilal, S.U. Khan, S. A. Madani, **K. Hayat**, M. Iqbal, N. Min-Allah, J. Kolodziej, L. Wang, S. Zeadally and D. Chen, "A Survey on Green Communications using Adaptive Link Rate" [Cluster Computing](#), Springer, vol. 16, no. 3, pp 575-589, Sep. 2013.
20. K. Bilal, S.U. Khan, L. M. Zhang, H. Li, **K. Hayat**, S.A. Madani, N. Min-Allah *et al.* "Quantitative Comparisons of the State of the Art Data Center Architectures" (2013) [Concurrency and Computation: Practice and Experience](#), Wiley, vol. 25, no. 12, pp. 1771–1783, Aug. 2013.
21. O. Khalid, S.U. Khan, S.A. Madani, **K. Hayat**, M. I. Khan, N. Min-Allah, J. Kolodziej, L. Wang, S. Zeadally and D. Chen, "Comparative Study of Trust and Reputation Systems for Wireless Sensor Networks", [Security and Communication Networks](#), Wiley, vol. 6, no. 6, pp 669–688, Jun. 2013.
22. N. Noreen, **K. Hayat**, S.A. Madani, M. Hussain, I. Ahmad and A. A. Alelaiwi "Curvelet based Brain Tumor Detection from Magnetic Resonance Images", [INFORMATION - An International Interdisciplinary Journal](#) vol. 16, no. 5, pp.3259-3266, May 2013. 2011 **IF**: 0.250
23. S. Naz, **K. Hayat**, M. W. Anwar, H. Akbar and I. Razzak: "*Challenges in Baseline Detection of Cursive Script Languages*", in Proc. Science and Information Conference, [SAI 2013](#), Oct. 07 - 09, 2013, London, UK, IEEE Society Press, pp. 551-556.
24. S. Naz, **K. Hayat**, I. Razzak, M. W. Anwar and H. Akbar: "*Arabic Script Based Language Character Recognition: Nasta'liq vs Naskh Analysis*", in Proc. World Congress on Computer and Information Technology [WCCIT 2013](#), Jun. 22 - 24, 2013, Sousse, Tunis, IEEE Society Press, pp. 1-7.
25. S. Naz, **K. Hayat**, I. Razzak, M. W. Anwar and H. Akbar: "*Arabic Script Based Character Segmentation: A Review*", in Proc. World Congress on Computer and Information Technology [WCCIT 2013](#), Jun. 22 - 24, 2013, Sousse, Tunis, IEEE Society Press, pp. 1-6.
26. J. Shuja, S. A. Madani, K. Bilal, **K. Hayat**, S. U. Khan and S. Sarwar "Energy-Efficient Data Centers" [Computing](#), Springer, vol. 94, no. 12, pp 973-994, Dec. 2012.
27. M. Jadoon, S.A. Madani, **K. Hayat** and S. Mahlkecht, "Location and Non-Location Based Ad-hoc Routing Protocols under various Mobility Models: A Comparative Study", [The International Arab Journal of Information Technology \(IAJIT\)](#), vol. 9, no. 5, pp. 418-427, Sep. 2012.
28. S. Mustafa, S.A. Madani, K. Bilal, **K. Hayat** and S. U. Khan, "Stable Path Multi-Channel Routing With Extended Level Channel Assignment", [International Journal of Communication Systems](#), vol. 25, no. 9, pp. 887–902, Jul. 2012.
29. A.R. Khan, S.A. Madani, **K. Hayat** and S. U. Khan, "Clustering-Based Power Controlled Routing for Mobile Wireless Sensor Networks", [International Journal of Communication Systems](#), vol. 25, no. 4, pp. 529-542, Apr. 2012.
30. N. Haq, **K. Hayat**, S.A. Madani and Y. Iqbal, "Offline Estimation of 2D Crystal Lattice Parameters by Processing the Electron Diffraction Image", [Optics Communications](#), vol. 285, no. 5, pp. 609-616, Mar. 2012.
31. S. Khan, K. Hayat, S. A .Madani, S. U. Khan and J. Kolodziej: "*The Median Resource Failure Checkpointing*", in Proc. 26th EUROPEAN Conference on Modelling and Simulation, [ECMS 2012](#), May 29 - Jun. 01, 2012, Koblenz, Germany, IEEE Society Press, pp. 483-489.
32. O. Khalid, S. U. Khan, J. Kolodziej, L. Zhang, J. Li, K. Hayat, S. A .Madani, L. Wang, D. Chen: "*A Checkpoint Based Message Forwarding Approach For Opportunistic Communication*", in Proc. 26th EUROPEAN Conference on Modelling and Simulation, [ECMS 2012](#), May 29 - Jun. 01, 2012, Koblenz, Germany, IEEE Society Press, pp. 512-518.
33. K. Bilal, S. U. Khan, J. Kolodziej, L. Zhang, K. Hayat, S. A .Madani, N. Min-Allah, L. Wang, D. Chen: "*A Comparative Study of Data Center Network Architectures*", in Proc. 26th EUROPEAN Conference on Modelling and Simulation, [ECMS 2012](#), May 29 - Jun. 01, 2012, Koblenz, Germany, IEEE Society Press, pp. 526-532.
34. N. Islam, W. Puech, K. Hayat and R. Brouzet, "Application of Homomorphism to Secure Image Sharing", [Optics](#)

[Communications](#), vol. 284, no. 19, pp. 4412-4429, Aug. 2011.

35. I. A. Khan, S. A. Madani, W. Anwar and K. Hayat, "Location Based Dynamic Probabilistic Broadcasting for MANETs", [World Applied Sciences Journal \(WASJ\)](#), vol. 13, no. 11, Aug. 2011.
36. N. Noreen, K. Hayat and S. A. Madani, "MRI Segmentation Through Wavelets and Fuzzy C-Means", [World Applied Sciences Journal \(WASJ\)](#), vol. 13, Special issue on App. Math 2011.
37. F. Rehman, S. A. Madani, K. Bilal and K. Hayat, "Discovery of Multiple Mobile Gateways in Wireless Mesh Networks", [World Applied Sciences Journal \(WASJ\)](#), vol.15, no.4 pp. 590-597, pp. 34-39, 2011.
38. S. Ghayasuddin, A. Rehman, K. Hayat and I. A. Khan, "Simulation Study of AODV Protocol on the Basis of Two Mobility Models", [Journal of Basic and Applied Scientific Research](#), vol. 1, no. 12, pp. 3127-3133, 2011.
39. U. Habib, I. Jørstad, D. van Thanh, K. Hayat and I. A. Khan, "A Framework for Secure Linux Based Authentication in Enterprises via Mobile Phone", [Journal of Basic and Applied Scientific Research](#), vol. 1, no. 12, pp. 3058-3066, 2011.
40. N. Haq, K. Hayat, S. H. Sherazi and W. Puech, "Segmentation Through DWT and Adaptive Morphological Closing" in Proc. 19th European Signal Processing Conference, [EUSIPCO'11](#), Aug. 29 – Sep. 02, 2011, Barcelona, Spain.
41. N. Haq, K. Hayat, N. Noreen and William Puech "Image Sharpening by DWT-Based Hysteresis" (2011) Proc. Advanced Concepts for Intelligent Vision Systems, [ACIVS 2011](#), Aug. 22-25 2011, Ghent, Belgium.
42. K. Hayat, W. Puech and G. Gesquière, "Adaptively synchronous scalable spread spectrum (A4S) data-hiding strategy for three-dimensional visualization", [Journal of Electronic Imaging](#), volume 19, no. 2 , May 2010.
43. K. Hayat, W. Puech, N. Islam and G. Gesquière, "Seamless Heterogeneous 3D Tessellation via DWT Domain Smoothing and Mosaicking", [EURASIP Journal on Advances in Signal Processing](#), vol. 2010, Article ID 913681, 2010.
44. N. Islam, W. Puech, K. Hayat and R. Brouzet, "Analysis of Homomorphic Properties of RSA-Based Cryptosystem for Image Sharing", Proc. 10th International Conference on Signal Processing, ICSP'10, Oct. 24-28, 2010, Beijing, China.
45. K. Hayat, W. Puech and G. Gesquière, "Seamless Heterogeneous Tessellation via Smoothing and Mosaicking in the DWT Domain", Proc. SPIE, Electronic Imaging, [Visual Information Processing and Communication](#), vol. 7543, no. 33. San Jose, CA, USA: SPIE, IS&T, Jan. 17 – 21, 2010.
46. K. Hayat, W. Puech, and G. Gesquière. Recent Advances in Signal Processing, [Chapter: JPEG2000-Based Data Hiding and Applications. In-Tech, 2009](#) (ISBN 978-953-307-002-5) DOI: 10.5772/7450.
47. K. Hayat, W. Puech, G. Gesquière and G. Subsol, "3D Facial Visualization through Adaptive Spread Spectrum Synchronous Scalable (A4S) Data Hiding", in Proc. IEEE International Conference on Image Processing, [ICIP'09](#), Nov. 7-11, 2009, Cairo.
48. K. Hayat, W. Puech and G. Gesquière, "Seamless Joining of Tiles of Varying Resolutions for Online 3D Terrain Visualization by DWT Domain Smoothing" in Proc. 17th European Signal Processing Conference, [EUSIPCO'09](#), Aug. 24-28, 2009, Glasgow, Scotland.
49. K. Hayat, W. Puech, and G. Gesquière, "An Adaptive Spread Spectrum (SS) Synchronous Data Hiding Strategy for Scalable 3D Terrain Visualization", in Proc. SPIE, Electronic Imaging, Visualization and Data Analysis , [VDA'09](#), vol. 7243, no. 7. San Jose, CA, USA: SPIE/IS&T, Jan. 18-22, 2009.
50. K. Hayat, W. Puech, G. Subsol and G. Gesquière, "JPEG2000-Based Data Hiding to Synchronously Unify Disparate Facial Data for Scalable 3D Visualization", in Proc. Singaporean-French Symposium, [SinFra'09](#); Image, Perception, Access & Language Laboratory (IPAL), Feb. 18 – 20, 2009, Fusionopolis, Singapore.
51. K. Hayat. Scalable 3D Visualization – Exploiting JPEG2000-Based Information Hiding. VDM – Verlag, 2009 (ISBN 978-3-639-18526-3).

52. K. Hayat, W. Puech and G. Gesquière, "Scalable 3D Terrain Visualization through Reversible JPEG2000-Based Blind Data Hiding" in [IEEE Trans. Multimedia](#), volume 10, no. 7, Nov. 2008, pp. 1261-1276.
53. K. Hayat, W. Puech and G. Gesquière, "A Lossy JPEG2000-based Data Hiding Method for Scalable 3D Terrain Visualization" in Proc. 16<sup>th</sup> European Signal Processing Conference, [EUSIPCO'08](#), Lausanne, Switzerland, Aug. 25-29, 2008.
54. K. Hayat, W. Puech and G. Gesquière, "Scalable Data Hiding for Online Textured 3D Terrain Visualization", in Proc. IEEE International Conference on Multimedia & Expo, [ICME'08](#), Hannover, Germany, Jun. 23-26, 2008.
55. K. Hayat, W. Puech and G. Gesquière, "An Efficient Data-hiding Method Based on Lossless JPEG2000 for a Scalable and Synchronized Visualization of 3D Terrains" in Proc. 15<sup>th</sup> European Signal Processing Conference, [EUSIPCO'07](#), Poznan, Poland, Sep. 3-7, 2007, pp. 2519-2523.
56. K. Hayat, W. Puech, G. Gesquière, and M. Chaumont, "Wavelet Based Data-Hiding of DEM in the Context of Real Time 3D Visualization", in Proc. SPIE, Electronic Imaging, Visualization and Data Analysis, [VDA'07](#); San Jose, CA, USA: SPIE, IS&T, Jan. 28 – Feb. 1, 2007, vol. 6495, no. 20, pp. 64.
57. K. Hayat, G. Gesquière and W. Puech, "Une méthode efficace d'insertion de données cachées basée sur JPEG2000 sans perte pour une visualisation scalable et synchronisée de terrain 3D », [XXI<sup>e</sup> Colloque GRESSIN](#), Traitement du Signal et des Images, Troyes, France, Sep. 11-14, 2007, pp. 1225-1228.
58. K. Hayat, W. Puech, G. Gesquière and M. Chaumont. « Visualisation 3D temps-réel à distance de MNT par insertion de données cachées basée ondelettes », Compression et Représentation des Signaux Audiovisuels, [CORESA'06](#), Caen, France, Nov. 9-10, 2006.

#### Faculty Administrative Experience

<b>Jan 2018-to-date</b>	<b>University of Nizwa</b>	<b>Oman</b>
<b>Head of Department of Mathematical and Physical Sciences</b> (with 12 different programs of Mathematics, Statistics, Physics and Computer Science), College of Arts and Sciences.		
<b>Jan 2017-to-Sep 2021</b>	<b>University of Nizwa</b>	<b>Oman</b>
<b>College Quality Management Officer</b> of the largest college of the University, dealing with about 40 different programs with emphasis on accreditation.		
<b>Sep 2014-to-date</b>	<b>University of Nizwa</b>	<b>Oman</b>
<b>Head of Computer Science (HoS-CS).</b>		
<b>May 2012-Sep. 2013</b>	<b><a href="#">COMSATS Institute of IT, Abbottabad</a></b>	<b>Pakistan</b>
<b>Head of Computer Science (CS) Dept.</b> from May 2012 till Sep. 2013. The department had more than 1200 BS, MS and PhD students with the faculty strength of around 60 including 18 PhDs.		

#### Community Services

##### University of Nizwa:

- As Head Section Curriculum Committee on Masters, have successfully got the approval of MSc Computer Science program at UoN.
- Member of Vice Chancellor's Special Working Group on Academic Affairs.
- Had been at the fore-front of revising the syllabi of all the Undergraduate Computer Science programs; a revision long overdue.

##### CIIT:

- Member Board of Studies (BoS), Campus Management committee.

Consultancy Activities
Membership in Professional Bodies
<ol style="list-style-type: none"><li>1. IEEE and IEEE Communication Society Member (92945791)</li><li>2. Member EURASIP</li><li>3. HEC Approved Supervisor</li></ol>
Awards and recognitions
<ul style="list-style-type: none"><li>• Research Productivity award for years 2011, 2012,2013 and 2014 from CIIT</li><li>• Second Position in MSc in the Department - 1993.</li><li>• Silver Medal in MS (Computer Science Major) - 2004.</li><li>• Selected for indigenous scholarship for MS studies as a result of GRE type Competitive exam held by NUST for MoST/HEC in Dec. 2000.</li><li>• Selected for four years overseas HEC scholarship for PhD studies in France.</li></ul>