

# CURRICULUM VITAE

**Haythem A. Bany Salameh**

Director of Queen Rania Center of Jordanian Studies and Community Service

IEEE Senior Member

Associate Professor, Department of Telecommunications Engineering

Yarmouk University, Irbid 21163, Jordan

Tel. +962 2 721 1111 Ext. 6351

Fax: 962 2 721 1129

Email: haythem@yu.edu.jo

<http://faculty.yu.edu.jo/haythem>

# Biographical Sketches

Haythem A. Bany Salameh was born in Amman, Jordan in 1980. He received the Ph.D. degree in electrical and computer engineering from the University of Arizona, Tucson, AZ, USA, in 2009. He is currently an Associate Professor of telecommunication engineering with Yarmouk University (YU), Irbid, Jordan. Since June 2014, he has been the Director of the Queen Rania Center for Jordanian Studies and Community Service. From January 2011 to June 2014, he was the Director of the Academic Entrepreneurship Center of Excellence, YU. In August 2009, he joined YU, after a brief postdoctoral position with the University of Arizona. In the summer of 2008, he was a member of the R&D Long-Term Evolution Development Group, QUALCOMM, Inc., San Diego, CA, USA. In summer 2015, he was a Visiting Research Professor at the Telecommunications Systems & Networks Lab, Aristotle University of Thessaloniki, Greece. Dr. Salameh's research is in wireless communications technology and computer networking, with emphasis on resource allocation, adaptive control, and distributed protocol design. He was involved in projects related to optical communications, and wireless sensor networks. Recently, he has been involved in projects related to cognitive radios and SDRs; distributed resource management in wireless networks; communication protocols with emphasis on spectrum access, cross-layer design and channel/power assignment. He currently serves as a publication chair for the Second IEEE International Workshop on Software Defined Systems (SDS-2016) and as a technical program committee (TPC) member of the IEEE WCNC'16 Conference. He previously served as a track chair for the Third International Conference on Wireless Communications and Mobile Computing (MIC-WCMC 2013), and as a publication chair for the Second IEEE International Workshop on Software Defined Systems (SDS-2015). He also served on the TPC of many international conferences, including the 9th International Conference on Wireless Communications, Networking and Mobile Computing 2013 (WiCOM 2013), the 8th International Conference on Wireless Communications, Networking and Mobile Computing 2012 (WiCOM 2012), and the Third International Conference on Modeling, Simulation and Applied Optimization (ICMSAO 2009). Dr. Bany Salameh has served and continues to serve as a Reviewer for many international conferences and journals. He is an IEEE Senior member since Feb. 2016.

## EDUCATION

- ◇ **Ph.D. in Electrical and Computer Engineering (09/05-08/09)**  
University of Arizona, Tucson, Arizona, USA (GPA 4.0)  
**Dissertation title:** Channel access mechanisms and protocols for opportunistic cognitive radio networks
- ◇ **M.S. in Electrical Engineering (02/03-01/05)**  
Jordan University of science & Tech, Irbid, Jordan (GPA 91.2%)  
**Thesis title:** Wavelength Division Multiplexing and De-multiplexing using Graded Index Planar Structure
- ◇ **B.S. in Electrical Engineering (09/98-01/03)**  
Jordan University of science & Tech, Irbid, Jordan (GPA 86.6%)  
**Project title:** An Efficient Subcarrier Optical Multiplexing Design

## EMPLOYMENT HISTORY

### I. Permanent Positions

- ◇ **Associate Professor** (Jan. 2014-Present)  
Department of Telecommunications Engineering, Yarmouk University, Jordan
- ◇ **Assistant Professor** (Aug. 2009-Jan. 2014)  
Department of Telecommunications Engineering, Yarmouk University, Jordan
- ◇ **Research Scientist** (April 2009-Aug. 2009)  
Department of Electrical & Computer Engineering, University of Arizona, USA
- ◇ **Research Associate** (Aug. 2005-April 2009)  
Wireless & Advanced Networking Lab, University of Arizona, USA

### II. Visiting and Intern Positions

- ◇ **Visiting Research Professor** (Sept. 2015)  
Telecommunications Systems & Networks Lab, Aristotle University of Thessaloniki, Thessaloniki, Greece
- ◇ **Research Intern** (May 2008-Aug. 2008)  
CORP. R&D SYS Engineering, Qualcomm, California, USA
- ◇ **Research Intern** (May 2002-Sept. 2002)  
Institute of High Frequency Engineering, Ruhr University, Germany

## TEACHING EXPERIENCES

- ◇ **Associate/Assistant Professor** (2009-Present)  
Department of Telecommunications Engineering, Yarmouk University, Irbid, Jordan  
**Taught Courses:** Mobile Communications, Wireless Networks (Graduate course), Wireless Protocols (Graduate course), Cognitive Radio Networks (Graduate course), Optical Fiber Communications, Signals & Systems, Analog Communications.
- ◇ **Teaching Assistant** (2005-2006)  
Electrical & Computer Engineering Department, University of Arizona, USA

- ◇ **Instructor and Lecturer** (Spring 2005)  
Department of Telecommunication Engineering, Yarmouk University, Jordan
- ◇ **Teaching Assistant** (2003-2005)  
Electrical Engineering Department, Jordan Univ. of Science & Tech., Irbid, Jordan

## HONORS AND AWARDS

- ◇ The HERMES visiting-scholar fellowship in the framework of the Erasmus Mundus HERMES programme, coordinated by Aix-Marseille University (TETHYS), 2015.
- ◇ Selected for inclusion in Who's Who in America, 2011.
- ◇ NSF Travel Grant Award, IEEE SECON Conference, 2008.
- ◇ Yarmouk University Ph.D. Fellowship, Jordan, 2005-2009.
- ◇ The Honors degree in graduation at the department of Electrical Engineering, Jordan University of Science & Technology, 2005.
- ◇ The award for Academic Undergraduate Excellence, Jordan University of Science and Technology, 2003.
- ◇ Undergraduate scholarship from the Jordan Ministry of Higher Education, 1998-2002.

## PUBLICATIONS

### I. Book Chapter:

1. **Haythem Bany Salameh**, "Chapter 2. A Perspective on the Design of Opportunistic Spectrum Sharing," Pages 17-53, in *Spectrum Sharing in Wireless Networks: Fairness, Efficiency, and Security*. Publisher: Taylor & Francis LLC, CRC Press, May 2016.

### II. Journal Articles

1. **Haythem Bany Salameh**, "Efficient Resource Allocation for Multi-cell Heterogeneous Cognitive Networks with Varying Spectrum Availability," *IEEE Transactions on Vehicular Technology*, vol. 65, no. 8, 2016. (Impact Factor: 2.06)
2. **Haythem Bany Salameh**, Hadi Kasasbeh, Bassam Harb, "A Batch-based MAC Design with Simultaneous Assignment Decisions for Improved Throughput in Guard-band-constrained Cognitive Networks", *IEEE Transactions on Communications*, vol. 64, no. 3, pp. 1143-1152, March 2016. (Impact Factor: 2.06)
3. Alexandros Boulogeorgos, **Haythem Bany Salameh**, and George Karagiannidis, "Spectrum Sensing in FullDuplex Cognitive Radio Networks under Hardware Imperfections", *IEEE Transactions on Vehicular Technology*, 2016.(Impact Factor: 2.06)
4. Abdallah Khreishah, **Haythem Bany Salameh**, Issa Khalil, Ammar Gharaibeh, "Renewable Energy-Aware Joint Caching and Routing for Green Communication Networks," *IEEE Systems Journal*, 2016.(Impact Factor: 2.00)

5. **Haythem Bany Salameh**, Mohammad Al-Rabaie, Abdallah Khreishah, Raed Al-Zubi, "A Novel Demultiplexing Design for Coarse WDM: Exploiting Material Dispersion", *Journal of Optical Communications-Degruyter*, 2016.
6. Mahmoud Al-Ayyoub, Yaser Jararweh, Ahmad Doulat, **Haythem Bany Salameh**, Ahmad Abed-alaziz, Mohammad Alsmirat, Abdallah A. Khreishah, "Virtualization-Based Cognitive Radio Networks," *Journal of Systems and Software-Elsevier*, vol. 117, pp. 1529, 2016. (Impact Factor 1.424)
7. **Haythem Bany Salameh**, Rawan Al-shabar, Ahmad Al-shamali, "A Power-control Interference Management Mechanism for Femtocell-based Networks", *Int. J. of High Performance Computing and Networking*, 2016.
8. **Haythem Bany Salameh**, Mohammad El-Attar, "Cooperative OFDM-based Virtual Clustering Scheme for Distributed Coordination in Cognitive Radio Networks", *IEEE Transactions on Vehicular Technology*, Vol. 64, No.8, pp.3624-3632, Aug. 2015. (Impact Factor 2.06)
9. **Haythem Bany Salameh**, Tha'er Hailat, "Iterative Beamforming Algorithm for Improved Throughput in Multi-cell Multi-antenna Wireless Systems", *IET Communications*, Vol. 9, No. 13, pp.1619-1626, 2015. (Impact Factor 1.06)
10. **Haythem Bany Salameh**, "Spread Spectrum-based Coordination Design for Spectrum-agile Wireless Ad-hoc Networks," *Elsevier Journal of Network and Computer Applications*, Vol. 57, pp. 192-201, 2015. (Impact Factor 2.229)
11. **Haythem Bany Salameh**, Yaser Jararweh, Abdallah Khreishah and Taimour Dalgamoni, "Cooperative Weighted-Fair Control Strategy for Spectrum Self-Coexistence in Multi-Cell WRAN Systems," *Elsevier Computers & Electrical Engineering*, Vol. 46, pp. 65-77, August 2015. (Impact Factor 0.837)
12. **Haythem Bany Salameh**, Amani Khasawneh, Osamah Badarneh, and Raed Mesleh, "Cooperative Packet-Forwarding Mechanism for Throughput Improvement in Multi-channel Wireless Networks," *Elsevier Computers and Electrical Engineering*, Vol. 48, pp. 203-213, 2015. (Impact Factor 0.837)
13. **Haythem Bany Salameh** and Mohammed Dhainat, "Event-driven Hybrid MAC Protocol for a Two-tier Cognitive Wireless Sensor Network: Design and Implementation," *Int. J. of High Performance Computing and Networking*, Vol. 9, Iss. 4 2015.
14. Yaser Jararweh, Mahmoud Al-Ayyoub, Ahmad Doulat, Ahmad Abed-Alaziz, **Haythem Bany Salameh**, A. Khreishah, "Software Defined Cognitive Radio Network Framework: Design and Evaluation", *International Journal of Grid and High Performance Computing (IJGHPC)*, Vol. 7, No. 1, pp.15-31 2015.
15. —, **Haythem Bany Salameh**, "A Masters Program in Telecommunications Management-Demand-Based Program Design", *European Journal of Engineering Education-Taylor & Francis*, Volume 40, Issue 3, pp. 267-284, 2015.
16. Raed Al-zoubi, Marwan Krunz, **Haythem Bany Salameh**, "IMPORTANT: Integrating Multi-rate capability into Opportunistic Routing in UWB-based Ad hoc Networks"

- works,” *Computer Communications (COMCOM)-Elsevier*, Vol. 53, pp.84-94, Aug. 2014. (Impact Factor 1.352)
17. **Haythem Bany Salameh**, Marwan Krunz and David Manzi, “Spectrum Bonding and Aggregation with Guard-band-awareness in Cognitive Radio Networks”, *IEEE Transaction on Mobile Computing*, vol.13, no.3, pp.569-581, March 2014. (Impact Factor 2.24)
  18. **Haythem Bany Salameh**, “Resource Management with Probabilistic Performance Guarantees in Opportunistic Networks,” *International Journal of Electronics and Communications AE (Elsevier)*, vol.67, Iss.7, July 2013, pp.632-636, 2013. (Impact factor 0.693)
  19. **Haythem Bany Salameh** and Osamah Badarneh, “Opportunistic Medium Access Control for Maximizing Packet Delivery Rate in Dynamic Access Networks,” *Journal of Network and Computer Applications (Elsevier)*, Vol. 36, Issue 1, pp. 523-532, 2013. (Impact Factor 2.229)
  20. Khaled Gharaibeh, Bassam Harb, **Haythem Bany Salameh**, Asem Zoubi, Ahmed Shamali, Noel Murphy and Conor Brennan, “Review and redesign of the curriculum of a Masters programme in telecommunications engineering - Towards an outcome-based approach”, *European Journal of Engineering Education (Taylor and Francis)*, Vol.38, Iss.2, pp.194-210, May 2013. (Impact factor 1.051)
  21. Yazeed Khattabi, **Haythem Bany Salameh**, and Mohammad Al-Ibrahim, “Performance Study of Diversity Combining for Error-floor Reduction over Fast Fading Channels,” *the WSEAS Transaction on Communications*, vol.12, Issue 9, 2013.
  22. Osamah Badarneh and **Haythem Bany Salameh**, “Quality-aware Routing in Cognitive Radio Networks under Dynamically Varying Spectrum Opportunities,” *Computers and Electrical Engineering Journal*, Vol. 38, Issue 6, pp. 1731-1744, November 2012. (Impact Factor 0.837)
  23. **Haythem Bany Salameh** and Marwan Krunz, ”Adaptive power-controlled MAC protocols for improved throughput in hardware-constrained cognitive radio networks,” *Ad Hoc Networks Journal (Elsevier)*, Vol. 9, No. 7, pp. 1127-1139, Sep. 2011. (Impact factor 2.11)
  24. **Haythem Bany Salameh**, ”Throughput-oriented channel assignment for opportunistic spectrum access networks,” *Mathematical and Computer Modelling Journal (Elsevier)*, Vol. 53, Issue 11, pp. 2108-2118, June 2011. (Impact factor 1.351)
  25. **Haythem Bany Salameh**, Marwan Krunz, and Ossama Younis, ”Cooperative adaptive spectrum sharing in cognitive radio networks,” *IEEE/ACM Transactions on Networking*, Vol. 18, No. 4, pp. 1181-1194, Aug. 2010. (Impact factor 2.033)
  26. **Haythem Bany Salameh**, Marwan Krunz, and Ossama Younis, ”MAC protocol for opportunistic cognitive radio networks with soft guarantees,” *IEEE Transactions on Mobile Computing (TMC)*, Vol. 8, No. 10, pp. 1339-1352, Oct. 2009. (Impact Factor 2.24)
  27. **Haythem Bany Salameh** and Marwan Krunz, ”Channel access protocols for multi-hop opportunistic networks: Challenges and recent developments,” *IEEE Network - Special Issue on Networking over Multi-Hop Cognitive Networks*, Vol. 23, Issue 4, pp. 14-19, July-August 2009. (Impact factor 2.239)

28. **Haythem Bany Salameh**, Tao Shu, and Marwan Krunz, "Adaptive cross-layer MAC design for improved energy-efficiency in multi-channel wireless sensor networks," *Ad Hoc Networks Journal-Special Issue on Recent Advances in Wireless Sensor Networks*, Vol. 5, Issue 6, pp. 844-854, Aug. 2007. (Impact factor 2.11)
29. **Haythem Bany Salameh** and Mansour I. Irshid, "Wavelength-Division Demultiplexing Using Graded-Index Planar Structures," *IEEE/OSA Journal of Lightwave Technol.*, vol.24, no.6, pp.2401-2408, 2006. (Impact factor 2.784)

### III. Refereed Conference Papers

30. **Haythem Bany Salameh** and Tha'er Hailat, "Efficient Beamforming in Multi-cell Multi-antenna Networks: Exploiting Network Duality," *Proc. of the IEEE WCNC'16 Conference*, Qatar, April 2016.
31. **Haythem Bany Salameh**, Hadi Kasasbeh and Bassam Harb, "An Opportunistic Guard-band-aware Channel Assignment: A batch-based Approach," *Proc. of the IEEE WCNC'16 Conference*, Qatar, April 2016.
32. Alexandros-Apostolos Boulogeorgos, **Haythem Bany Salameh** and George Karagiannis, "On the Effects of I/Q Imbalance on Sensing Performance in Full-Duplex Cognitive Radios," *Proc. of the IEEE WCNC'16 International Workshop on Smart Spectrum (IWSS)*, Qatar, April 2016.
33. Mustafa Al-rubaye, **Haythem Bany Salameh** and Yaser Jararweh, "Minimum Spanning Tree-based Multicast Routing Protocol for Dynamic Spectrum Access Networks: A Multi-layer Probabilistic Approach," *Proc. of the IEEE 7th International Conference on Computer Science and Information Technology (CSIT 2016)*, 2016.
34. **Haythem Bany Salameh**, "Spread Spectrum-based Coordination Design for Multi-hop Spectrum-agile Wireless Networks," *Proc. of the IEEE VCT-Fall 2015*, Glasgow, Scotland, May 2015.
35. **Haythem Bany Salameh**, Mohammed Dhainat, Ali Al-hajji, Raed Aqeil, and Mohammad Fathi, "Design and Implementation of an Event-driven Hybrid MAC Protocol for a Two-tier Cognitive Wireless Sensor Networks," *Proc. of the IEEE International Conference on Cloud Engineering (IC2E'15)-software-defined systems*, Arizona, USA, March 2015.
36. **Haythem Bany Salameh** Yaser Jararweh, Taimour Aldalgamouni, and Abdallah Khreishah, "Traffic-driven Exclusive Resource Sharing Algorithm for Mitigating Self-coexistence Problem in WRAN Systems," *Proc. of the IEEE WCNC'14 Conference*, Istanbul, Turkey, April 2014.
37. **Haythem Bany Salameh** and Mohammad El-Attar, "Cluster-based Control Channel Design using Discrete OFDM for Dynamic Access Networks," *Proc. of the IEEE WCNC'14 Conference*, Istanbul, Turkey, April 2014.
38. A. Doulat, A. Abed Al Aziz, M. Al-Ayyoub, Y. Jararwah, **Haythem Bany Salameh**, A. Khreishah: "Software Defined Framework for Multi-Cell Cognitive Radio Networks,"

- Proc. of the IEEE 10th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob)*, Larnaca, Cyprus; 2014.
39. Y. Mhaidat, M. Alsmirat, O. Badarneh, Y. Jararweh, **Haythem Bany Salameh**, "A Cross-Layer Video Multicasting Routing Protocol for Cognitive Radio Networks," *Proc. of the Seventh International Workshop on Selected Topics in Mobile and Wireless Computing*, Larnaca, Cyprus, 2014.
  40. A. Khreishah, I. Khalil, A. Gharaibeh, **Haythem Bany Salameh**, and R. Alasem, "Joint Caching and Routing for Greening Computer Networks with Renewable Energy Source," *The 2nd International Conference on Future Internet of Things and Cloud (FiCloud'2014)*, 2014, Barcelona, Spain.
  41. Yaser Jararweh, Mahmoud Al-Ayyoub, Ahmad Doulat, Ahmad Aziz, **Haythem Bany Salameh**, and Abdallah Khreishah, "SD-CRN: Software Defined Cognitive Radio Network Framework," *Proc. of the IEEE International Conference on Cloud Engineering (IC2E 2014)*, Boston, Massachusetts, USA March, 2014.
  42. Mohammad Bani Hani, **Haythem Bany Salameh**, Yaser Jararweh and Abdelkader Bousselham, "Traffic-aware Self-Coexistence Management in IEEE 802.22 WRAN Systems", *Proc. of the Seventh IEEE-GCC Conference and Exhibition (The 7th IEEE-GCC 2013)*, Doha, Qatar, 2013.
  43. **Haythem Bany Salameh**, "Probabilistic Spectrum Assignment for QoS-constrained Cognitive Radios with Parallel Transmission Capability," *Proc. of the IFIP Wireless Days Conference*, Dublin, Ireland, Nov. 2012
  44. **Haythem Bany Salameh** and Osamah Badarneh, "Quality- and Availability-aware Spectrum Sharing for Improved Packet Delivery in Spectrum-Agile Networks," *Proc. of the IEEE WCNC'12 Conference*, Paris, France, April 2012.
  45. **Haythem Bany Salameh** and Mohammed Rabaie, "An Efficient CWDM Demultiplexing Design for Optical Systems: Exploiting Spatial Beam Shifting," *Proc. of The 12th International Conference on Data Networks, Communications, Computers*, Limassol, Cyprus, 2013.
  46. **Haythem Bany Salameh**, Marwan Krunz, and David Manzi, "An efficient guard-band-aware multi-channel spectrum sharing mechanism for dynamic access networks," *Proc. of the IEEE GLOBECOM 2011 Conference - Ad hoc and Sensor Networking Symposium*, Houston, Dec. 2011.
  47. Osamah Badarneh and **Haythem Bany Salameh**, "Opportunistic Routing in Cognitive Radio Network: Exploiting Spectrum Availability and Rich Channel Diversity," *Proc. of the IEEE GLOBECOM 2011 Conference - Wireless Networks Symposium*, Houston, Dec. 2011.
  48. **Haythem Bany Salameh** and Marwan Krunz, "Channel assignment and access protocols for spectrum-agile networks with single-transceiver radio," *Proc. of the IFIP/TC6 Networking 2011 Conference*, Valencia, Spain, pp. 178-197, May 2011.



49. **Haythem Bany Salameh**, "Rate-maximization channel assignment scheme for cognitive radio networks," *Proc. of the IEEE GLOBECOM 2010 Conference*, Florida, Dec. 2010 [acceptance rate 33%].
50. **Haythem Bany Salameh**, Marwan Krunz, and Ossama Younis, "Dynamic spectrum access protocol without power mask constraints," *Proc. of the IEEE INFOCOM 2009 Conference*, Rio de Janeiro, Brazil, April 2009 [acceptance rate 20%].
51. **Haythem Bany Salameh**, Marwan Krunz, and Ossama Younis "Distance- and Traffic-Aware Channel Assignment in Cognitive Radio Network," *Proc. of the IEEE SECON 2008 Conference*, San Francisco, June 2008 [acceptance rate 20%].
52. Tao Shu, **Haythem Bany Salameh**, and Marwan Krunz, "Cross-layer optimization of a CSMA protocol with adaptive modulation for improved energy efficiency in wireless sensor networks," *Proc. of the IEEE GLOBECOM Conference*, San Francisco, Dec. 2006 [acceptance rate 32%].
53. C. Perrey, T Neumann, **Haythem Bany Salameh** and H. Ermert., "Influence Of Non-Uniform Transducer Rotation On The Correlation Coefficient In Intravascular Ultrasound Elastography" *Proc. of the First International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity*, Ontario, Canada, Oct. 2002.

#### IV. Under Review:

54. **Haythem Bany Salameh**, " Opportunistic Spectrum Sharing in Dynamic Access Networks: Deployment Challenges, Optimizations, Solutions, and Open Issues," Wiley Emerging topics of Telecommunications, 2015.
55. Abdallah Khreishah, Issa Khalil, **Haythem Bany Salameh**, and Jie Wu, " An Efficient Batch-based Opportunistic Multicast Routing Protocol: Combining Network Coding with Coded-feedback," Elsevier Journal of Parallel and Distributed Computing, 2015.
56. Yaser Muhaidat, **Haythem Bany Salameh**, Yaser Jararweh, and Abdallah Khreishah, "A Multi-Hop Multicasting Routing Protocol for Cognitive Radio Networks," submitted to the Elsevier International Journal of Electronics and Communications, Aug. 2015.
57. Yaser Jararweh, **Haythem Bany Salameh**, Abdallah Alturani, and Loai Tawalbeh, "Anomaly-based Framework for Detecting Dynamic Spectrum Access Attacks in Cognitive Radio Networks", submitted to the Elsevier Computers & Electrical Engineering Journal, Sept. 2015.

#### V. Technical Reports:

58. **Haythem Bany Salameh**, "Rate-maximization channel assignment scheme for cognitive radio networks," Tech. Rep. TR-YU-CME-2009-1, Yarmouk University, Dec. 2009.

59. **Haythem Bany Salameh** and Marwan Krunz, "Design and evaluation of an efficient guard-band-aware multi-channel spectrum sharing mechanism for cognitive radio networks," University of Arizona, Department of ECE, Tech. Rep. TR-UA-ECE-2011-1, July 2011.
60. **Haythem Bany Salameh** and Marwan Krunz, "Spectrum sharing with adaptive power management for throughput enhancement in dynamic access networks," University of Arizona, Department of ECE, Tech. Rep. TR-UA-ECE-2009-1, July 2009.
61. **Haythem Bany Salameh**, Marwan Krunz, and Ossama Younis, "Dynamic spectrum access protocol without power mask constraints," University of Arizona, Department of ECE, Tech. Rep. TR-UA-ECE-2008-1, Aug. 2008 (a preliminary version of this TR was presented at the INFOCOM 2009 Conference, Rio de Janeiro, Brazil, April 2009).
62. **Haythem Bany Salameh**, Marwan Krunz, and Ossama Younis, "MAC protocol for opportunistic cognitive radio networks with soft guarantees," Tech. Rep., University of Arizona, Feb. 2007.
63. **Haythem Bany Salameh**, Marwan Krunz, and Ossama Younis, "Distance- Traffic-Aware Channel Assignment in Cognitive Radio Network, Tech. Rep.," University of Arizona, TR-UA-ECE-2007-1, Dec. 2007.

## PROFESSIONAL DEVELOPMENT

- ◇ "National Erasmus+ Day" (workshop), Amman, Jordan, 2016.
- ◇ Technical meeting to discuss Curriculum Development as part of an EU project (workshop at Queen Mery, University of London), UK, 2012.
- ◇ "ICT Industry & Academia-Bridge the Gap Event" (workshop by the EU/JEWEL program), 2012.
- ◇ "A workshop on "Practical steps for obtaining IET accreditation of Masters Programmes", 2012.
- ◇ "Proposal Writing workshop," Yarmouk University, March 2010.
- ◇ "National Tempus Day" (workshop), University of Jordan, Jan 2010.
- ◇ "Preparing Future Faculty", workshop at Yarmouk Faculty Development Center, 2009.
- ◇ "Technical Writing", workshop at University of Arizona, April, 2008.

## RESEARCH, MOBILITY, AND CAPACITY BUILDING GRANTS

- ◇ A Wireless Sensor and Actuator Network Prototype for Gas Leakage Detection in Civil Defense Applications and Industrial Facilities, ~ 65.000 \$, Scientific Research Support Fund, Ministry of Higher Education, Jordan, Feb-2014 to June-2016 (PI, in collaboration with M. Fozi, W. Lafi, and M. Khasawneh).
- ◇ A signal Processing Approach for the Diagnosis of Asthma from Cough Sounds, ~ 70.000 \$, Scientific Research Support Fund, Ministry of Higher Education, Jordan, 2011 (co-PI, in collaboration with M. Khasawneh, K. Gharaibeh, and F. Abu-qtesh and E. Al-shara).

- ◇ Establishing an R&D open LAB at the Academic Entrepreneurship Center of Excellence, ~ 10000 GBP. A funding from the MB Risk Management an FSS-Financial Systems Software company- London, UK, 2014.
- ◇ An Industry Oriented MSc. Program in Telecommunications Engineering Towards an EU approach, 1.000.000, EU Tempus funding to reform the MSc. Program at the Department of Telecommunications Engineering, Yarmouk University, 2010 (co-PI, in collaboration with the Telecommunications Department Faculty members).
- ◇ Erasmus Mundus HERMES scholar-mobility programme, coordinated by Aix-Marseille University (TETHYS), 2014-2017 (YU contact person).
- ◇ Aristotle University of Thessaloniki-Greece, Erasmus+ International Credit Mobility, 2016-2018(YU-site coordinator).
- ◇ Support Syrian Refugees Students at the Higher Education Level, ~ 500.000\$, THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO), (YU focal-point and coordinator), Sept. 2016-July 2017.
- ◇ Distinguished Students Program-KSU”, ~ 15.600*JD*, King Saud University, Saudi Arabia, Aug. 2016.

#### **DEPARTMENT, COLLEGE, AND UNIVERSITY SERVICE**

- ◇ Director of the Queen Rania Center for Jordanian Studies, June 2014-to-present.
- ◇ Director of the Academic Enterpunership Center of Excellence, Jan. 2011-to June 2014.
- ◇ Speaker in YU Preparing Future-Faculty workshop, Yarmouk Faculty Development Center, Irbid, Jordan, Sept. 2016 (talk title: YU Promotion Regulations: University and Community Services Perspective).
- ◇ Member of the Hijjawi Faculty Council, Yarmouk University, Sept. 2016- present.
- ◇ Member of the Quality and Academic Development Center Board, Yarmouk University, June. 2014-to present.
- ◇ Member of the Training Affairs Committee, the Hijjawi Faculty for Engineering Technology, Yarmouk University, Sept. 2012-to-2014 and 2015-2016.
- ◇ Member of Graduate Studies Committee, Department of Telecommunication Engineering, Yarmouk University, Sept. 2014-to-present.
- ◇ Member of Senior Graduate Projects Committee, Department of Telecommunication Engineering, Yarmouk University, Sept. 2014-to-present.
- ◇ Member of Practical Training Committee, Department of Telecommunication Engineering, Yarmouk University, Sept. 2014-to-present.
- ◇ Member of Journal Accreditation Committee, Department of Telecommunication Engineering, Yarmouk University, Sept. 2014-to-present.
- ◇ Member of Curriculum Development Committee, Department of Telecommunication Engineering, Yarmouk University, Sept. 2012-to-present.
- ◇ Member of the Industrial Engineering Curriculum Development Committee, the Hijjawi Faculty for Engineering Technology, Yarmouk University, 2012/2013.

- ◇ Member of the academic quality control committee, Department of Telecommunication Engineering, Yarmouk University, 2012-2013.
- ◇ Member of the Hijjawi Faculty Council, Yarmouk University, Sept. 2010- Sept. 2011.
- ◇ Chair of the organizing committee: A workshop on Bridging the Gap between Engineering Curricula and the Practice of Engineering in Jordan, Yarmouk University, Jordan, June 2011.
- ◇ Supervision of students' union elections in telecommunications engineering department, 2009.

## **PROFESSIONAL SERVICES (PAST AND PRESENT)**

### **I. Publication Co-chair:**

- ◇ The 3rd IEEE International Workshop on Software Defined Systems (SDS-2016) in conjunction with IEEE International Conference on Cloud Engineering (IC2E 2016), Berlin, Germany, April 2016.
- ◇ The 2nd IEEE International Workshop on Software Defined Systems (SDS-2015) in conjunction with IEEE International Conference on Cloud Engineering (IC2E 2015), Tempe, AZ, USA, March 2015.

### **II. Conference Organization Committee:**

- ◇ The 10th IEEE Jordan International Electrical and Electronics Engineering Conference (JIEEEEC 2017), Amman, Jordan, April 2017.

### **III. Technical Program Committee:**

- ◇ The IEEE WCNC 2016 Conference- Mobile and Wireless Networks track, Doha, Qatar, 2016.
- ◇ The International Conference on Remote Sensing and Wireless Communications (RSWC 2014), Shanghai, China, 2014.
- ◇ The International Conference on Wireless Communications and Networking (ICWCN2013), Xiangtan, China, 2013.
- ◇ The Third International Conference on Wireless Communications and Mobile Computing (MIC-WCMC2013)- Wireless Communication Networks (WCN) track, Valencia, Spain, 2013.
- ◇ The 9th International Conference on Wireless Communications, Networking and Mobile Computing 2013 (WiCOM'2013), Beijing, China, 2013.
- ◇ The 8th International Conference on Wireless Communications, Networking and Mobile Computing 2012 (WiCOM'2012), Shanghai, China, 2012.
- ◇ The Third International Conference On Modeling, Simulation And Applied Optimization ICMSAO'09, January, 2009, Sharjah, United Arab Emirates.

### **IV. Track Chair:**

- ◇ The 10th Jordan International Electrical and Electronics Engineering Conference (JIEEEEC 2017)- Communications Track, Amman, Jordan, 2017.
- ◇ The 3rd International Conference on Wireless Communications and Mobile Computing (MIC-WCMC'13)- Wireless Communication Networks track, Valencia, Spain, 2013.

### **V. Session Chair:**

- ◇ The IEEE WCNC'16 Conference- MAC 10 Track 2 (Spectrum Management and Cognitive Radio), Doha, Qatar, April 2016.
- ◇ The IEEE WCNC'16 Conference- NET 22 Track 3 (Resource Allocation and QoS Support), Doha, Qatar, April 2016.
- ◇ The IEEE WCNC'14 Conference- MAC02 Track 2 (Heterogeneous Networks), Istanbul, Turkey, April 2014.
- ◇ The 12th International Conference on Data Networks, Communications, and Computers- Information Science and Communications session, Limassol, Cyprus, 2013.

### **V. Editorial Board:**

- ◇ Guest Editor (with S. Ikki, H. Bahrami, S. Kim, R. Mesleh), The Scientific World Journal, Cooperative Wireless Communication: Applications, Challenges, and Future, Oct. 2014.

### **VI. Reviewer for Several Journals and Conferences:**

IEEE Transactions on Cognitive Communications and Networking, IEEE Transactions on Mobile Computing, IEEE Transactions on Networking, IEEE Transactions on Vehicular Technology, IEEE Transactions on Network and Service Management, IEEE Communication Letters, IET Communications, Computer Communication Journal (Elsevier), Journal of Network and Computer Applications (Elsevier), International Journal of Electronics and Communications-AEUE (Elsevier), IEEE WCNC 2014/2016, The 77th IEEE Vehicular Technology Conference 2013, IEEE GLOBECOM Conference 2013, IEEE ICC Conference 2007.

## **PRESENTATIONS AND WORKSHOPS**

### **Keynote Speaker:**

- ◇ Jordan-UAE Economic Forum, Amman, Jordan, Dec. 2015 (Innovative projects and national patents in Jordan).
- ◇ Joint Egyptian-Jordanian Workshop on Technical and Research Collaboration, Amman, Jordan, Dec. 2014 (The Evolution of wireless networks: Challenges and Opportunities).
- ◇ Internationalization of Engineering Education-Towards Quality and Innovation workshop, Amman, April 2013 (Analysis and Design of a Master Program in Telecommunications Management).

### **Technical-paper Speaker:**

- ◇ IEEE WCNC 2016 Conference, Doha, Qatar, April 2016.
- ◇ IEEE VCT-Fall 2015, Glasgow, Scotland, May 2015.
- ◇ IEEE IC2E 2015 Conference, Phoenix, Arizona, USA, March 2015.
- ◇ IEEE WCNC 2014 Conference, Istanbul, Turkey, April 2014.
- ◇ The 12th International Conference on Data Networks, Communications, Computers, Limassol, Cyprus, March 2013.
- ◇ IFIP Wireless Days 2012 Conference, Dublin, Ireland, Nov. 2012.
- ◇ IEEE GLOBECOM 2011 Conference, Houston, Texas, USA, Dec. 2011.
- ◇ IFIP/TC6 Networking 2011 Conference, Valencia, Spain, May 2011.
- ◇ IEEE GLOBECOM 2010 Conference, Miami, Florida, USA, Dec. 2010.
- ◇ IEEE INFOCOM 2009 Conference, Rio de Janeiro, Brazil, April 2009.
- ◇ IEEE SECON 2008 Conference, San Francisco, California, USA, June 2008.
- ◇ IEEE GLOBECOM 2006 Conference, San Francisco, California, USA, June 2006.

### **Organizing Committees:**

- ◇ Member of the organizing committee of the “JEA Electrical Engineering Days 2016 (JEED2016), Amman, Jordan Dec6-7, 2016.
- ◇ Chair of the organizing committee of the “Collage of Engineering Scientific Day”, Yarmouk University, Irbid, Jordan, July 2016.
- ◇ Member of the organizing committee of the “7th National Technology Parade”, Yarmouk University, Irbid, Jordan, June 2014.
- ◇ Member of the organizing committee of the Workshop “Internationalization of Engineering Education-Towards Quality and Innovation”, Amman, April 2013.
- ◇ Chair of the organizing committee of the Workshop “Bridging the Gap between Engineering Curricula and the Needs of Industry”, Yarmouk University, Irbid, Jordan, June 2011.
- ◇ Member of the organizing committee of the Workshop “Curriculum Development of Telecommunications Engineering Curricula- An Industrial Perspective”, Amman, Oct. 2011.

### **MEMBERSHIPS**

- ◇ Senior Member of the Institute of Electrical and Electronic Engineers (IEEE), 2016-present.
- ◇ Member of the IEEE Young Professionals, 2016-present.
- ◇ Member of the Institute of Electrical and Electronic Engineers (IEEE), 2006-2016.
- ◇ Jury member for the Orange-Jordan Mobile Apps Award, 2011.
- ◇ Member of the Jordan Engineers Association, 2003-present.
- ◇ Member of the Jordan Computer Society 2003-present.

## SUPERVISED THESES AND DEFENCE COMMITTEE MEMBER

### I. Supervised M.S. Theses

As of Sept. 2016, supervised to completion 19 M.S. theses.

- ◇ Rawan El Khateeb, M.S. degree in Aug. 2016,  
Thesis title: Routing in Full-Duplex Cognitive Radio Networks.
- ◇ Sajeda Shtaiat, M.S. degree in Aug. 2016,  
Thesis title: A Distributed Spectrum Coordination Protocol in D-OFDM- based Cognitive Radio Networks.
- ◇ Rasha Abu-Samra, M.S. degree in April 2016  
Thesis title: A Dynamic Multi-cast Routing Algorithm for Opportunistic Networks: Implementing the Expected Transmission Count Metric.
- ◇ Esra'a Al-Jarah, M.S. degree in March 2016  
Thesis title: Adaptive Quorum-based Distributed Coordination Design for Cognitive Radio Networks.
- ◇ Laith Barakat, M.S. degree in Aug. 2015  
Thesis title: A Multi-Destination Spectrum Sharing Protocol for Throughput Enhancement in D-OFDM- based Cognitive Radio Network.
- ◇ Mustafa Mahdi, M.S. degree in Aug. 2015  
Thesis title: Multi-layer Mechanism for Multicast Routing in Multi-hop Cognitive Radio Networks.
- ◇ Khalaf Batihah, M.S. degree in May 2015  
Thesis title: Resource-Aware MAC Design with Multi-Level Sum-Rate Maximization for Opportunistic Networks.
- ◇ Rasha Albzour, M.S. degree in Aug. 2014  
Thesis title: Downlink Resource Allocation for Performance Enhancement in IEEE 802.11 WLANs.
- ◇ Hadi Kasasbeh, M.S. degree in Aug. 2014  
Thesis title: Throughput Driven MAC Design with Multi-link Simultaneous Assignment Decisions for Opportunistic Networks.
- ◇ Khaled Jawarneh, M.S. degree in April. 2014  
Thesis title: Multi-Stage Mirror-based Planar Structure For Wavelength Division Demultiplexing.

- ◇ Tha'er Faried Hailat, M.S. degree in Dec. 2013  
Thesis title: Iterative Beamforming Algorithm for Improving Network Throughput in LTE-based Network.
- ◇ Mohammad El-Attar, M.S. degree in May 2013  
Thesis title: Adaptive Distributed Coordination using Virtual Clustering in Opportunistic Radio Networks.
- ◇ Amani Khasawneh, M.S. degree in Nov. 2012  
Thesis title: Cooperative Packet-forwarding Mechanism for Throughput Enhancement in Multi-channel Wireless Networks.
- ◇ Manar Rawabdih, M.S. degree in Oct. 2012  
Thesis title: Throughput-oriented MAC Protocol with Adaptive Power Management in Multi-Channel Mobile Ad Hoc Networks.
- ◇ Mohammed Al-Rabai, M.S. degree in Dec. 2011  
Thesis title: A Novel Technique for Coarse Wavelength Division Multiplexing.
- ◇ Rawan Al-shabar M.S., (Co-advisor), May. 2015  
Thesis title: Efficient Algorithm for Femto - Macrocell Coexistence in Cellular Networks.
- ◇ Mohammed Gharaibeh, M.S., (Co-advisor), May 2013  
Thesis title: An Efficient Multi-session Multi-cast Mechanism for Cognitive Radio Networks.
- ◇ Alaa Masadeh, M.S., (Co-advisor), Jan. 2013  
Thesis title: Interference-limited Power Controlled MAC Design for Ad-hoc Cognitive Radio Networks.
- ◇ Mohammad Bani Hani, M.S., in Dec. 2011 (Co-advisor)  
Thesis title: Traffic-aware Self-Coexistence Management in IEEE 802.22 WRAN Systems.

## II. Current M.S. Students

- ◇ Ayat Shamikh, M.S.,  
Thesis topic: A Probability of Success Approach for Enhancing Cognitive Radio Security.
- ◇ Ruba Mahasees, M.S.,  
Thesis topic: A 2-dimensional Resource Allocation in Cognitive Radio Networks..
- ◇ Ruba Ottom, M.S.,  
Thesis topic: Power-Control Spectrum Assignment and Channel Access Mechanisms in CRNs.
- ◇ Esrra Alkhshini, M.S.,  
Thesis topic: Multi-hop Relaying in Cognitive Radio Networks.



### III. Member of M.S. Committees (other than advisor)

Was a member of the M.S. oral defense committee for tens of graduate students in the Telecommunication Engineering, Electrical Engineering and Computer Science Departments at Jordan University of Science and Technology and Yarmouk University. These graduated students include (but are not limited to): Farah Yaseen (M.S. in Electrical Engineering, 2010-Jordan University of Science and Technology), Yazeed Al-Khatabi (M.S. in Electrical Engineering, 2010-Jordan University of Science and Technology), Mohammed Jarah (M.S. in Electrical Engineering, 2011-Jordan University of Science and Technology), Abed-Almohsen Bani Hani (M.S. in Computer Science, 2011-Jordan University of Science and Technology), Haitham Obidalla (M.S. in Telecommunication Engineering, 2012-Yarmouk University), Hazem Shakatreh (M.S. in Telecommunication Engineering, 2012-Yarmouk University), Muneer zaboona (M.S. in Computer Science, 2012-Jordan University of Science and Technology), Yaser Mhedat (M.S. in Computer Science, 2012-Jordan University of Science and Technology), Dima Abu Aisheh, (M.S. in Electrical Engineering 2012-Jordan University of Science and Technology), Abdulla Terini (M.S. in Computer Science, 2012-Jordan University of Science and Technology), Ashraf Reemawi (M.S. in Electrical Engineering 2012-Jordan University of Science and Technology), Raed Bani Hammad (M.S. in Computer Engineering, 2012-Yarmouk University), Ahmed Saleh AL-Najm (M.S. in Electrical Engineering 2012-Jordan University of Science and Technology), Maimona Hayajneh (M.S. in Electrical Engineering 2013-Jordan University of Science and Technology), Mohammed Al-rabie (M.S. in Electrical Engineering 2013-Jordan University of Science and Technology), Eyad Shtaiwi (M.S. in Telecommunication Engineering, 2015-Yarmouk University), Islam Tanash (M.S. in Electrical Engineering 2016-Jordan University of Science and Technology), Mohammad Al-rashdan (M.S. in Telecommunication Engineering, 2016-Yarmouk University), Sharaf Motair (M.S. in Electrical Engineering 2016-Jordan University of Science and Technology), Ahmad Bani-Amer (M.S. in Computer Science, 2016-Jordan University of Science and Technology), Mariam Harb (M.S. in Electrical Engineering 2016-Jordan University of Science and Technology).

### REFERENCES

- ◇ Prof. Marwan Krunz, Professor, ECE Dept. Univ. of Arizona, USA, krunz@ece.arizona.edu.
- ◇ Prof. Leo Lopez, Professor, SIE Dept. Univ. of Arizona, Tucson, USA, leo@sie.arizona.edu.
- ◇ Dr. Ossama Younis, Senior Research Scientist, Applied Research, Telcordia Technologies, Inc. NJ, USA, oyounis@research.telcordia.com.