C.V.

Date: **Nov. 2013**

Name: **JAMAL S. RAHHAL, Ph.D.**

Tel.   *Home* **++9626-5359062**
               Cell   **++962-077-7483674**
               Work **++9626-5355000-ext. 22853**

E-mail   **rahhal@ju.edu.jo**

Current Position:
Associate Professor/Electrical Engineering Department-University of Jordan since Sept. 1996.

IEEE:
2009-2011: Communications Chapter Chair-Jordan.
2011- 2012: Communications Chapter Secretary-Jordan.
2010:   IEEE senior member.

Education:
1993-1996   Ph.D. Electrical Engineering from Illinois Institute of Technology.

1991-1993   M.S. Electrical Engineering from Illinois Institute of Technology.

1984-1989   B.S. Electrical Engineering from University of Jordan.

Experience:
2010-   Associate Professor/Electrical-Computer Engineering Department-University of Jordan.

1996-2010   Assistant Professor/Electrical-Computer Engineering Department-University of Jordan.

1993-1996   Teaching Assistant in Electrical Engineering Department / Illinois Institute of Technology.

1993-1996   Research Assistant in Electrical Engineering Department / Advanced Digital Communication Lab-Illinois Institute of Technology.

1989-1991   Teaching Assistant in Electrical Engineering
Department / University of Jordan.

Training Courses:

1989   Course in Mobile Communication/G.E. Mobile Communications, Virginia U.S.A.

Projects:

- Global and local guidance system for the blind.
- Computer simulation for evaluation of digital communication systems, including: Source coding, Channel coding, Modulation, Channel modeling, Detection, and DSP.
- Automatic recognition of obstacles in the blind way.
- GSM based Location Finding.
- R.O.I. for GSM Network based on GIS.
- On Site Inventory System for GSM Network.

Supported Research:

Development of Assistance System for the Blind. Higher Council for Science and Technology (7000 J.D.), 2000.

Design and Implementation of Virtual University and Distance Learning System for the University of Jordan, University of Jordan (4780 J.D.), 2002.

Mobile Vehicles Location using Integrated GPS-GSM Systems, University of Jordan (5700 J.D.), 2006.

Research Interests:

Cellular Systems.
Mobile Networks and IP.
Computer Networks and Internet.
Quantum Computing and Quantum Information.

Current Research:

Modeling of Cellular Communication Environment.
MIMO Systems.
GIS-GPS Systems and applications over GSM Network.
Quantum Error Control Coding.
LDPC coded MIMO Systems.

Software:

.Net, C, C++ and MatLab.
MS Visual Basic, and database programming.
Mobile PDA Programming.

Prizes:

First Prize award by the Ministry of Higher Education for the best FFF project entitled "GIS-GSM Value Added Service" 2006.

Committees:

Many Committees including:
- Department and University technical committees.
- Member of the Organizing Committee for the 8th Jordanian International Electrical & Electronic Engineering Conference (JIEEEC 2013).
- Member of the Organizing Committee for the 6th Jordanian International Electrical & Electronic Engineering Conference (JIEEEC 2006) March 14 - 16, 2006.
- Member of the Organizing Committee for the 5th Jordanian International Electrical & Electronic Engineering Conference (JIEEEC 2003) October 13 - 16, 2003.

Management:

Department Head, 2012-2013.
Director of Atheer Centre (University of Jordan) 2009-2011.
College of Graduate Studies, Dean Assistant for Computer and International Program. 2000-2004.

Publications:
Journal Papers:

[1]   J. Rahhal, "Propagation Loss in Jordan for Cellular Communications," *Mu'tah Lil-Buhuth wad-Dirasat*, vol 15, No. 4, pp:37-51, 2000.

[2]   J. Rahhal, "Interference Reduction in Cellular CDMA Systems Using Simple Correlated Antennas," *Dirasat,* vol 29, No. 2, pp:229-236, 2002.

[3]   J. Rahhal, "Channel Assignment-Borrowing for Cellular Systems Using Dynamic User Allocation Algorithm," *Dirasat*, vol 29, No. 2, pp:125-134, 2002.

[4]   Ahmad Amayreh and Jamal Rahhal, "Parallel Channels for High Rate UTRAN," *International Journal of Wireless Information Networks*, Vol. 11, No. 4, pp:187-199, 2004.

[5]   Dia abu Al-Nadi and Jamal Rahhal, "A Modified Genetic Algorithm for Training Adaptive Fuzzy Logic System," *Intelligent Automation and Soft Computing,* Vol. 14, no. 4, pp: 445-460, 2008.

[6]   Jamal Rahhal and Dia Abu Al-Nadi, "A General Configuration Antenna Array for Multi-user Systems with Genetic and Ant Coloni Optimization," *Journal of Electromagnetics*, vol 27, pp: 413-426, 2007.

[7]   Jamal Rahhal and Dia Abu Al-Nadi, "Pre-Coding for MIMO Systems in Frequency- Selective Fading Channels," *Wireless Pers Commun, An International Journal*. pp:591-605. Vol 55. Oct. 2010.

[8]   Jamal Rahhal, "A Probabilistic Model for Sub-Carrier Allocation in OFDMA Systems," *Annals of Telecommunications, An International Journal*. Volume 65, Numbers 7-8, pp:353-358. Aug. 2010.

[9]   Ibrahim Mansour, Jamal S. Rahhal and Hasan Farahneh, "Two Slot MIMO Configuration for Cooperative Sensor Network," *Int. J. Communications, Network and System Sciences,* pp:750-754. Sep. 2010.

[10]   Jamal Rahhal, "Wireless MIMO Sensor Network with Power Constraint WLS/BLUE Estimators," *Wireless Personal Communications*, Volume 63, Number 2, pp: 447-457, 2012.

[11]   Mohammed Hawa, Jamal S. Rahhal and Dia I. Abu-Al-Nadi, "File size models for shared content over the BitTorrent Peer-to-Peer network*," Peer-to-Peer Networking and Applications, Volume 5, Number 3, pp:279-291, Jan. 2012.*

[12]   Dia I. Abu-Al-Nadi, Othman M.K. Alsmadi, Zaer S. Abo-Hammour, Mohammed Hawa and Jamal S. Rahhal, "Invasive Weed Optimization for Model Order Reduction of Linear MIMO Systems*," Applied Mathematical Modelling Volume 37, Issue 6, pp:4570-4577. March 2013.*

[13]   Jamal S. Rahhal, "PSO for CWSN Using Adaptive Channel Estimation," *Int. J. Communications, Network and System Sciences*, Vol. 6, No. 11, PP. 472-477 Nov. 2013.

Conference Papers:
[1]   G. E. Atkin, B. Patel, J. Rahhal, "Combined Source Coding and Modulation for Fading Channels," 43rd *IEEE Vehicle Technology Conference,* May 1993.

[2]   J. Rahhal, B. Patel, and G. E. Atkin, "Permutation Codes for Correlated Sources," 17th *Biennial Symposium on Communications*, Kingston, Ontario, May 30- June 1, 1994.

[3]   J. Rahhal, B. Patel, and G. E. Atkin, "Clustered Modulation for Bandwidth Efficient Transmission of Side Information," *Internat. Conf. on Communication Technology (ICCT'94).* pp.1121-1126 Shanghai, China, June 8-10, 1994.

[4]   J. Rahhal, B. Patel, and G. E. Atkin, "Combined Permutation Codes for Correlated Sources," *1995 Asia-Pacific Conference on Communications*. pp 245-248. Osaka, Japan. June 13-16, 1995.

[5]   J. Rahhal, and G. E. Atkin, "Combined Permutation Codes using M-ary Modulation for AWGN and Fading Channel," 1995 *IEEE* Symposium on Advances in Computers and Communications. pp 358-363. Alexandria, Egypt, June 27-29 1995.

[6]   J. Rahhal, B. Patel, and G. E. Atkin, "A Class of Constant Weight Codes for Speech Coding and Channel Modulation," *International Conference on Telecommunications (ICT95)*. Bali, Indonesia. pp. 277-780, April 3-5 1995.

[7]   Jamal Rahhal, Yu-Lin Wang, and G. E. Atkin, "Development of an Interactive Assistance System for the Blind," The 12th International Conference on Advanced Science and Technology ICAST-96. Chicago, IL. April 6, 1996.

[8]   Jamal Rahhal, Yu-Lin Wang, and G. E. Atkin, "Template Matching for Local Guidance System," Midwest Symposium on Circuits and Systems. Aims, Iowa. August 18-21, 1996.

[9]   Yu-Lin Wang, Jamal Rahhal, and G. E. Atkin, "Design of an Integrated Guidance System for the Blind," *The 2nd Medical Engineering Week of The World*, Taiwan, Taipei, May 26-30, 1996.

[10]   J. Rahhal, and G. E. Atkin,"Cluster Modulation: A Constellation Expansion Technique for Bandwidth Efficient Communication," 1997 *IEEE* Symposium on Advances in Computers and Communications. Alexandria, Egypt, June 27-29 1997.

[11]   Rahhal, J.; Yu-Lin Wang; Atkin, G.E.,"PSK-based constellation expansion for fading multipath channels," *Second IEEE Symposium on Computers and Communications,* pp:685-689, July 1-3 1997.

[12]   J. Rahhal, "Simulation of Interference in Cellular CDMA Systems Using Dynamic User Allocation Algorithm," MESM-99. Amman, Jordan, Mar. 1-3 1999.

[13]   J. Rahhal, "Optimal Cell Site Location Using Coverage Simulation for Cellular Communication Systems," MESM-2000. Amman, Jordan, Aug. 28-30 2000.

[14]   J. Rahhal, "Simulation of GPRS System under Different Applications," MESM-2001. Amman, Jordan, September 3-5, 2001.

[15]   Al-Khatib, N and Jamal Rahhal, " Effects of handoffs on the performance of cellular systems using simulation," MESM 2005: 7th Middle East Simulation Multiconference, pp:106-110, Oporto, PORTUGAL, OCT 24-26, 2005

[16] Jamal Rahhal and Dia abu Al-Nadi, "Position Enhancement Technique using GPS-GSM Model for Vehicle Location System". *EUROMEDIA 2007*, Delft Netherlands PP: 127-130. April 25-27, 2007.

[17] Jamal Rahhal, Dia abu Al-Nadi and Mohammad Hwa, "Viterbi Decoder Algorithm using Quantum Qomputing," *IEEE Congress on Evolutionary Computation*, Singapore. pp:4094-4099, September 25-28, 2007.

[18] Ahmad Amayreh and Jamal Rahhal, "Space-Time Filtering for Parallel-Channel Reuse in UMTS Downlink Transmission," *WiCOM 2011, 7th International Conference on Wireless Communications, Networking and Mobile Computing*, pp:1-5, Wuhan, China. September 23-27, 2011.

[19] Hassan Farahneh and Jamal Rahhal, " A Coplanar Waveguide UWB Antenna with filtering band," *ICECECE 2012 International Conference on Electrical, Computer, Electronics and Communication Engineering,* Zurich, Switzerland, January 15-17, 2012.

[20] Jamal Rahhal "LDPC Coding for MIMO Wireless Sensor Networks with Clustering," *DICTAP2012 The Second International Conference on Digital Information and Communication Technology and its Applications*, pp:58-61, Thailand, May 16-18, 2012.

Book Chapters:

[1] Jamal Rahhal, Dia abu Al-Nadi and Mohammad Hwa, *Evolutionary Computation: Evolutionary Computation in Coded Communications: An Implementation of Viterbi Algorithm.* Edited by: Wellington Pinheiro dos Santos. CH8, pp:139-152. IN-TEH, 2009.

Edited Books:

[1] Jamal Rahhal, and Omar Hassan, *Introduction to Information Theory and Communication Systems.* A Text Book Prepared (in Arabic Language) for Alquds Open University 2008.

Master Students:

	Graduated Students:	
	Title	*Student Name-Year*
1. #		Isra 2012
2.	Study of Doppler Effect on Synchronization For OFDMA Systems	Mohammad Baker 2011
3.	User Location and Mobility Effect on Orthogonal Division Multiple Access Systems Capacity	Suhad Abo Al-Zait 2011.
4.	Space-Time Trellis Codes for Fading Channels.	Diana Dawood 2007.
5.	KALMAN Filter Equalization for Multiple Input Multiple Output systems.	Rola Abdullah 2007.
6.	Multiple Input Multiple Output Pre-Coding for Capacity Enhacement.	Rana Kateneh 2007.
7.	Multiple Input Multiple Output Post-Coding For Capacity Enhancment.	Eman Al-Khader 2007.
8. #	Iterative Multiuser Detection with Imperfect Channel Estimation.	Mohammad Khamees. 2006.
9. #	Performance of Generalized Space-Time Coding (GSTC) with Imperfect Channel Estimation.	Sami Amin. 2006.
10.	Space – Time Coding for Complex signals using convolutional codes.	Belal Hefnawi. 2007.
11.	Combined Generalized Space-Time Block Codes and MIMO-OFDM System.	Nalbi Khot. 2007.
12.	Iterative multiuser detection for WCDMA systems with non-perfect power control,	Abdelmalik Nasser Ali Aljalai, 2006.
13.	Space-time coding for complex signals / by	Iyad Abdelhamid M. al-Ewaidat. 2006
14.	Iterative multiuser detection for CDMA system with turbo codes.	Ayman Yousef Ayadi. 2006.
15. **	Multiuser detection for CDMA systems.	Abdallah Kayed Farraj. 2005.
16.	Study of the performance of Signaling Syatem no. 7 (SS7).	Naim Moh d Hamdan. 2005.
17.	Capacity and throughput of spatial multiplexing systems.	Mohammad Daoud I. al-Shawabkeh.2004.
18. **	Study of the radio interface in universal mobile telecommunications services (UMTS).	Ahmad Ismail Amayreh. 2002.
19.	Delay time analysis of general packet radio service (GPRS) systems.	Ahlam Ahmad Damati. 2002.
20.	Study of the throughput of General Packet Radio Service (GPRS) for Internet applications	Samer Adnan Bali. 2001.
21. *	Capacity enhancement for multiple cells code division multiple access (CDMA) cellular systems.	Hanan Hasan al-Tous. 2000.
22. **	Capacity enhancement in cellular code division multiple access (CDMA) systems.	Imad Muhammad Barhumi. 1999.
#	**Not completed.**	
*	**Currently per suing their PH.D. Degree.**	
**	**Currently PH.D. Degree.**	

Courses Taught:

	Undergraduate Courses:	
	Title	*Level (year)*
1	Cellular Communications.	5th year.
2	Computer Networks.	4th year.
3	Communication Systems.	5th year.
4	Communication Circuits.	5th year.
5	Digital Communications and Coding.	4th year.
6	Analog Communications.	3rd year.
7	Electromagnetic.	2nd year.
8	Embedded Systems.	3rd year.
9	Multimedia Engineering.	5th year.
10	Encryption and Network Security.	5th year.
11	RF Design.	5th year.
	Graduate Courses:	
1	Digital Communications.	
2	Communications Systems.	
3	Information Theory and Coding.	
4	Random Theory.	
5	Digital Signal Processing.	
6	Statistical Communication Theory.	
7	Wireless Communications.	