

Prof. Dr. HIKMAT NAJEM ABDULLAH

Personal Data	
Name	Hikmat Najem Abdullah Shamy
Date of Birth	1974
Scientific Title	Full Professor (Since 2015)
E-Mail	hikmat.abdullah@coie-nahrain.edu.iq
	
Academic Education	
2001–2004	<u>Ph.D. Studies in Communication Engineering</u> University of Technology (Iraq), Electric and Electronic Engineering Department Title of Ph.D. thesis: " <i>Design and Implementation of Direct Sequence Spread Spectrum System Using FPGA</i> "
1995–1998	<u>M.Sc. Studies in Electronic and Communication Engineering</u> AL–Mustansiryah University (Iraq) Title of M.Sc. thesis: " <i>Acquisition of Direct Sequence Spread Spectrum Signals in the Presence of Data Modulation</i> "
1991–1995	<u>B.Sc. Studies in Electrical Engineering</u> AL–Mustansiryah University (Iraq) Title of B.Sc. project: " <i>Design and Implementation of Solid State Temperature Controller</i> "
Positions and Professional Experiences	
<u>At College of Information Engineering, Al–Nahrain University, Baghdad, Iraq (2015–Now)</u>	
<ul style="list-style-type: none">• Dean of the college (November 2019–present)• Deputy dean for administration and financial affairs (July 2017–present)• Head of scientific promotion Committee (October 2016–February 2020)• Instructor of Information and communication Engineering department (July 2015–July 2017)• Instructor of scientific promotion Committee (April 2015– October 2016)• Member of scientific affairs committee (January 2015–present)• Member of Curriculum development committee (March 2015–present)	
<u>At College of Engineering, Al–Mustansiryah University, Baghdad, Iraq (1998–2015)</u>	
<ul style="list-style-type: none">• Member of scientific promotion Committee (July 2013–January 2015)	

<ul style="list-style-type: none"> • Member of scientific affairs committee (April 2010–January 2015) • Head of development committee of Communication and advanced digital techniques laboratories (2010–2015) • Member of examination committee (1998–2005) • Head of computer security committee (2001–2003) • Head of maintenance committee (1999–2001) 	
<p>Other activities</p> <ul style="list-style-type: none"> • Researcher at Swedish Iraqi studies network, since 2020. • Senior member, Institute of Electrical and Electronic Engineers (IEEE), USA, since 2007. • Fellowship member, International Institute of Education (IIE), USA, since 2011. • Fellowship member, German alumni association, Germany, since 2010. • Fellowship member, Bonn–Rhein–Siege university of applied sciences alumni association, Germany, 2013. • Chairman of many post graduate examining committees at different Iraqi universities. • Editorial board member of Iraqi Journal of Information and Communication Technology (IJICT), Iraq, ISSN 2222–758X. • Consultant member of Engineering and Technology Journal, Iraq, ISSN 1681–6900. • Co-founder of Access–Germany–Iraq AGI Academy for professional training in cooperation with FIB company in Germany, 2009. • Member of Scientific Committee for MOSHARAKA conferences (July 2011–present). • Reviewer for many Iraqi engineering journals. • Reviewer for Scopus indexed international journals including: Transaction in Communication Journal (IEEE), Wireless Personal Communication Journal (Springer), Journal of Information Security and Applications (Elsevier). 	
<p>Scientific Media Identifiers</p>	
<ul style="list-style-type: none"> – ORCID: 0000–0002–1133–2057 – Researcher ID: D–6734–2014 – Scopus Author ID: 54917648100: (Hikmat N. Abdullah), h-index: 6 – Google Scholar: (Hikmat N. Abdullah), h-index: 9 – Research Gate: (Hikmat N. Abdullah), RG Score: 13. 8 	
<p>Teaching Experience</p>	
<p>Current Position since 05.01.2015</p>	<p><u>Academic Staff member, College of Information Engineering, Information and Communication Engineering Department, AL–Nahrain University, Bagdad, Iraq</u></p> <p>Topics: <i>Broadband Communications (Postgraduate–Ph. D)</i> <i>Advanced Coding Techniques, Wireless Communications (Postgraduate–M.Sc.)</i> <i>Information Theory and Coding, Analogue communication, Digital Communication (Undergraduate)</i></p>

04.04.1998– 04.01.2015	<u>Academic Staff member, College of Engineering, Electrical Engineering Department, AL–Mustansiriyah University, Bagdad, Iraq</u> Topics: <i>Advanced Digital Techniques, Neural Networks, and Field Programmable Gate Arrays FPGA (Postgraduate–M.Sc.)</i> <i>Communication Theory, Digital Communication, Microcomputer Architecture and Assembly Language, Digital Signal Processing, Network Communication (Undergraduate)</i>
01.10.2014– 01.10.2016	<u>Lecturer, Electrical Engineering Department. University of Technology, Baghdad, Iraq</u> Topics: <i>Computer Aided Design (Postgraduate–Ph.D.)</i>
01.10.2013– 01.10.2016	<u>Lecturer, Communication Engineering Department. Al–Mamoun Private University College, Baghdad, Iraq</u> Topics: <i>Information Theory (Undergraduate)</i>
01.10.2012– 18.02. 2013	<u>Lecturer, EMT Department. Bonn–Rhein–Sieg University of Applied Sciences Sankt Augustin, Germany</u> Topics: <i>Wideband Communications (postgraduate–M.Sc.)</i>
19.10.2009– 16.02. 2010	<u>Lecturer, Computer Engineering Department. Dijla Private University College, Baghdad, Iraq</u> Topics: <i>Communication Theory (Undergraduate)</i>
04.12.2001– 11.09. 2003	<u>Lecturer, Computer Science Department. College of Education For Women, Baghdad University, Baghdad, Iraq</u> Topics: <i>Microcomputer Architecture (Undergraduate)</i>
01.10.2000– 09.09. 2001	<u>Lecturer, College of Science, Computer Science Department, Al–Mustansiriyah University, Baghdad, Iraq</u> Topics : <i>Microprocessor programming and interfacing (Undergraduate)</i>
Research Grants	
24.02.2013– 23. 03.2013	<u>Guest Researcher, University of Applied Science, Bonn–Rhein–Sieg, Germany</u> Research emission as a Supervisor of an Iraqi Ph.D student, sponsored by Iraqi Ministry of Higher Education and Scientific Research at the Institute for Electronic, Mechanic and Journalism Techniques (EMT). Topic: <i>Implementation of Discrete Wavelet Packet Modulation System Using FPGA.</i>
26.06.2012– 25.12.2012	<u>Guest Researcher, University of Applied Science, Bonn–Rhein–Sieg, Germany</u> Research visit sponsored by University of Applied Science, Bonn–Rhein–Sieg

	(Germany) and IIE organization (USA) at the Institute for Electronic, Mechanic and Journalism Techniques (EMT). Topic: <i>Design and Implementation of differential chaos shift keying modulation system.</i>
19.02.2011– 18. 02.2012	<u>Guest Researcher (sabbatical stay), University of Applied Science, Bonn–Rhein–Sieg, Germany</u> Research visit sponsored by University of Applied Science, Bonn–Rhein–Sieg (Germany) and IIE organization (USA) at the Institute for Electronic, Mechanic and Journalism Techniques (EMT). Topic: <i>Chaotic communications for wireless sensing Applications.</i>
28.09.2009– 18.10.2009	<u>Guest Researcher, University of Applied Science, Cologne, Germany</u> Research emission as a Supervisor of an Iraqi Master student, sponsored by Iraqi Ministry of Higher Education and Scientific Research the Institute for Communication, Faculty of Information, Media und Electronics (F07). Topic: <i>Programming and Interfacing of FPGA Boards Using Simulink HDL Coder.</i>
01.08.2008– 01.11.2008	<u>Guest Researcher, University of Applied Science, Bonn–Rhein–Sieg, Germany</u> Research visit, sponsored by German Academic Exchange Service (DAAD) at the Institute for Electronic, Mechanic and Journalism Techniques(EMT), Topic: <i>Programming ALTERA–FPGA Boards Using Embedded MATLAB.</i>
01.04.2005– 30.06.2005	<u>Guest Researcher, University of Applied Science, Cologne, Germany</u> Research visit, sponsored by the UNESCO/German Academic Exchange Service (DAAD) at the Institute for Communication, Faculty of Information, Media und Electronics (F07). Topic: <i>Programming and Interfacing of ALTERA–FPGA Boards.</i>
04.08.2001– 19.03.2003	<u>Scientific Researcher, Al–Milad Company, Ministry of Industry, Baghdad, Iraq.</u> Topic: <i>Design and implementation of synchronization sub–system for frequency hopping spread spectrum communication system receiver</i>
Foreign Languages	
Arabic language	Mother language
English language	Good in speaking, Excellent in reading and writing
German language	Basic knowledge (B1 level)
Professional Memberships	
Since 2018	Member of Iraqi Academic Union
since 2011	International Institute of Education (IIE) fellow Member

since 2008	Member of DAAD Alumni Association
since 2006	Member of IEEE Society (Senior member since 2014)
since 2000	Member of Iraqi community of Computer sciences
since 1998	Member of Iraqi Teachers Union
since 1995	Member of Iraqi Engineers Union

Awards & Prizes

- Al-Nahrin university prize 2018, for obtaining a patent
- Medal of International Creativity, 2018, Babylon University.
- Al-Nahrin university prize 2017, for best academic in Engineering specialization.
- Al-Nahrain university prize 2016, for getting full professor title.

Appreciation Letters

• Minister of higher education and scientific research, Iraq	6
• President of Al-Nahrain university, Iraq	24
• President of Al-Mustansiriyah university, Iraq	3
• President of University of Technology, Iraq	1
• President of University of Information technology and Communications, Iraq	1
• President of University of Human Development, Iraq	1

Patents

1. "Design of Smart Wireless Changeover for Continuous Electric Current Feeding from Power Sources of Variable Capacities", Patent no. 5261, International classification: H04B17/00, Issued by ministry of planning, Iraq in 26.02.2018

Training Courses

1. Swedish Iraqi Studies Network: Training course on "*Classification and Management of Scientific Journals*", Baghdad, Iraq, 9–14 May 2020.
2. German–Iraqi Management Training Academy: Training course on "*Innovation Management and Leadership*", Bonn, Germany, 9–13 July 2019.
3. International Alumni Conference of Bonn–Rhein–Sieg university of Applied Sciences: Training course on "*Intercultural and interdisciplinary challenges to be faced in project management*", Bonn, Germany, 27–30 September 2015.
4. International Institute of Education (IIE) training workshop on "*Building Academic Research Capacity*", Erbil, Iraq, 03–05 February 2014.
5. International Institute of Education (IIE) training workshop on "*Student and Faculty Evaluation and Assessment*", Erbil, Iraq, 25–27 June 2013.
6. International Institute of Education (IIE) training workshop on "*Modern Teaching Methodology and Excellence in University Teaching*", Erbil, Iraq, 28–30 January 2013.
7. International Institute of Education (IIE) training workshop on "*Standards of Quality*"

- Assurance and Accreditation in Higher Education*", Erbil, Iraq, 29–31 January 2012.
8. Alumni portal Deutschland workshop on "*Networks and Cooperation*", Erbil, Iraq, 23–24 February 2010.
 9. Al–Mustansiryah University computer training centre: "*3rd training course for Computer Skills*", Baghdad, Iraq, 10 July–4 August, 1999.
 10. Al–Mustansiryah University centre for teaching and academic training : "*55th training course for academic skills*", Baghdad, Iraq, 10 July–10 August, 1999.

Ph.D. Students

1. Hadeel S. Abed, "Chaos Based Compressive Sensing for Collaborative Cognitive Radio", Al–Nahrain university, Iraq, 2020.
2. Muntaser S. Falih, "Implementation of Improved Sensing and Sharing Schemes for Cognitive Radio System", Al–Nahrain university, Iraq, 2020.
3. Asaad H. Sahar, "High Rate Channel Coding Based on Chaotic Dynamics", University of Technology, Iraq, 2020.
4. Hamsa A. Abdullah, "Secure Multimedia Transmission using Chaotic Systems", Al–Nahrain university, Iraq, 2018.
5. Atheer J. Mansor, "FPGA Based Encryption System using Chaotic Maps", University of Technology, Iraq, 2017.
6. Fadhil S. Sahib, "Design and Implementation of Complex Wavelet Packet Modulation using FPGA", University of Basrah, 2013.

M.Sc. Students

1. Rawaa J. Hasan, "Performance Improvement of Subcarrier Index Modulation OFDM System", Al–Nahrain university, Iraq, 2019
2. Nuha Sh. Baker, "Throughput Enhancement for Spectrum Sensing Schemes in Cognitive Radio Networks ", Al–Nahrain university, Iraq, 2017.
3. Hadeel S. Abed, "Improvement of Spectrum Sensing Energy in Cognitive Radio Network", Al–Nahrain university, Iraq, 2016.
4. Haider A. M. Jawad, "Design of Robust Wireless Sensing Network", Al–Mustansiryah University, Iraq, 2015.
5. Ameer K. Jawad, "High Security Communication System based on Chaos Masking over AWGN Channel", Al–Mustansiryah University, Iraq, 2015.
6. Ibrahim F. Ali, "Chaos Parameter Modulation Schemes", Al–Mustansiryah University, Iraq, 2015.
7. Sura F. Yousif, "Chaos Based Image Stegonographic System", Al–Mustansiryah University, Iraq, 2014.
8. Sarab K. Mahmoud, "Chaos Based Channel Coding", Al–Mustansiryah University, Iraq, 2014.
9. Ali A. Radhi, "Performance Evaluation of Quadrature OFDM System", Al–Mustansiryah University, Iraq, 2010.
10. Hussein A. Hadi, "Design and Implementation of FPGA Based Software Defined Radio Using Simulink HDL Coder", Al–Mustansiryah University, Iraq, 2009.
11. Safaa A. Ali, "Design and Implementation of Slantlet based PCC–OFDM System Using FPGA",

Al-Mustansiryah University, Iraq, 2009.

12. Awatif A. Jafar, "Novel Image Steganography Algorithm based DWT and Turbo Coding", Al-Mustansiryah University, Iraq, 2008.
13. Mustafa S. Kamal, "Modified GO-CFAR Implementation Using FPGA", Al-Mustansiryah University, Iraq, 2006.

High Diploma Students

1. Nabil Miri Alawi, "Design of Improved Speech Chaotic Masking System", Higher Institute for Security and Administrative Development, MOI, Iraq, 2019.
2. Maitham Obaid Naji, "Car Plate Number Extraction using MATLAB", Higher Institute for Security and Administrative Development, MOI, Iraq, 2019.

Publications

(88 Publications: 55 Journal papers, 1 Book, 5 Book chapters & 27 Conferences)

Journal Papers

(2020)

1. Hikmat N. Abdullah, Zinah O. Dawood, Ammar E. Abdulkareem, and Hadeel S. Abeed, "*Complexity Reduction of Cyclostationary Sensing Technique using Improved Hybrid Sensing Method*", ACTA Polytechnica Journal, Czech Technical university in Prague, ISSN 1210-2709, Vol.60, No.4, pp. 279-287, September 2020. (WOS INDEXED)
[DOI:10.14311/AP.2020.60.0279](https://doi.org/10.14311/AP.2020.60.0279)
2. Haider A. H. Alobaidy, Hikmat N. Abdullah, and Tariq M. Salman, "*Design of smart wireless changeover for continuous electric current feeding from power sources of variable capacities*", International Journal of Electrical and Computer Engineering (IJECE), Malaysia, ISSN 2088-8708, Vol. 10, No. 4, pp. 3460~3467, August 2020, (SCOPUS INDEXED)
[DOI: 10.11591/ijece.v10i4](https://doi.org/10.11591/ijece.v10i4)
3. Muntasser S. Falih and Hikmat N. Abdullah, "*A combined spectrum sensing method based DCT for cognitive radio system*", International Journal of Electrical and Computer Engineering (IJECE), Indonesia, ISSN 2088-8708, Vol.10, No.2, pp.1935-1942, April 2020. (SCOPUS INDEXED)
[DOI: 10.11591/ijece.v10i2](https://doi.org/10.11591/ijece.v10i2)
4. Hamsa A. Abdullah, Hikmat N. Abdullah and Waleed A. Mahmoud Al-Jawher, "*A Hybrid Chaotic Map for Communication Security Applications*", International Journal of Communication Systems, John Wiley & Sons, USA, ISSN 1074-5351, Vol.33, Issue 4, March 2020. (WOS INDEXED)
[/doi.org/10.1002/dac.4236](https://doi.org/10.1002/dac.4236)

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5. Hikmat N. Abdullah, Thamir R. Saeed, Asaad H. Sahar, "*An Improved M-ary Modulation Scheme Based on Chaotic Dynamics*", Journal of Telecommunications and Information Technology, Poland, ISSN 1509-4553, Vol.4, pp.13-19, December 2019. (SCOPUS INDEXED)
[DOI:10.26636/jtit.2019.131819](https://doi.org/10.26636/jtit.2019.131819)
6. Hikmat N. Abdullah, Nuha Sh. Baker, Musab T. S. Al-Kaltakchi, "*Proposed Two-Stage Detection Rules for Improving Throughput in Cognitive Radio Networks*", Iraqi Journal of

- Computers, Communications, Control & Systems Engineering (IJCCCE), Iraq, ISSN 1811–9212, Vol.19, No.4, pp.1–11, October 2019.
[DOI:10.33103/uot.ijccce.19.4.1](https://doi.org/10.33103/uot.ijccce.19.4.1)
7. Hikmat N. Abdullah, Thamir R. Saeed, Asaad H. Sahar, “*Efficient error correcting scheme for chaos shift keying signals*”, International Journal of Electrical and Computer Engineering (IJECE), Malaysia, ISSN 2088–8708, Vol.9, No.5, pp.3550–3557, October 2019. (SCOPUS INDEXED)
[DOI: 10.11591/ijece.v9i5.pp3550–3557](https://doi.org/10.11591/ijece.v9i5.pp3550-3557)
 8. Musab T. S. Al-Kaltakchi, Raid Rafi Omar Al-Nima, Mohammed A. M. Abdullah, and Hikmat N. Abdullah, “*Thorough Evaluation of TIMIT Database Speaker Identification Performance under Noise with and without the G.712 Type Handset*”, International Journal of Speech Technology, Springer, USA, ISSN 1381–2416, Vol.22, No.3, pp.851–863, September 2019. (WOS INDEXED)
[DOI 10.1007/s10772-019-09630-9](https://doi.org/10.1007/s10772-019-09630-9)
 9. Hamsa A. Abdullah and Hikmat N. Abdullah, “*Design and FPAA Implementation of Novel Chaotic System*”, UPB Scientific Bulletin, Series C: Electrical Engineering and Computer Science, Romania, ISSN 2238–3540, Vol. 81, Issue.2, pp.153–164, May 2019. (WOS INDEXED)
https://www.scientificbulletin.upb.ro/rev_docs_arhiva/full381_403641.pdf
 10. Rawaa J. Hasan and Hikmat N. Abdullah, “*Comparative Study of Selected Subcarrier Index Modulation OFDM Schemes*”, TELKOMNIKA (Telecommunication Computing Electronics and Control) Journal, Indonesia, ISSN 1693–6930, Vol.17, No.1, pp.15–22, February 2019. (SCOPUS INDEXED)
[DOI: 10.12928/TELKOMNIKA.v17i1.10317](https://doi.org/10.12928/TELKOMNIKA.v17i1.10317)
 11. Hamsa A. Abdullah and Hikmat N. Abdullah, “*Colour image encryption using Nahrain chaotic map*”, International Journal of Wireless and Mobile Computing, UK, ISSN: 1741–1084, Vol. 17, No. 2, pp.211–218, January 2019. (SCOPUS INDEXED)
[DOI: 10.1504/IJWMC.2019.101440](https://doi.org/10.1504/IJWMC.2019.101440)
 12. Hamsa A. Abdullah and Hikmat N. Abdullah, “*FPGA Implementation of Color Image Encryption using a New Chaotic Map*”, Indonesian Journal of Electrical Engineering and Computer Science, Indonesia, ISSN 2502–4752, Vol.13, No.1, pp.129–137, January 2019. (SCOPUS INDEXED)
[DOI: 10.11591/ijeecs.v13.i1.pp129–137](https://doi.org/10.11591/ijeecs.v13.i1.pp129-137)
 (2018)
 13. Muntaser S. Falih, Hikmat N. Abdullah, “*Double Threshold with Knowledge Based Decision Spectrum Sensing Method*”, Journal of Advanced Research in Dynamical and Control Systems (JARDCS), USA, ISSN 1943–023X, Issue 13 (Special Issue), pp.2169–2175, December 2018.
<http://www.jardcs.org/backissues/abstract.php?archiveid=6603#>
 14. Hikmat N. Abdullah and Hadeel S. Abed, “*Implementation of Selected Spectrum Sensing Systems for Cognitive Radio Networks using FPGA Platform*”, Journal of Telecommunications and Information Technology (JTIT), Poland, ISSN 1509–4553, Vol. 4, pp. 81–87, December 2018. (SCOPUS INDEXED).
[Doi: 10.26636/jtit.2018.125018](https://doi.org/10.26636/jtit.2018.125018)
 15. Muntaser S. Falih and Hikmat N. Abdullah, “*Evaluation of Different Energy Based Spectrum Sensing Approaches in Cognitive Radio System: Practical Perspective*”, International Journal of Scientific Engineering and Research (IJSER), India, ISSN 2347–3878, Vol.6, Issue 12,

pp.85–88, December 2018.

<http://www.ijser.in/archives/v6i12/IJSER18465.pdf>

16. Hamsa A. Abdullah and Hikmat N. Abdullah, "*FPAI Implementation of Chaotic Modulation Based on Nahrain Map*", Iraqi Journal of Information and Communications Technology (IJICT), Iraq, ISSN 2222–758X, Vol. 1, Issue 3, pp. 17–30, November 2018.
[Doi: 10.31987/ijict.1.3.27](https://doi.org/10.31987/ijict.1.3.27)
 17. Musab T. S. Al-Kaltakchi, Raid Rafi Omar Al-Nima, Hikmat N. Abdullah, Tingting Han, and Jonathon A. Chambers, "*Finger Texture Verification Systems Based on Multiple Spectrum Lighting Sensors with Four Fusion Levels*", Iraqi Journal of Information and Communications Technology (IJICT), Iraq, ISSN 2222–758X, Vol. 1, Issue 3, pp. 1–16, November 2018.
[Doi:10.31987/ijict.1.3.28](https://doi.org/10.31987/ijict.1.3.28)
 18. Hikmat N. Abdullah, Thamir R. Saeed, and Assad H. Sahar, "*Suboptimal Detection of Modified Logistic Map-based Chaos Shift Keying Modulation*", UPB Scientific Bulletin, Series C: Electrical Engineering and Computer Science, Romania, ISSN 2286–3540, Vol. 80, Issue.3, pp.85–94, August 2018. (WOS INDEXED)
https://www.scientificbulletin.upb.ro/rev_docs_arhiva/rez389_313681.pdf
 19. Saad S. Hreshee, Hikmat N. Abdullah, and Ameer K. Jawad, "*A High Security Communication System based on Chaotic Scrambling and Chaotic Masking*", International Journal on Communication Antenna and Propagation (IRECAP), Italy, ISSN 2039–5086, Vol.8, No.3, 257–264, June 2018. (SCOPUS INDEXED)
[Doi:10.15866/irecap.v8i3.13541](https://doi.org/10.15866/irecap.v8i3.13541)
 20. Hamsa A. Abdullah and Hikmat N. Abdullah, "*A New Chaotic Map for Secure Transmission*", TELKOMNIKA (Telecommunication Computing Electronics and Control) Journal, Indonesia, ISSN 1693–6930, Vol.16, No.3, pp.1135–1142, June 2018. (SCOPUS INDEXED)
<http://www.journal.uad.ac.id/index.php/TELKOMNIKA/article/view/8545>
 21. Hikmat N. Abdullah, Sura F. Yousif, and Alejandro A. Valenzuela, "*Spatial and Transform Domain based Steganography Using Chaotic Maps for Color Images*", Journal of Fundamental and Applied Sciences JFAS, Algeria, ISSN 1112–9867, Vol. 14, No.4S, pp. 551–556, March 2018. (WOS INDEXED)
[Doi:10.4314/jfas.v10i4s.212](https://doi.org/10.4314/jfas.v10i4s.212)
 22. Hikmat N. Abdullah and Ibrahim F. Ali, "*Design of Chaotic Bifurcation Parameter Modulation Scheme using Mean Value Estimation*", Iraqi Journal of Information and Communications Technology (IJICT), Iraq, ISSN 2222–758X, Vol. 1, Issue 1, pp. 52–61, March 2018.
[Doi:10.31987/IJICT.1.1.13](https://doi.org/10.31987/IJICT.1.1.13)
- (2017)
23. Hikmat N. Abdullah and Nuha Sh. Baker, "*Modified Hard Fusion Rule for Improving Throughput in Cognitive Radio Network*", International Journal of Scientific Engineering and Research (IJSER), India, ISSN 2347–3878, Vol.5, No. 9, pp. 80–84, September 2017.
<http://www.ijser.in/archives/v5i9/IJSER171890.pdf>
 24. Hikmat N. Abdullah and Hadeel S. Sami, "*Improvement of Energy Consumption in Spectrum Sensing Cognitive Radio Networks using an Efficient Two Stage Sensing Method*," ACTA Polytechnica Journal, Czech Technical university in Prague, ISSN 1210–2709, Vol.57, No.4, pp. 235–244, September 2017. (WOS INDEXED)
[doi:10.14311/AP.2017.57.0235](https://doi.org/10.14311/AP.2017.57.0235)
 25. Hikmat N. Abdullah and Hadeel S. Sami, "*Low Energy Consumption for Cooperative and Non-cooperative Cognitive Radio*," Engineering and Technology Journal, Iraq, ISSN 1681–

6900, Vol.35, Part A, No.3, pp. 222–228, July 2017.

http://uotechnology.edu.iq/tec_magaz/2017/Volume.%2035/No.%203.%202017/6.pdf

26. Hadi T. Zeboon, Hikmat N. Abdulah and Atheer J. Mansor, " *Robust Encryption System Based on Novel Chaotic Sequence,*" Research Journal of Applied Sciences, Engineering and Technology, Maxwell Scientific Publication Corp., USA, ISSN: 2040–7459, Vol.14, No.1, pp. 48–55, January 2017.

<http://maxwellsci.com/msproof.php?doi=rjaset.14.3988>

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27. Hikmat N. Abdullah and Hadeel S. Sami, " *Energy Consumption Control in Cooperative and Non-cooperative Cognitive Radio using Variable Spectrum Sensing Sampling,*" Journal of Telecommunication, Electronic and Computer Engineering, Malaysia, ISSN: 2180–1843, Vol. 8, No. 9, pp. 7–12, December 2016. (SCOPUS INDEXED)

<http://journal.utem.edu.my/index.php/jtec/article/view/780>

28. Hikmat N. Abdullah and Sarab K. Mahmood, " *Performance Evaluation of Non-redundant Error Correcting Scheme Using Logistic Chaotic Map,* " Journal of Wireless Personal Communications, Springer, USA, ISSN 0929–6212, Vol.86, No.3, pp.1169–1181, February 2016. (SCOPUS INDEXED)

DOI: [10.1007/s11277-015-2981-2](https://doi.org/10.1007/s11277-015-2981-2)

29. Hikmat N. Abdullah and Ibrahim F. Ali, " *Modified Maximum Auto-Correlation Estimation for Chaotic Initial Condition Modulation Scheme,* "Engineering and Development Journal, Iraq, ISSN 1999–7816, Vol.20, No.1, pp.84–89, January 2016.

http://www.jead.org/images/2016edition/issue_1/7.pdf

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30. Hikmat N. Abdullah and Ali A. Radhi, " *Chaotic Multiple Access System Based on Orthogonal Chaotic Vector of Lorenz System* ", Al-Nahrain University College of Engineering Journal NUCEJ, Iraq, ISSN 1812–187X, Vol.18, No.2, pp.219–228, December 2015.

<https://www.researchgate.net/publication/292128881>

31. Hikmat N. Abdullah, Hadi T. Zeboon and Atheer J. Mansor, " *Digital Image Encryption by Random Pixel Selection using Chaotic Sequences,* "Al-Ma'moon College Journal, Iraq, ISSN 1992–4453, Vol.26, No.1, pp.228–236, December 2015.

<https://www.researchgate.net/publication/286778338>

32. Hikmat N. Abdullah, Tariq M. Salman and Haider A. H. Alobaidy, " *Performance Evaluation of ZigBee Transceivers using Convolutional Coding Technique,* "Communications on Applied Electronics (CAE) Journal, Foundation of Computer Science FCS, New York, USA, ISSN 2394–4714, Vol.3, No.5, pp.32–42, November 2015.

DOI: [10.5120/cae2015651950](https://doi.org/10.5120/cae2015651950)

33. Haider A. H. Alobaidy, Hikmat N. Abdullah and Tariq S. Mohamed, " *Implementation and Performance Evaluation of WSN for Energy Monitoring Application,*" Engineering and Development Journal, Iraq, ISSN 1813–7822, Vol.33, No.7A, pp.1555–1568, October 2015.

[http://uotechnology.edu.iq/tec_magaz/2015/volum332015/No.07.A.2015/Text\[2\].pdf](http://uotechnology.edu.iq/tec_magaz/2015/volum332015/No.07.A.2015/Text[2].pdf)

34. Hikmat N. Abdullah, Sura F. Yousif and Awatif A. Jafar, " *Design of Efficient Chaos Based Image Steganographic System,* " SYLWAN Journal, Poland, ISSN 0039–7660, Vol.159, No.7, pp. 275–284, July 2015.

<http://sylwan.ibles.org/archive.php?v=159&i=7>

35. Hikmat N. Abdullah, Saad S. Hreshee and Ameer K. Jawad, " *Design of Efficient Noise Reduction Scheme for Secure Speech Masked by Chaotic Signals,*" Journal of American

Science, USA, ISSN 1545–1003, Vol.11, No.7, pp. 49–55, May 2015.

http://www.jofamericanscience.org/journals/am-sci/am110715/007_28741am110715_49_55.pdf

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