

## CURRICULUM VITAE

Prof. Dr. Ali Hassan Nasser Al-Fayadh

**Ph.D., M.Sc., B.Sc. (Hons)**

Name and Surname: Ali Hassan Nasser Al-Fayadh

Date of Birth: 20<sup>th</sup> Aug. 1962

Nationality: Iraq

Languages: Arabic (native), English, Swedish

Place of job: Al-Nahrain University, College of Sciences,  
Dep. of Maths. & Computer Applications

Designation: Professor

General Specialization Mathematics

Specialization Applied Mathematics

Date of First Appointment Feb. 1985

Current Position: Dean of the College of Sciences

Address: Al-Nahrain University, Baghdad, Iraq

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### **Education**

- Ph.D. Liverpool John Moores University (LJMU), School of Computing & Mathematical Sciences Liverpool, UK, 2008.

- M.Sc. (Mathematics), University of Baghdad, Iraq, 1989.
- B.Sc., (Mathematics), University of Baghdad, Iraq, 1984.

### **Administrative Positions**

- Dean of the College of Sciences, Al-Nahrain University, (1<sup>st</sup> Nov. 2018 – present).
- Director of Special Degrees Division, Minister Office, Ministry of Higher Education and Scientific Research, (15 Nov. 2016 – 28 Oct. 2018).
- Director of the Department of Scientific Affairs and Cultural Relations, Al-Nahrain University, (01 July 2015 – 13 Nov. 2016).
- Director of the Department of Studies Abroad, General Directorate of Scholarships and Cultural Relationships, (06 March 2014 – 02 Feb. 2015).
- Director of the Department of Students Abroad, General Directorate of Scholarships and Cultural Relationships, (15 Oct. 2012 – 06 March 2014).
- Director of the Division of UK. & Western Europe, General Directorate of Scholarships and Cultural Relationships, (22 Jan. 2012 – 15 Oct. 2012).
- Head of the Department of Mathematics, Faculty of Mathematics & Computer Sciences, Kufa University, (Apr 2011 - March 2012).

### **Research Areas of Interest**

- Wavelets Theory & Approximation Theory
- Continuous / Discrete Integral Transforms
- Applied Linear Algebra

- Numerical Solutions of Ordinary & Partial Differential Equations
- Complex Analysis, Topology
- Image Processing (Image Compression)

### **Publications:**

1. **Ali-Fayadh**, Alaa Abdullah Al-Tassan, Abdul Rahman S. Juma, and Cenap Ozel “Toeplitz Determinant for Class of Bazilevic Functions”, (accepted **2018**), Journal of Mathematical Analysis.
2. A. J. Hussain, **Ali Al-Fayadh**, and Naeem Radi, “Image Compression Techniques: A survey in Lossless and Lossy Algorithms”, Neurocomputing, Vol. 300, 26, pp. 44-69, July **2018**.
3. **Ali Al-Fayadh**, “An Efficient Variational Iteration Transform Method for Solving Nonlinear Parabolic-Hyperbolic Partial Differential Equations”, Applied Mathematical Sciences, Vol. 12, No. 2, pp. 81-91, **2018**.
4. **Ali Al-Fayadh** and Hasan Ali Khawwan, “Variational Iteration Transform Method for Solving Burger and Coupled Burger’s Equations”, ARPN Journal of Engineering and Applied Sciences, Vol. 12, No. 23, pp. 6926-6932, Dec. **2017**.
5. **Ali Al-Fayadh**, " Approximate solution for Burger’s-Fisher equation by Variational Iteration Transform method”, Tikrit Journal of Pure Science,ISSN.1662-1813, EISSN: 2415-1726, (accepted 15/11/**2017**).
6. **Ali Al-Fayadh** and Maryam Abdulkareem, “Improved Transform Based Image Compression Methods”, Applied Mathematical Sciences, Vol.11, No. 47, pp. 2305 2314, **2017**.
7. **Ali Al-Fayadh** and Nawar Hazim, “Implementation of Wavelet Based Transform for Numerical Solutions of Partial Differential Equations”, IOSR Journal of Mathematics (IOSR-JM), Vol.13, Issue 2, Ver.2, pp. 30-34, (Mar-Apr.**2017**).
8. **Ali Al-Fayadh** and Hadeel Majid, “Singular Value Decomposition Based Classified Vector Quantization Image Compression Method Using Discrete Sine Transform”, ARPN Journal of Engineering and Applied Sciences, Vol. 11, No. 21, pp. 12883-12891, Nov. **2016**.
9. **Ali Al-Fayadh** and Hadeel Majid, “An Efficient Singular Value Decomposition Based

Classified Vector Quantization Using Discrete Wavelet Transform and its Application to Image Compression”, International Journal of Innovative Research in Science and & Engineering (IJIRSE), ISSN (online) 2347-3207, **2016**.

- 10. Dr. Ali Hassan Al-Fayadh**, Hind Rostom Mohamed, and Raghad Sahib Al-Shimsah, “Multi-orientation property of Gabor Wavelet in Astronomical Image Compression”, Al-Qadisiyah Journal of Computer Science and Mathematics, Vol. 5, No. 2, **2013**.
- 11. Ali Hassan Al-Fayadh**, Yahya Mahdi Al-Mayali and Muhaimn Muhammed, “On Studying of Mathematical Multi-transforms and their Application to Image Compression”, Tikrit Journal of Pure Science, (accepted 3<sup>rd</sup> Sep. **2013**).
- 12. Dr. Ali Hassan Al-Fayadh**, Hind Rostom Mohamed, and Raghad Sahib Al-Shimsah, “CT Angiography Image Segmentation by Mean Shift Algorithm and Contour with Connected Components Image”, Int. J. Sci. & Eng. Research (IJSER), Vol. 3, Issue 8, ISSN2229-5518, (Aug.**2012**).
- 13. Dr. Ali Hassan Al-Fayadh**, Hind Rostom Mohamed, and Shayma Maki, “A New Masks Group Called A. H. SH. for Mycosis Fungiodes Skin Image Edge Detection, Int. J. Sci. & Eng. Research (IJSER), Vol. 3, Issue 8, ISSN2229-5518, (Aug.**2012**).
- 14. Dr. Ali Hassan Al-Fayadh**, Hind Rostom Mohamed, and Raghad Sahib Al-Shimsah, “Gabor Wavelet Transform in Image Compression”, Kufa Journal of Mathematics and Computer Science, (accepted **2012**).
- 15. Ali Hassan Nasser Al-Fayadh**, Hind Rostom Mohamed, and Shaymaa Makki Kadhum, “Compare Between A. H. SH. Quintet mask and Ant Colony for Mycosis Fungoides Skin Image Edge Detection”, Karbala Univ. Scientific Journal, (accepted 5<sup>th</sup> Jun **2012**).
- 16. Ali Hassan Nasser Al-Fayadh**, Hind Rostom Mohamed, and Shaymaa Makki Kadhum, “Comparison Between Classical masks and (odd and even) Groups masks for Mycosis Fungoides Diseas Skin Image Edge Detection”, Kufa Journal of Mathematics and Computer Science, (accepted 19<sup>th</sup> July **2012**).
- 17. Ali Hassan Nasser Al-Fayadh**, Hind Rostom Mohamed, and Shaymaa Makki Kadhum, “A. H. SH. Rostom Utilization of Improved masks for Edge Detecting of Mycosis Fungoides”, Iraqi Journal of Information Technology (IAIT) (accepted 1<sup>st</sup> Apr. **2012**).
- 18. A. H. Al-Fayadh**, Yahya Al-Mayali and Shaymaa Abed Yaseen Al-Kufi, “Effective of Some Mathematical Functions to Image Compression”, Kufa Journal of Maths. and Computer Science (accepted 14<sup>th</sup> Sep. **2011**).
- 19. A. Al-Fayadh**, A. J. Hussain, P. Lisboa, D. Al-Jumeily, and M. Al-Jumaily, “A Hybrid Image Compression Method and Its Application to Medical Images”, IEEE 2009 2<sup>nd</sup> International Conference on Developments in eSystems Engineering, pp. 107-112, 14-16

December 2009, Abu Dhabi, UAE, **2009**.

- 20. Ali. Al-Fayadh**, Abir Jaafar Hussain, Paulo Lisboa, and Dhiya Al-Jumeily, “Novel hybrid classified vector quantization using discrete cosine transform for image compression”, *Journal of Electric Imaging*, Vol. 18, 023003 (Apr. 21, **2009**).
- 21. A. Al-Fayadh**, A. J. Hussain, P. Lisboa, and D. Al-Jumeily, “An Adaptive Hybrid Classified Vector Quantisation and Its Application to Image Compression”, *European Modelling Symposium 2008 (EMS2008), 2<sup>nd</sup> UKSim European Symposium of Computer Modelling and Simulation*, pp. 253-256, 8-10 Sep. 2008, Liverpool, United Kingdom, **2008**.
- 22. A. Al-Fayadh**, A. J. Hussain, P. Lisboa, and D. Al-Jumeily, “An Adaptive Hybrid Image Compression Method and Its Application to Medical Images”, *5<sup>th</sup> IEEE International Symposium Conference on Biomedical Imaging (ISBI 2008): From Nano to Macro*, 2008, pp.237-240, 14-17 May 2008, France, **2008**.
- 23. A. J. Hussain, A. Al-Fayadh**, D. Al-Jumeily, P. Lisboa, and P. Liatsis, “Image Compression using Improved Hybrid Classified Vector Quantisation”, *Electronics Letters*, Vol. 43, No. 7, pp. 385-387, March **2007**.
- 24. A. Al-Fayadh**, A. J. Hussain, P. Lisboa and D. Al-Jumeily, “A Hybrid Classified Vector Quantisation and Its Application to Image Compression” *IEEE International Conference on Signal Processing and Communication (ICSPC07)*, pp. 125-128, 24-27, November 2007, Dubai, UAE, **2007**.
- 25. A. Al-Fayadh**, A. J. Hussain, P. Lisboa and D. Al-Jumeily, “Hybrid Classified Vector Quantisation and Its Application to Image Compression”, *International conference on Computer as a tool, EUROCON2007*, pp. 157-162, 9-12 Sep. 2007, Poland, Warsaw, **2007**.
- 26. A. Al-Fayadh**, A. J. Hussain, P. Lisboa and D. Al-Jumeily, “Subjective Image Quality Evaluation of Hybrid Image Compression Method”, *23<sup>rd</sup> UK Performance Engineering Workshop (UKPEW’07) Conference*, Edge Hill University, UK, 9-10 July 2007, United Kingdom, **2007**.
- 27. A. H. Al-Fayadh**, “Weakly Quasi Continuous Function”, *Ibn Al-Haitham J. for App. Sci*, **1992**.
- 28. A. H. Al-Fayadh** and L. A. A. Al-Swidi, “On a Generalized Notion of Compactness”, *Ibn Al-Haitham J. for App. Sci*, **1992**.
- 29. A. H. Al-Fayadh** and L. A. A. Al-Swidi, “S-(m,n) Compact Spaces”, *Ibn Al-Haitham J. for App. Sci*, **1992**.
- 30. A. H. Al-Fayadh**, O. Al-Zobae, and A. T. Al-Ani, “On Separation Properties”, *Ibn Al-*

Haitham J. for App. Sci, 1990.

**Patents:**

**Title:** Image Edge Direction and Orientation Detecting Method,

**No. :** WO/2008/119939,

**Date:** 09 / 10 / 2008,

**Type:** International

**Subjects Taught at Postgraduate / Undergraduate - Level:**

**a. Undergraduate Level:**

Real Analysis, Complex Analysis, Differential Equations, Abstract Algebra, Linear Algebra, Calculus I, Advance Calculus, Topology, Logic, Discrete Mathematics, Analytic Geometry, Mathematics for Computing, Image Processing.

**b. Postgraduate Level:**

Integral Transforms, Wavelet Analysis.

**Postgraduate Supervision and Examination Experience:**

a. *MSc Thesis successful supervision:* (9) MSc. Theses.

b. *Examination Experience:* More than (40) examinations including PhD as well as MSc Theses.

**Reviewer for Journals:**

a. **International Journals:** Elsevier, PLOS ONE

b. **Local Journals:** several local journals

### **External Academic Duties:**

- Involved in several experts commissions.
- Expert for several Scientific Promotions.

### **Other Responsibilities:**

- Member of the technical committee for the care of scientists / General Secretariat of the Council of Ministers / 2018 – 2019.
- Member of a Central Ministerial Committee / Committee to follow up the implementation of policies in the Ministry of Higher Education / Ministry Centre 2017 – 2018.
- Member of a Central Ministerial Committee / committee for writing mathematics books for the third intermediate stage in the Ministry of Education / Ministry Centre 2017 – 2018.
- Member of a Central Ministerial Committee / Committee to set criteria for the selection of senior leaders (general managers and their rank) in the Ministry of Higher Education and Scientific Research and interview applicants / Ministry Centre 2017 – 2018.
- Member of a Central Ministerial Committee / Committee for Granting Study Holidays in Iraq (2016-2015).
- Member of a Central Ministerial Committee (representative of the Ministry of Higher Education and Scientific Research) , a committee specialized in the education sector which has emerged from the Iraqi National Commission for Education (under the supervision of UNESCO Organization of the culture and science) , since 2014 until now.
- Member of a Central Ministerial Committee / the Committee for Pure Sciences / Evaluation & Equalisation of Academic Certificates in the Ministry of Higher Education and Scientific Research / Scholarships and Cultural Relationships Directorate, 2013 – 2018 .

- Member of a Central Ministerial Committee / the Committee for Supporting Student's Research at PG – Level Abroad; Ministry of Higher Education & Scientific Research / Research and Development Directorate; 2013-2014.
- Member of a Central Ministerial Committee / Scholarship Committee in the Directorate of Scholarships and Cultural Relations , 2015 - 2011.
- Member of a Ministerial Committee / Committee for the development of graduate studies in the Department of Mathematics / Faculty of Computer Science and Mathematics /University of Kufa, 2017.
- Member of a Ministerial Committee / Committee for the development of graduate studies in the Department of Mathematics / Faculty of Computer Science and Mathematics /University of Tikreet, 2017 .
- Member of a Ministerial Committee / Committee for the development of graduate studies in the Department of Mathematics / Faculty of Education for Humanities /University of Anbar, 2017 .
- Member of a Ministerial Committee / The Audit Committee of Examinations in the Iraqi Governmental and Private Universities, 2016.
- Member of the Scientific Committee in the Department of Mathematics / Faculty of Mathematics and Computer Science / University of Kufa, 2010 – 2013 .
- Member of the Scientific Committee in the Department of Mathematics & Computer Applications, Faculty of Sciences / Al-Nahrain University, 2015 – 2018 .
- Member of the Committee for the determination of rare scientific disciplines / Al- Nahrain University, 2015 and 2016.
- Member of the permanent university committee for nominating applicants for academic vacations inside Iraq / Al-Nahrain University, 2015 and 2016.
- Member of the Ministry Committee of International Student Exchange Programme between Ministry of Higher Education & Scientific Research in Iraq and Its Counterpart Ministries



Abroad.

- Member of the committee for drafting the courses in the colleges that are working in the course System, 2011 and 2012 .
- Technical Programme Committee Member of Several International & Local Scientific Conferences.

### **Appreciation and Gratitude:**

- Minister of Higher Education & Scientific Research **(26)**
- President of University **(11)**
- Vice-President of University **(5)**
- Dean of Faculty **(30)**
- General Director **(3)**

### **Previous Experience:**

- **Professor in Mathematics**, Department of Mathematics & Computer Applications, College of Sciences, Al-Nahrain University (Nov. 2017- present).
- **Assistant Professor in Mathematics**, Department of Mathematics & Computer Applications, College of Sciences, Al-Nahrain University (Feb 2015- Nov 2017).
- **Assistant Professor in Mathematics**, Department of Mathematics, Faculty of Mathematics & Computer Sciences, Kufa University (Feb 2011 - Nov 2013).
- **Lecturer in Mathematics**, Department of Mathematics, Faculty of Mathematics & Computer Sciences, Kufa University (May 2010 - Feb 2011).

- **Teaching Assistant**, School of Computing & Mathematical Sciences, Liverpool John Moores University (2007 - 2008), UK.
- **Visiting Research Fellow**, School of Computing & Mathematical Sciences, Liverpool John Moores University (2004 - 2005), UK.
- **Lecturer in Mathematics**, Department of Mathematics, College of Education / Ibn Al-Haitham University of Baghdad (Feb 1992 - Aug 2001).
- **Assistant Lecturer in Mathematics**, Department of Mathematics, College of Education / Ibn Al-Haitham University of Baghdad (Aug 1989- Feb 1992).
- **Assistant Lecturer in Mathematics**, Department of Mathematics, College of Education / Ibn Al-Haitham University of Baghdad, Helping in tutorial classes and preparing tutorial sheets; also helping moderating assignments and course works (Feb 1985- Feb 1989)