Ahmad Alsharoa

Contact Information

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PROFILE SUMMARY

Publications:

- 2 Book chapters, +40 Articles, and 5 Posters.

Selected Awards:

- Preeminent Postdoctoral Program (P3) award, UCF.

- Graduate and Professional Student Senate (GPSS) Research Award, ISU.

- Research Excellence Award (REA), ISU.

- Outstanding International Scholarship (OIS) Award, ISU.

Grants:

- **Awarded** NSF Grant, CNS: ICE-T: Multi-Element Mobile Visible Light Communication for Smart Cities (amount: $100,000).

- Professional Advancement Grants (PAG), ISU (amount: $360).

- ECpE Department Support Grant, ISU (amount: $600).

Research Interest:
Wireless networks, Internet-of-things (IoT), High-low altitude platform communications, Energy harvesting, Optical wireless (such as VLC and FSO), Optimization, Resource managements, Self healing, Edge-computing, Cooperative communications, Computer security, Machine learning.

Teaching Experience:

- Experience in ABET accreditation preparation.

- Taught +15 graduate/undergraduate STEM courses.

- Taught 4 workshops.

Current Students:
2 Ph.D. students and 1 Master student.

EDUCATION

MAY 2017   Ph.D. **Iowa State University (ISU)**, USA
Major: Co-Major Degree in Computer Engineering and Electrical Engineering
Thesis Topic:*"Energy Efficient Planning and Operation Models for Wireless Cellular Networks"*
Advisor: Prof. Ahmed E. Kamal, IEEE Fellow
GPA: 3.95/4.00
Research Excellence Award
Graduate and Professional Student Senate Research Award.
Outstanding International Award.

MAY 2013   M.Sc. **King Abdullah University of Science and Technology (KAUST)**, KSA
Major: Electrical Engineering
Thesis Topic:*"Relay Selection and Resource Allocation in One-Way and Two-Way Cognitive Relay Networks"*
Advisor: Prof. Mohamed-Slim Alouini, IEEE Fellow
GPA: 3.79/4.00

JAN. 2011   B.Sc. **Jordan University of Science and Technology (JUST)**, Jordan
Major: Electrical Engineering
Graduation Project: *"The Characteristics and Challenges of Nano-MOSFET Transistors"*
Advisor: Prof. Waleed Shehab
GPA: 85.5/100 (with Honors)

WORK EXPERIENCE

AUG. 2019 - CURRENT	Assistant Professor, Electrical and Computer Engineering department **Missouri University of Science and Technology** CpE/EE/CS 5001: Introduction to Convex Optimization, **Spring 2021** CpE 2210: Introduction to Digital Logic, **Fall 2019, Spring 2020**
AUG. 2018- MAY 2019	Assistant Professor, Engineering and Computer Science department **Virginia State University** CSCI 671: Advanced Computer Security, **Spring 2019** CSCI 358: Information Assurance, **Spring 2019** CSCI 250: Introduction to Programming II, JAVA, **Spring 2019** CSCI 545: Advanced Data Communications, **Fall 2018** CSCI 451: Computer Security, **Fall 2018** CSCI 487: Software Design and Development, **Fall 2018**
SEPT. 2017- AUG.2018	Postdoctoral Research Associate **University of Central Florida (UCF)** Preeminent Postdoctoral Program (P3) Award. Proposals writing on: UAVs (drones) and optical wireless networks. Articles writing on: wireless networks. Student monitoring: 1 Ph.D. Student and 1 master student.
AUG. 2014- MAY 2017	Research Assistant **Iowa State University (ISU)** Laboratory of Advance Networking.

Aug. 2014- May 2017	Teaching Assistant **Iowa State University (ISU)** Phy 112 Lab: Introduction to Classical Physics I, **Spring 2017** CprE 541: High-Performance Communication Networks, **Fall 2017** CprE 489:Computer Networking & Data Communications, **Fall 2017** Phy 222 Lab: Introduction to Classical Physics II, **Spring 2016** EE 324 Lab: Signals and Systems Laboratory, **Spring 2015**, **Spring 2016** EE/CprE 522X: Cognitive Radio Networks, **Fall 2015** CprE 185: Introduction to C programming, **Fall 2014**, **Fall 2015** EE 422 course: Communication Systems II, **Spring 2015**
Aug. 2011- July 2014	Research Assistant **King Abdullah University of Science and Technology (KAUST)** Communication Theory Laboratory.
Aug. 2008- May 2010	Teaching Assistant **Jordan University of Science and Technology (JUST)** MATLAB workshop **Spring 2009, Fall 2010** Advanced MATLAB workshop, **Spring 2010** PSPICE workshop, **Spring 2008, Fall 2008** Electronic Circuits, **Fall 2008**

INTERNSHIPS

May - Aug. 2012	Researcher **Centre Technologic de Telecommunications de Catalunya (CTTC), Spain** Proposing optimal resource allocation solution for two-way decode-and-forward/amplify-and-forward relay cognitive radio networks.
May - Aug. 2010	Researcher **Yarmouk University, Jordan** Conducting various projects using TMS320C6713 DSK kit.

GRANTS

1. **Awarded NSF Grant**, CNS: ICE-T: Multi-Element Mobile Visible Light Communication for Smart Cities (amount: $100,000). Award Abstract #1836741.

2. Professional Advancement Grants (PAG) to attend GLOBECOM 2015, GLOBECOM 2016, Iowa State University (ISU), (total amount: $360) **2015, 2016**.

3. ECpE Department Support Grant to attend GLOBECOM 2015, GLOBECOM 2016, Iowa State University (ISU), (total amount: $600) **2015, 2016**.

4. King Abdulaziz City for Science and Technology (KACST) grant (amount: $5,206), **Spring 2014**.

HONORS AND AWARDS

1. Preeminent Postdoctoral Program (P3) award, University of Central Florida (amount $5,000), **Fall 2017**.

2. Graduate and Professional Student Senate (GPSS) Research Award, Iowa State University (ISU), only 5 awardees among all graduate students, **Spring 2017**.

3. Research Excellence Award (REA), graduate college, Iowa State University (ISU), **Fall 2016**.

4. Outstanding International Scholarship from International Student Council (ISC) along with the International Students and Scholars Office (ISSO), Iowa State University (ISU), only 6 awardees among all international students, **Fall 2015**.

5. Teaching assistant fellowship from Iowa State University (ISU), **Fall 2014 - Spring 2017**.

6. KAUST full fellowship for the M.Sc. degree from King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia.

7. On the honor list during the B.Sc. degree, Jordan University of Science and Technology (JUST), Irbid, Jordan, during academic years of **2006/2007, 2007/2008, 2010/2011**.

8. Administrator of JUST newspaper during the academic year **2010/2011**.

9. Exceptional academic performance fellowship from Ministry of Higher Education and Scientific Research of Jordan for the academic year **2009/2010**.

STUDENTS

Current Students:

- Wesam Alamiri, Ph.D. student at Missouri S&T: Spring 2020-current.
- Ala Alzidaneen: M.Sc. student at Missouri S&T: Fall 2019-current.
- Sifat Ibne Mushfique: (Mentoring) Ph.D. student at UCF: Graduated Fall 2020.

Former Students:

- Akash Dey: (Mentoring) M.Sc. student at UCF: Graduated Spring 2019.

RESEARCH INTEREST

Mobile wireless networks

Global connectivity

Intelligent aerial assistance systems

Optical wireless

Edge-computing

Light Detection and Ranging (LiDAR) System

Computer security

Machine learning and big data optimization

Energy harvesting

Smart grid communications

Green communication and radio network planning

Cognitive radio

Cooperative communication

MIMO communications

SKILLS

Technical Skills

- LTE, OFDM/OFDMA, MIMO systems, and space-time coding

- Digital communication and coding, digital signal processing, and wireless communication
- Estimation filtering and detection
- Probability and random processes and theory of probability and statistics
- Optical wireless networks such as VLC and FSO.
- Linear and non-linear optimization
- UML (Unified Modeling Language) diagrams
- linear algebra
- Numerical methods for engineering

Software and Operating Systems

- **Softwares:** MATLAB, R, Mathematica, PSPICE, ADS, HFSS, PIC16F917, C, C++, Python, LaTeX, Microwind-DSCH
- **Operating Systems:** Windows, Apple OS, Linux.

Leadership Skills

- Communication and interpersonal skills
- Identify research problems and problem solving skills
- Initiative and self-motivation
- Ability to work on parallel tasks and under pressure
- Team working and negotiation skills

LEADERSHIP AND MEMBERSHIP

- Member of IEEE Communication Society (ComSoc)   2014-present
- Senior Member of Institute of Electrical and Electronics Engineers (IEEE)   2019-present
- Member of Institute of Electrical and Electronics Engineers (IEEE)   2017-2019
- Student Member of Institute of Electrical and Electronics Engineers (IEEE)   2014-2017
- Member of Society for Industrial and Applied Mathematics (SIAM)   2012-2018
- Member of King Abdullah II Fund for Development   2007-2011
- Member of the cultural club, Jordan University of Science and Technology (JUST) 2009-2010
- Career fair organizer, Jordan University of Science and Technology (JUST)   2009-2010
- Member of the science club, Jordan University of Science and Technology (JUST) 2008-2009

SERVICES

- Journal Editorial Services
  - Associate Editor, Frontiers in Communications and Networks, Wireless Communications, 2020.

- Guest Editor, Role of Wireless Communication, Networking & Sensing Technologies for Rapid Pandemic Response, Frontiers in Communications and Networks, 2020.
- Guest Editor, Advances in Unmanned Aerial Vehicle-based Communication and their Applications, Journal of Computer Networks and Communications, Hindawi, 2018.

- Technical Program Committee
  - Technical Program Committee, Selected Areas in Communications (SAc): Access Networks and Systems (ANS), IEEE Global Communication Conference (GLOBECOM 2020).
  - Technical Program Committee, 5G Symposium, 15th International Wireless Communications and Mobile Computing Conference (IWCMC 2019).
  - Technical Program Committee, Machine Learning for Communications (MLCOMM) workshop, IEEE Global Communication Conference (GLOBECOM 2018).
  - Technical Program Committee, 1st Annual Workshop on coexisting radio and optical wireless deployments (CROWD) workshop, 26th IEEE International Conference on Network Protocols (ICNP 2018).
  - Technical Program Committee, Advances in 5G and Beyond Symposium, 14th International Wireless Communications and Mobile Computing Conference (IWCMC 2018).

- Regular editorial reviewer for several leading IEEE and European Journals Transactions, e.g.
  - IEEE Transactions on Wireless Communications
  - IEEE Transactions on Communications
  - IEEE Transactions on Networking
  - IEEE Transactions on Cognitive Communications and Networking
  - IEEE Wireless Communications Letters
  - Optical Switching and Networking Journal, Elsevier
  - Transactions on Emerging Telecommunications Technologies
  - Journal of Communications and Networks

- Regular editorial reviewer for several leading Conferences, e.g.
  - IEEE International Conference on Computer Communications (INFOCOM)
  - IEEE Global Communications Conference (GLOBECOM)
  - IEEE International Conference on Communications (ICC)
  - IEEE International Symposium on Wireless Personal Multimedia Communications (WPMC)
  - International Conference on Cognitive Radio Oriented Wireless Networks (CROWNCOM)
  - International Wireless Communications and Mobile Computing Conference (IWCMC)

ACADEMIC PROJECTS

- Energy Efficient Relaying Scheme for Internet of Things (IoT) Communications, 2017
  Iowa State University, Ames, USA

- Energy Harvesting Applications based on Markov Chain, 2016
  Iowa State University, Ames, USA

- Cognitive Radio MIMO Channel with Space Alignment, 2016
  Iowa State University, Ames, USA

- Building spectrum monitoring systems using NI-USRP hardware with LabView software, 2015
  Iowa State University, Ames, USA

- Radio Resource and Power/Interference Management for LTE HetNets, 2015
  Iowa State University, Ames, USA

- Downlink Energy-Efficient Optimization for Massive MIMO HetNets with Sleeping Strategy, 2015
  Iowa State University, Ames, USA

- Nanosatellite Development Workshop: learning how to build a satellite over 30 km in the stratosphere from scratch, requisite technology required for software programming, electrical design, hardware assembly, orbital mechanics, and radio communications, 2012
  King Abdullah University of Science and Technology (KAUST) in conjunction with the National Aeronautics and Space Administration (NASA)

- Optimal Power Allocation for Relayed Transmissions Over Rayleigh-Fading Channels, 2012
  King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

- 2-Degree of Freedom (2DOF) Helicopter Position Control using Microcontroller, 2012
  King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

- Linear Minimum Mean Square Error (LMMSE) Equalization Performance, 2011
  King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

- Low Pass Filter and Quantization Performance, 2011
  King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

- Applications of Nano-MOSFET and Nano-PLL Design, 2010
  Jordan University of Science and Technology (JUST)

LIST OF PUBLICATIONS

Summary

- 2 Book chapters, 17 Journals, 23 Conferences, and 5 Posters.

Book chapters

1. **A. Alsharoa**, A. Celik, and A.E. Kamal, "Energy Efficient 5G Networks Using Joint Energy Harvesting and Scheduling", 5G Networks: Fundamental Requirements, Enabling Technologies, and Operations Management, IEEE Wiley Book on 5G Networks, 2018.

2. **A. Alsharoa**, H. Ghazzai, M.-S. Alouini, "On the Achievable Sum-Rate of MIMO Bidirectional Underlay Cognitive Cooperative Networks", Spectrum Sharing in Wireless Networks: Fairness, Efficiency, and Security, Taylor & Francis LLC, CRC Press, 2016.

Journal papers

1. E. Yaacoub, **A. Alsharoa**, H. Ghazzai, and M.-S. Alouini, "Seven Challenges for Communication in Modern Railway Systems", Frontiers in Communications and Networks, section Wireless Communications, 2020.

2. **A. Alsharoa** and M.-S. Alouini, "Improvement of the Global Connectivity using Integrated Satellite-Airborne-Terrestrial Networks with Resource Optimization", IEEE Transactions on Wireless Communications, vol. 19, no. 8, pp. 5088-5100, Aug. 2020.

3. S. Ibne Mushfique, **A. Alsharoa**, and M. Yuksel, "Optimization of SINR and Illumination Uniformity in Multi-LED Multi-Datastream VLC Networks", IEEE Transactions on Cognitive Communications and Networking, vol. 6, no. 3, pp. 1108-1121, Sept. 2020.

4. A. Alzidaneen, **A. Alsharoa**, and M.-S. Alouini, "Resource and Placement Optimization for Multiple UAVs using Backhaul Tethered Balloons", IEEE Wireless Communications Letters, vol. 9, no. 4, pp. 543-547, Apr. 2020.

5. Y. Jie, **A. Alsharoa**, A. E. Kamal, and M. Alnuem, "A CoMP-based Self-Healing Solution for Heterogeneous Femtocell Networks", Elsevier Computer Networks, 2020.

6. **A. Alsharoa**, H. Ghazzai, A. Kadri, and A.E. Kamal, "Spatial and Time Management of Multiple Solar Powered Drones Assisting Cellular HetNets", IEEE Transactions on Mobile Computing, vol. 19, no. 4, pp. 954-968, Apr. 2020.

7. **A. Alsharoa**, H. Ghazzai, A.E. Kamal, and A. Kadri, "Optimization of the Power Splitting Protocol for Two Way Multiple Energy Harvesting Relay System", IEEE Transactions on Green Communications and Networking, vol. 1, no. 3, pp. 2473-2400, Sept. 2017.

8. M. Selim, **A. Alsharoa**, A.E. Kamal, and M. Alnuem, "SURE: A Novel Approach for Self Healing Battery Starved Users using Energy Harvesting", IEEE Access, vol. 5, pp. 6110-6120, Mar. 2017.

9. A. Celik, **A. Alsharoa**, and A.E. Kamal, "Hybrid Energy Harvesting-Based Cooperative Spectrum Sensing and Access in Heterogeneous CRNs", IEEE Transactions on Cognitive Communications and Networking, vol. 3, no. 1, pp. 37-48, Mar. 2017.

10. H. Ghazzai, F. Junaid, **A. Alsharoa**, E. Yaacoub, A. Kadri, M.-S. Alouini, "Green Networking in Cellular HetNets: A Unified Radio Resource Management Framework with Base Station ON/OFF Switching", IEEE Transactions on Vehicular Technology, vol. 66, no. 7, pp. 5879-5893, July 2017.

11. H. Ghazzai, T. Bouchoucha, **A. Alsharoa**, E. Yaacoub, M.-S. Alouini, T.Y. Al-Naffouri, "Transmit Power Minimization and Base Station Planning for High-Speed Trains with Multiple Moving Relays in OFDMA Systems", IEEE Transactions on Vehicular Technology, vol. 66, no. 1, pp. 175-187, Jan. 2017.

12. **A. Alsharoa**, H. Ghazzai, and M.-S. Alouini, "Efficient Multiple Antenna-Relay Selection Algorithms for MIMO Unidirectional-Bidirectional Cognitive Relay Networks", Transactions on Emerging Telecommunications Technologies, Vol. 27, no. 2, pp. 170-183, Feb. 2016.

13. **A. Alsharoa**, H. Ghazzai, E. Yaacoub, M.-S. Alouini, A.E. Kamal, "Joint Bandwidth and Power Allocation for MIMO Two-Way Relays-Assisted Overlay Cognitive Radio Systems", IEEE Transactions on Cognitive Communications and Networking, vol. 1, no. 4, pp. 383-393, Dec. 2015.

14. E. Yaacoub, R. Atat, **A. Alsharoa**, and M.-S. Alouini, "Mobile Relays for Enhanced Broadband Connectivity in High Speed Train Systems", Elsevier Physical Communication Journal, vol. 12, pp. 105-115, Sept. 2014.

15. **A. Alsharoa**, H. Ghazzai, and M.-S. Alouini, "Optimal Transmit Power Allocation for MIMO Two-Way Cognitive Relay Networks with Multiple Relays using AF Strategy", IEEE Wireless Communications Letters, vol. 3, no. 1, pp. 30–33, Feb. 2014.

16. **A. Alsharoa**, W. Abediseid, and M.-S. Alouini, "Multiple Relay Selection for Delay-Limited Applications", IEEE Wireless Communications Letters, vol. 2, no. 6, pp. 675-678, Dec. 2013.

17. **A. Alsharoa**, F. Bader, and M.-S. Alouini, "Relay Selection and Resource Allocation for Two-Way DF-AF Cognitive Radio Networks", IEEE Wireless Communications Letters, vol. 2, no. 4, pp. 427–430, Aug. 2013.

Conference papers

1. M. Lucic, H. Ghazzai, **A. Alsharoa**, and Y. Massoud, "A Latency-Aware Task Offloading in Mobile Edge Computing Network for Distributed Elevated LiDAR", in proc. of IEEE International Symposium on Circuits and Systems (ISCAS), Seville, Spain, May 2020.

2. S. Ibne Mushfique, A. Dey, **A. Alsharoa**, and M. Yuksel, "Resource Optimization in Visible Light Communication for Internet of Things", in proc. of IEEE International Symposium on Local and Metropolitan Area Networks, Paris, France, July 2019.

3. M. Selim, **A. Alsharoa**, and A.E. Kamal, "Short-term and Long-term Cell Outage Compensation Using UAVs in 5G Networks", in proceeding of the IEEE Global Communication Conference (GLOBECOM), Abu-Dahbi, UAE, Dec. 2018.

4. **A. Alsharoa**, and M. Yuksel, "UAV-Direct: Facilitating D2D Communications for Dynamic and Infrastructure-less Networking", in proceeding of the DroneNet Workshop of 15th ACM International Conference on Mobile Systems, Applications, and Services (MobiSys), Munich, Germany, June 2018.

5. **A. Alsharoa**, H. Ghazzai, M. Yuksel, A. Kadri, and A.E. Kamal, "Trajectory Optimization for Multiple UAVs Acting as Wireless Relays", in proceeding of the IEEE International Conference on Communications (ICC), Kansas City, MO, USA, May 2018.

6. **A. Alsharoa**, A.E. Kamal, N. Neihart, and K. Sang, "Multi-bands RF Energy and Spectrum Harvesting in Cognitive Radio Networks", in proceeding of the IEEE International Conference on Communications (ICC), Kansas City, MO, USA, May 2018.

7. **A. Alsharoa**, X. Zhang, Q. Daji and A.E. Kamal, "Energy Efficient Relaying Scheme for Internet of Things Communications", in proceeding of the IEEE International Conference on Communications (ICC), Kansas City, MO, USA, May 2018.

8. M. Selim, **A. Alsharoa**, and A.E. Kamal, "Hybrid Cell Outage Compensation in 5G Networks: Sky-Ground Approach", in proceeding of the IEEE International Conference on Communications (ICC), Kansas City, MO, USA, May 2018.

9. **A. Alsharoa**, A. Celik, and A.E. Kamal, "Energy Harvesting in Heterogenous Networks with Hybrid Powered Communication Systems", in proceeding of the IEEE 86th Vehicular Technology Conference (VTC-fall), Toronto, Canada, Sept. 2017, (*invited paper*).

10. **A. Alsharoa**, H. Ghazzai, A. Kadri, and A.E. Kamal, "Energy Management in Cellular Het-Nets Assisted by Solar Powered Drone Small Cells", in proceeding of the IEEE Wireless Communication and Networking Conference (WCNC), San Francisco, CA, USA, Mar. 2017.

11. **A. Alsharoa**, H. Ghazzai, A.E. Kamal, and A. Kadri, "Near-Optimal Power Splitting Protocol for Energy Harvesting-based Two-Way Multiple-Relay Systems", in proceeding of the IEEE Wireless Communication and Networking Conference (WCNC), San Francisco, CA, USA, Mar. 2017.

12. A. Celik, **A. Alsharoa**, and A.E. Kamal, "Hybrid Energy Harvesting Cooperative Spectrum Sensing in Heterogeneous CRNs", in proceedings of the IEEE Workshop on Wireless Energy Harvesting Communication Networks (WEHCH) in conjunction with IEEE Global Communication Conference (GLOBECOM), Washington DC, USA, Dec. 2016.

13. H. Ghazzai, **A. Alsharoa**, A.E. Kamal, and A. Kadri, "A Multi-Relay Selection Scheme for Time Switching Energy Harvesting Two-Way Relaying Systems", in proceedings of the IEEE International Conference on Communications (ICC), Kuala Lumpur, Malaysia, May 2016.

14. **A. Alsharoa**, H. Ghazzai, A.E. Kamal, and A. Kadri, "Wireless RF-based Energy Harvesting for Two-Way-Relaying Systems", in proceedings of the IEEE Wireless Communication and Networking Conference (WCNC), Doha, Qatar, Apr. 2016.

15. **A. Alsharoa** and A.E. Kamal, "Green Downlink Radio Management Based Cognitive Radio LTE HetNets", in proceedings of the IEEE Global Telecommunications Conference (GLOBECOM), San Diego, CA, USA, Dec. 2015.

16. Y. Jie, **A. Alsharoa**, A.E. Kamal, and M. Alnuem, "Self-Healing Solution To Heterogeneous Networks Using CoMP", in the proceedings of the IEEE Global Telecommunications Conference (GLOBECOM), San Diego, CA, USA, Dec. 2015.

17. **A. Alsharoa**, H. Ghazzai, E. Yaacoub, and M.-S. Alouini, "On the Dual-Decomposition-Based Resource and Power Allocation with Sleeping Strategy for Heterogeneous Networks", in proceedings of the 81st IEEE Vehicular Technology Conference (VTC Spring), Glasgow, Scotland, May 2015.

18. **A. Alsharoa**, H. Ghazzai, E. Yaacoub, and M.-S. Alouini, "Bandwidth and Power Allocation for Two-Way Relaying in Overlay Cognitive Radio Systems", in proceedings of the IEEE Global Telecommunications Conference (GLOBECOM), Austin, Texas, USA, Dec. 2014.

19. **A. Alsharoa**, H. Ghazzai, and M.-S. Alouini, "Near-Optimal Power Allocation with PSO Algorithm for MIMO Cognitive Networks using Multiple AF Two-Way Relays", in proceedings of the IEEE International Conference on Communications (ICC), Sydney, Australia, June 2014.

20. **A. Alsharoa**, H. Ghazzai, E. Yaacoub, and M.-S. Alouini, "Energy-Efficient Two-Hop LTE Resource Allocation in High Speed Trains with Moving Relays", in proceedings of the 12th International Symposium and Workshops on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt), Hammamet, Tunisia, May 2014.

21. **A. Alsharoa**, H. Ghazzai, and M.-S. Alouini, "Energy Efficient Design for MIMO Two-Way AF Multiple Relay Networks", in proceedings of the IEEE Wireless Communication and Networking Conference (WCNC), Istanbul, Turkey, Apr. 2014.

22. **A. Alsharoa**, H. Ghazzai, and M.-S. Alouini, "A Genetic Algorithm for Multiple Relay Selection in Two-Way Relaying Cognitive Radio Networks", in proceedings of the 78th IEEE Vehicular Technology Conference (VTC Fall), Las Vegas, USA, Sept. 2013.

23. **A. Alsharoa**, H. Ghazzai, and M.-S. Alouini, "A Low Complexity Algorithm for Multiple Relay Selection in Two-Way Relaying Cognitive Radio Networks", in proceedings of the 5th IEEE Workshop on Cooperative and Cognitive Mobile Networks (COCONET) in conjunction with IEEE International Conference on Communications (ICC), Budapest, Hungary, June 2013.

Posters

1. **A. Alsharoa**, "Drone-based Communications", Grad Student Research Poster Session, ISU, Mar. 2017.

2. **A. Alsharoa**, "MIMO Cognitive Networks using Multiple AF Two-Way Relays", Global Collaborative Research (GCR) Symposium, KASUT, Saudi Arabia, Mar. 2014.

3. **A. Alsharoa**, "Energy Efficient Design for Two-Way Relaying", Spatial Statistics for Environmental and Energy Challenges, KASUT, Saudi Arabia, Mar. 2014.

4. **A. Alsharoa**, "Energy Efficient Design in MIMO Two-Way AF Multiple Relay Networks", KAUST and United States National Science Foundation (KAUST-USNSF) Conference on Electronic Materials, Devices, and Systems for a Sustainable Future, KAUST, Saudi Arabia, Feb. 2014.

5. **A. Alsharoa**, "Multiple Relay Selection in Lattice Space-Time Coded MIMO Channel", KAUST Winter Enrichment Program (WEP), Jan. 2013.

SEMINARS

1. **A. Alsharoa**, "Two Way Relaying Assisted with Energy Harvesting Relays", Graduate Seminar, ISU, Apr. 2017.

REFERENCES

Ahmed E. Kamal, IEEE Fellow
Professor and the Director of Graduate Education (DoGE), Electrical and Computer Engineering, Iowa State University (ISU), Ames, Iowa, USA
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