PROF. HAYSSAM DAHROUJ

Nationality: Canadian
Email: hayssam.dahrouj@gmail.com

EDUCATION

Ph.D., The University of Toronto, Canada   September 2006 - November 2010

- Department of Electrical and Computer Engineering.

- Thesis title: "Coordinated Beamforming and Common Message Decoding for Intercell Interference Mitigation in Multicell Networks".

- Ph.D. thesis advisor: Prof. Wei Yu.

- Ph.D. thesis committee members: Prof. Frank Kschischang, Prof. Teng Joon Lim, Prof. Ashish Khisti, and Prof. Tim Davidson.

- Reclassified directly from Masters of Applied Science program (M.A.Sc.) after spending one year (GPA: 4.0, September 2005 - August 2006).

Bachelor of Science in Engineering, The American University of Beirut, Lebanon February 2001 - June 2005

- Department of Electrical and Computer Engineering.

- Major: Computer and Communications Engineering (Graduated with *high distinction*).

KEY ACHIEVEMENTS

- Pioneered the idea of *Coordinated Beamforming* as a means for minimizing interference across multiple distributed networks. The journal paper on this subject has already been cited more than 880 times since its publication in May 2010.

- Started an academic-industrial research collaboration between the University of Toronto and BLiNQ Networks Inc., Canada.

- Started an inter-institutional research collaboration between King Abdullah University of Science and Technology (KAUST) and Effat University, Saudi Arabia.

- Launched an entrepreneurial initiative by co-founding a university-based start-up company called Next Generation Augmented Reality System (NextGAR), which specializes at developing augmented reality techniques for e-health applications.

- Developed an excellent research experience, as shown by the research excellence awards, the high quality patents, book chapter, journals, and conference papers (with more than 2,380 citations in total), and bold research contributions to the fields of communications and signal processing, optimization, data networks, cloud- and fog-computing, networks resilience, distributed systems, and machine learning-based optimization.

- Developed an excellent teaching experience, as shown by the faculty teaching excellence awards and the wide teaching experience at both undergraduate and graduate levels, which

covers several fields in electrical and computer engineering including, but not limited to: communications, signal processing, convex optimization, electromagnetics, probability, machine learning, and electric circuits.

- Certified as a *prospective professor* after successfully completing the *Prospective Professor in Training Program (PPIT)* at the University of Toronto.

RESEARCH INTERESTS

- Space-Air-Ground Networks; Future Smart Cities; Machine Learning for Communications.
- Underwater Communications; Data-Driven Optimization; Cloud- and Fog-Computing.
- Distributed Algorithms; Convex Optimization; Graph Theory.

TEACHING INTERESTS

- Communications; Signal Processing; Convex Optimization.
- Wireless Communications; Random Signal Theory; Information Theory.
- Electromagnetics and Electric Circuits; Probability and Random Processes; Machine learning.

RESEARCH EXPERIENCE

1. **University of Sharjah, Department of Electrical Engineering**
   Associate Professor   August 2022 - Present

   - Conduct cross-disciplinary research on space-air-ground communications, intelligent infrastructures, data-driven optimization for communications and signal processing, smart cities, underwater communications, free-space optical networks, and visible light communications.
   - Lead on several local, regional, and international collaborations and research initiatives.
   - Supervise postdocs and graduate students working on the projects.

2. **King Abdullah University of Science and Technology (KAUST), Center of Excellence for NEOM research**
   Senior Research Scientist (R5; equivalent to Associate Professor)   July 2020 - Present

   - Conduct cross-disciplinary research on future smart cities, intelligent infrastructures and environmental stewardship.
   - Collaborate with professors from the Center of Excellence for NEOM research at KAUST.
   - Supervise postdocs and graduate students working on the center projects.

3. **King Abdullah University of Science and Technology (KAUST), Electrical Engineering Program**

Visiting Scholar   June 2015 - June 2020

- Conduct cross-institutional research between KAUST and Effat University.
- Collaborate with Professors from KAUST (Prof. Mohamed-Slim Alouini, Prof. Tareq Al-Naffouri, and Prof. Bernard Ghanem).
- Supervise graduate students at KAUST, and undergraduate students from Effat University who do their research at KAUST.
- Coordinate the summer internship of Effat University's students at KAUST.

4. **Effat University, Department of Electrical and Computer Engineering**
   Assistant Professor   June 2015 - June 2020

- Conduct research related to signal processing, communications, machine learning and optimization.
- Co-founded a start-up company called NextGAR, which specializes at developing augmented reality techniques for e-health applications.
- Supervise undergraduate students' research, and act as a reference point in optimization theory and algorithms.

5. **KAUST, Electrical Engineering Program**
   Research Associate   April 2014 - May 2015

- Conduct research related to multi-base signal processing in cloud-enabled networks.
- Collaborate with Prof. Mohamed-Slim Alouini and Prof. Tareq Al-Naffouri.
- Supervise graduate students and act as a reference point in optimization theory and algorithms.

6. **University of Toronto, and BLiNQ Networks Inc.**
   Industrial Postdoctoral Fellow   December 2010 - March 2014
   Conducted cross-disciplinary research projects between the University of Toronto, and BLiNQ Networks Inc., Canada

- Project jointly funded by NSERC-ENGAGE, NSERC-CRD, OCE, and BLiNQ Networks Inc.
- Project considers development and optimization of algorithms for designing futuristic wireless backhaul networks.
- Main contributions:
  - Invented five patents for mitigating interference in backhaul networks.
  - Held supervisory roles for graduate students working on BLiNQ projects.

7. **University of Toronto, Department of Electrical and Computer Engineering**
   Research Assistant   September 2005 - November 2010
   Supervisor: Professor Wei Yu.

   - Projects supported by NSERC under the Canada Research Chairs program.
   - Pioneered novel perspectives to develop interference mitigation techniques for wireless systems.
   - Main contributions:
     - Developed and conceptualized the idea of *Coordinated Beamforming* as a means to improve networks performance.
     - Extended the uplink-downlink duality to the multicell systems using Lagrangian duality theory.
     - Developed novel algorithms that can be implemented in a distributed fashion across multicell networks.
     - Developed novel user-selection and rate splitting strategies for using common message decoding.

8. **LG-Electronics, R&D Team**
   Research Collaboration   April 2006 - September 2008
   Collaborated with researchers from LG Electronics group visiting the University of Toronto: Wookbong Lee and Minseok Noh.

   - Worked on topics related to coordination in multicell multiantenna wireless systems.
   - Main contributions:
     - Developed new algorithms for the transceiver optimization in wireless systems.
     - Investigated distributed algorithms for the multicell systems with a beamformer-level coordination.

9. **The German Aerospace Center (DLR), Institute of Communications and Navigation, Wessling, Germany**
   Research Trainee   June 2004 - September 2004
   Supervisor: Dr. Stefan Kaiser.

   - Involved in the development and optimization of algorithms for the fourth generation mobile radio system.
   - Main Contributions:
     - Investigated the bit error performance of MC-CDMA using coded systems.
     - Studied the performance of novel iterative detector structures called *Interleave Division Multiple Access (IDMA)*.

<div align="center">

TEACHING EXPERIENCE

</div>

The teaching experience I acquired includes developing courses, lecturing, mentoring undergraduate capstones (final year design projects), conducting tutorials, supervising teaching assistants, and

preparing and marking exams for courses in the fields of convex optimization, signal processing and communications, electromagnetics, probability theory and applications, and electric circuits.

1. **Teaching at University of Sharjah**

   (a) Telecommunication Systems 1   Fall 2022

      - Class of 45 students.
      - Main topics: Introduction of communication systems, AM/FM, sampling, quantization, detection in additive-white Gaussian noise channel, detection probability of error, and modulation.

   (b) Engineering Research Methodology   Fall 2022

      - Class of 17 students.
      - Main topics: Engineering research process, methods of inquiry to solve engineering problems, literature review, research ethics, and skills of writing high quality thesis and research papers.

2. **Teaching at Effat University**

   (a) Signals and Systems   Spring 2020, Fall 2019

      - Class of 10 students.
      - Main topics: Continuous-time and discrete-time signals and systems, LTI systems, Fourier analysis, linear filtering, sampling, modulation.

   (b) Convex Optimization and Machine Learning   Spring 2019

      - Class of 10 students.
      - Main topics: Convex optimization theory and applications, Karush-Kuhn-Tucker (KKT) theorem, Numerical algorithms, Interplay of machine learning-based techniques and offline optimization, applications to electrical engineering and computer science.

   (c) Convex Optimization   Spring 2017, Fall 2015

      - Class of 10 students.
      - Main topics: Convex sets and convex functions, Lagrangian duality theory, Karush-Kuhn-Tucker (KKT) theorem, Newton's method, interior-point method, applications to electrical engineering and computer science.

   (d) Digital Communication Systems 1   Spring 2020, Spring 2019, Fall 2018, Spring 2018, Fall 2017, Spring 2017, Fall 2016

      - Class of 25 students.
      - Main topics: Introduction of digital communication, sampling, quantization, detection in additive-white Gaussian noise channel, detection probability of error, and modulation.

   (e) Digital Communication Systems 2   Fall 2019, Fall 2018, Fall 2017, Spring 2016, Spring 2015

- Class of 10 students.
- Main topics: Principles of digital communication, source coding, sampling, quantization, waveform coding, pulse-shaping, detection in additive-white Gaussian noise channel, detection probability of error, and modulation.

(f) Wireless Communication Systems   Spring 2018, Fall 2016

- Class of 10 students.
- Main topics: Introduction of wireless communication, path-loss, shadowing, fading, multiuser communication, and multiple access communication.

(g) Special Topics in Communications and Signal Processing   Spring 2016

- Class of 15 students.
- Main topics: Probability and random variables, signals and systems, wireless communications, and information theory.

(h) Introduction to Electromagnetic Fields   Winter 2015, Fall 2015

- Class of 10 students.
- Main topics: Vector analysis, electrostatics, magnetostatics, and electromagnetics.

3. **Teaching at the University of Toronto**

(a) Convex Optimization   Winter 2013

- Class of 35 students.
- Main topics: Convex sets and convex functions, Lagrangian duality theory, Karush-Kuhn-Tucker (KKT) theorem, Newton's method, interior-point method, applications to communications and signal processing.

(b) Digital Communication   Winter 2010

- Class of 50 students.
- Main topics: Waveform coding, geometric signal theory, signal detection in AWGN, pulse transmission over bandwidth-limited channels, information theory, source and channel coding, error control coding.

(c) Electrical Fundamentals (Electric Circuits and Electromagnetics)   Winter (2006, 2007, 2008, 2009, 2010), Summer (2007, 2008, 2009)

- Class of 70 students per term.
- Main topics: Electricity and magnetism, capacitors, resistors, inductors, nodal and mesh analysis, network theorems, RL and RC circuits, AC circuits.

(d) Signal Analysis and Communication   Fall (2007, 2008, 2009)

- Class of 70 students per term.
- Main topics: Continuous-time and discrete-time signals and systems, LTI systems, Fourier analysis, linear filtering, sampling, modulation.

(e) Probability and Random Processes   Fall 2008

- Class of 50 students.
- Main topics: Basic concepts of probability theory, random variables, distribution and density functions, expectations, moments, characteristic functions, correlation coefficient.

(f) Electric Circuits Theory   Fall (2008, 2010)

- Class of 50 students per term.
- Main topics: Nodal and mesh analysis, network theorems, RL, RC, and RLC circuits, AC circuits, frequency response, resonance, poles and zeros, Laplace transform.

(g) Signals and Systems   Winter 2008

- Class of 50 students.
- Main topics: Continuous-time and discrete-time signals and systems, LTI systems, Fourier analysis, linear filtering, sampling, modulation.

(h) Digital Signal Processing   Fall 2006

- Class of 50 students.
- Main topics: Digital filtering, sampling and quantization of signals, discrete Fourier transform, fast Fourier transform, structures for discrete-time systems.

4. **Course Developer**
   University of Toronto and Effat University

   - Developed a new course on *Convex Optimization in Communications and Signal Processing* at Effat University.   Fall 2015.
   - Restructured materials for the courses *Digital Communication* and *Signal Analysis and Communication* at the University of Toronto.   May 2010 - August 2010

5. **Head Teaching Assistant**
   University of Toronto   Winter (2008, 2009, 2010)

   - Worked as a head teaching assistant for a course on *Electrical Fundamentals*.
   - Supervised 12 teaching assistants (TA's) for a class of 600-700 students per term.
   - Participated in the course organization, and prepared midterms and final exams.

6. **Guest Lecturer**
   University of Toronto   September - December (2008, 2009)

   - Offered lectures on *Signals and Systems* and *Probability and Random Processes* in cases of professors' absence.

PROFESSIONAL DEVELOPMENT

University of Toronto   September 2009 - August 2010

Certified as *Prospective Professor* after successfully completing the *Prospective Professor in Training Program(PPIT)* at the University of Toronto.

- Participated in several seminars on the success of an *engineer professor*, both at research and teaching levels:

    - Starting a research program and applying for grants.

    - Increasing the impact of research.

    - Managing time, money and students.

    - Publishing and writing good journal papers.

    - Courses design, class room management and academic misconduct resolution.

- Developed a teaching portfolio and a teaching dossier, with a deep understanding of curriculum, teaching and learning within the context of the engineering education.

- Deepened the understanding of pedagogical fundamentals of teaching in higher education, with different perspectives on career development to foster the essential skills outside of research.

PUBLICATIONS

Google Scholar: ***https://scholar.google.com/citations?user=cqz1WdAAAAAJ&hl=en***
Number of Citations: ***2,386***

Book Chapters

1. A. Douik, H. Dahrouj, O. Dhifallah, T. Y. Al-Naffouri and M.-S. Alouini, "Coordinated Scheduling in Cloud Radio Access Networks", in *Cloud Radio Access Networks: Principles, Technologies, and Applications*, Cambridge University Press, Jan. 2017. (invited chapter)

Patents

5. H. Dahrouj, W. Yu, T. Tang, J. Chow and R. Selea,"Method and apparatus for coordinated power-zone-assignment in wireless backhaul networks", *United States Utilities Patent No. 14/093,011*, 2016.

4. T. Tang, H. Dahrouj, J. Chow and R. Selea, "Method and apparatus for inter-cluster power management", *United States Utilities Patent No. 61/723,494*, 2016.

3. T. Tang, H. Dahrouj, J. Chow and W. Yu, "Method and apparatus for determining network clusters for wireless backhaul networks", *United States Utilities Patent No. 14/129,150*, 2016.

2. H. Dahrouj, W. Yu, T. Tang, J. Chow and R. Selea,"Method and apparatus for mitigating wireless interference via power control with one-power-zone constraints", *United States Utilities Patent No. 13/852,765*, 2016.

1. H. Dahrouj, W. Yu, T. Tang and S. Beaudin, "Interference mitigation with scheduling and dynamic power spectrum allocation for wireless networks", *United States Utilities Patent No. 13/463,478*, 2014.

Journals

43. R. Alghamdi, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Toward Immersive Underwater Cloud-Enabled Networks: Prospects and Challenges", submitted to *IEEE Information Theory Magazine*, Aug. 2022.

42. R. Reifert, A. Al-Ameer, H. Dahrouj, A. Chaaban, A. Sezgin, T. Y. Al-Naffouri and M.-S. Alouini, "Distributed Resource Management in Downlink Cache-Enabled Multi-Cloud Radio Access Networks", in *IEEE Transactions on Vehicular Technology*, Aug. 2022.

41. S. Helal, H. Sarieddine, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Signal Processing and Machine Learning Techniques for Terahertz Sensing", in *IEEE Signal Processing Magazine*, Aug. 2022.

40. S. Liu, H. Dahrouj, and M.-S. Alouini, "Joint User Association and Beamforming in Integrated Satellite-HAPS-Ground Networks", submitted to *IEEE Transactions on Vehicular Technology*, Jul. 2022.

39. R. Reifert, H. Dahrouj, A. Al-Ameer, A. Sezgin, T. Y. Al-Naffouri, B. Shihada and M.-S. Alouini, "Rate-Splitting and Common Message Decoding in Hybrid Cloud/Mobile Edge Computing Networks", submitted to *IEEE Journal on Selected Areas in Communications (IEEE JSAC)*, Jul. 2022.

38. L. Niyazi, A. Kammoun, H. Dahrouj, M. -S. Alouini and T. Y. Al-Naffouri, "Weight Vector Tuning and Asymptotic Analysis of Binary Linear Classifiers," in *IEEE Open Journal of Signal Processing*, Jul. 2022.

37. H. Dahrouj, S. Liu, and M.-S. Alouini, "Machine Learning-Based User Scheduling in Integrated Satellite-HAPS-Ground Networks", submitted to *IEEE Network Magazine*, May 2022.

36. F. Souayfane, R. De Lima, H. Dahrouj, and O. Knio, "A Weather-Clustering and Energy-Thermal Comfort Optimization Methodology for Indoor Cooling in Subtropical Desert Climates", in *Elsevier Journal of Building Engineering*, Mar. 2022.

35. H. Dahrouj, A. Douik, M. El-Hajjar, M. Kaneko, Y. Li, D. T. Ngo, M. Saad, K. Shen, and J. Zhang, "Editorial: Resource Allocation in Cloud-Radio Access Networks and Fog-Radio Access Networks for B5G Systems", in *Frontiers in Communications and Networks, Special Issue on Resource Allocation in Cloud-Radio Access Networks and Fog-Radio Access Networks for B5G Systems*, Oct. 2021.

34. N. Kouzayha, H. ElSawy, H. Dahrouj, K. Al-Shaikh, T. Y. Al-Naffouri and M.-S. Alouini, "Analysis of Large Scale Aerial Terrestrial Networks with mmWave Backhauling", in *IEEE Transactions on Wireless Communications*, Jul. 2021.

33. A. Al-Ameer, H. Dahrouj, A. Chaaban, A. Sezgin, T. Y. Al-Naffouri, J. Shamma and M.-S. Alouini, "Power Minimization Using Rate Splitting with Imperfect CSI in Fog-Radio Access Networks", in *Frontiers in Communications and Networks, Special Issue on Resource Allocation in Cloud-Radio Access Networks and Fog-Radio Access Networks for B5G Systems*, July 2021.

32. K. Mershad, H. Dahrouj, H. Sarieddeen, B. Shihada, T. Al-Naffouri, and M.-S. Alouini, "Cloud-enabled high-altitude platform systems: Challenges and opportunities", in *Frontiers in Communications and Networks, Special Issue on Resource Allocation in Cloud-Radio Access Networks and Fog-Radio Access Networks for B5G Systems*, July 2021.

31. N. Saeed, H. Almorad, H. Dahrouj, T. Y. Al-Naffouri, J. Shamma and M.-S. Alouini, "Point-to-Point Communication in Integrated Satellite-Aerial 6G Networks: State-of-the-art and Future Challenges", in *IEEE Open Journal of the Communications Society*, Jun. 2021.

30. H. Dahrouj, R. Alghamdi, H. Alwazani, S. Bahanshal, A. Alameer, A. Faisal, R. Shalabi, R. Alhadrami, A. Subasi, M. Alnory, O. Kittaneh, and J. Shamma, "An Overview of Machine Learning-Based Techniques for Solving Optimization Problems in Communications and Signal Processing", in *IEEE Access*, May 2021.

29. O. Amin, H. Dahrouj, N. Almayyouf, B. Shehada, T. Y. Al-Naffouri and M.-S. Alouini, "Viral Aerosol Concentration Characterization and Detection in Bounded Environments", in *IEEE Transactions on Molecular, Biological, and Multi-Scale Communications*, May 2021.

28. N. Kouzayha, H. ElSawy, H. Dahrouj and T. Y. Al-Naffouri, "Meta Distribution of Downlink SIR for Binomial Point Processes", in *IEEE Wireless Communications Letters*, May 2021.

27. L. Niyazi, A. Kammoun, H. Dahrouj, M. -S. Alouini and T. Y. Al-Naffouri, "Asymptotic Analysis of an Ensemble of Randomly Projected Linear Discriminants," in *IEEE Journal on Selected Areas in Information Theory, Special Issue on Estimation and Inference*, Dec. 2020.

26. M. Obeed, H. Dahrouj, A. Salhab, S. Zummo and M.-S. Alouini, "User Pairing, Link Selection and Power Adaptation for Cooperative NOMA Hybrid RF/VLC Systems", in *IEEE Transactions on Wireless Communications*, Nov. 2020.

25. M. Kaneko, I. Randrianantenaina, H. Dahrouj, H. Elsawy and M. -S. Alouini, "On the Opportunities and Challenges of NOMA-Based Fog Radio Access Networks: An Overview," in IEEE Access, vol. 8, pp. 205467-205476, Nov. 2020.

24. M. Obeed, H. Dahrouj, A. M. Salhab, A. Chaaban, S. A. Zummo and M. -S. Alouini, "Power Allocation and Link Selection for Multicell Cooperative NOMA Hybrid VLC/RF Systems," in IEEE Communications Letters, Oct. 2020.

23. R. Alghamdi, R. Alhadrami, D. Alhothali, H. Almorad, R. Asfour, A. Faisal, N. Hammad, S. Helal, R. Shalabi, A. Shams, N. Saeed, H. Dahrouj, T. Y. Al-Naffouri, and M.-S. Alouini, "Intelligent Surfaces for 6G Wireless Networks: A Survey of Optimization and Performance Analysis Techniques", in *IEEE Access*, Oct. 2020.

22. A. Faisal, H. Sarieddine, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Ultra-Massive MIMO Systems at Terahertz Bands: Prospects and Challenges", in *IEEE Vehicular Technology Magazine*, Sep. 2020.

21. A. Douik, H. Dahrouj, O. Amine, B. Al-Oquibi, T. Y. Al-Naffouri and M.-S. Alouini, "Mode Selection and Power Allocation in Multi-level Cache-enabled Networks", in *IEEE Communications Letters*, Aug. 2020.

20. H. Wong, K. Akarvardar, D. Antoniadis, J. Bokor, C. Hu, T. Liu, S. Mitra, J. Plummer, S. Salahuddin, L. Deng, X. Li, S. Han, L. Shi, Y. Xie, E. Yaacoub, M.-S. Alouini, A. Douik, H. Dahrouj, and T. Y. Al-Naffouri, "Scanning the Issue," in *Proceedings of the IEEE*, vol. 108, no. 4, pp. 483-484, Apr. 2020.

19. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "A Tutorial on Clique Problems for Communications and Signal Processing", in *Proceedings of the IEEE*, Apr. 2020.

18. N. Saeed, A. Elzanaty, H. Almorad, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "CubeSat Communications: Recent Advances and Future Challenges", in *IEEE Communications Surveys & Tutorials*, Apr. 2020.

17. I. Randrianantenaina, M. Kaneko, H. Dahrouj, H. ElSawy, and M.-S. Alouini, "Joint Scheduling and Power Adaptation in NOMA-based Fog-Radio Access Networks", in *IEEE Transactions on Communications*, Apr. 2020.

16. M. Obeed, H. Dahrouj, A. Salhab, S. Zummo and M.-S. Alouini, "DC-Bias and Power Allocation in Cooperative VLC Networks for Joint Information and Energy Transfer", in *IEEE Transactions on Wireless Communications*, Sep. 2019.

15. A. Al-Ameer, H. Dahrouj, A. Chaaban, A. Sezgin and M.-S. Alouini, "Interference Mitigation via Rate-Splitting and Common Message Decoding in Cloud Radio Access Networks", in *IEEE Access*, Jul. 2019.

14. I. Randrianantenaina, H. ElSawy, H. Dahrouj, M. Kaneko and M.-S. Alouini, "Uplink Power Control and Ergodic Rate Characterization in FD Cellular Networks: A Stochastic Geometry Approach", in *IEEE Transactions on Wireless Communications*, Feb. 2019.

13. O. Dhif-Allah, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Distributed Robust Power Minimization for the Downlink of Multi-Cloud Radio Access Networks", in *IEEE Transactions on Green Communications and Networking*, Jun. 2018.

12. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Distributed Hybrid Scheduling in Multi-Cloud Radio-Access Networks", in *IEEE Transactions on Communications*, Jan. 2018.

11. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Low-Complexity Scheduling and Power Adaptation for Coordinated Cloud-Radio Access Networks", in *IEEE Communications Letters*, Aug. 2017.

10. I. Randrianantenaina, H. Dahrouj, H. ElSawy, and M.-S. Alouini, "Interference Management in Full-Duplex Cellular Networks With Partial Spectrum Overlap", in *IEEE Access, Special Issue on Physical and Medium Access Control Layer Advances in 5G Wireless Networks*, Apr. 2017.

9. O. Dhif-Allah, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Decentralized SINR Balancing in Cognitive Radio Networks", in *IEEE Transactions on Vehicular Technology*, Jul. 2016.

8. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Hybrid Radio/Free-Space Optical Design for Next Generation Backhaul Systems", in *IEEE Transactions on Communications*, Jun. 2016.

7. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Coordinated Scheduling and Power Control in Cloud-Radio Access Networks", in *IEEE Transactions on Wireless Communications*, Apr. 2016.

6. H. Dahrouj, A. Douik, F. Rayal, T. Y. Al-Naffouri and M.-S. Alouini, "Cost-Effective Backhaul Solutions for Next Generation Wireless Systems", in *IEEE Wireless Communications Magazine, Special Issue on Smart Backhauling and Fronthauling for 5G Networks*, Nov. 2015.

5. H. Dahrouj, A. Douik, O. Dhifallah, M.-S. Alouini and T. Y. Al-Naffouri, "Resource Allocation in Heterogeneous Cloud Radio Access Networks: Advances and Challenges", in *IEEE Wireless Communications Magazine, Special Issue on Heterogeneous Cloud Radio Access Networks*, Jun. 2015.

4. H. ElSawy, H. Dahrouj, M.-S. Alouini and T. Y. Al-Naffouri, "Virtualized Cognitive Network Architecture for 5G Cellular Networks", in *IEEE Communications Magazine, Special Issue on 5G Cognitive Networks*, Jun. 2015. (invited paper)

3. H. Dahrouj, W. Yu and T. Tang, "Power spectrum optimization for interference mitigation via iterative function evaluation", in *EURASIP Journal on Wireless Communications and Networking, Special Issue on Recent Advances in Optimization Techniques in Wireless Communication Networks*, Aug. 2012. (invited paper)

2. H. Dahrouj and W. Yu, "Multicell interference mitigation with joint beamforming and common message decoding", in *IEEE Transactions on Communications*, vol. 59, no. 8, pp. 2264-2273, Aug. 2011.

1. H. Dahrouj and W. Yu, "Coordinated beamforming for the multicell multi-antenna wireless system", in *IEEE Transactions on Wireless Communications*, vol. 9, no. 5, pp. 1748-1759, May 2010. *This paper has been cited more than 880 times so far.*

Conference Papers

40. R. Reifert, H. Dahrouj, B. Shihada, A. Sezgin, T. Y. Al-Naffouri and M.-S. Alouini, "Joint Communication and Computation in Hybrid Cloud/Mobile Edge Computing Networks", submitted to *IEEE Global Commun. Conf. (Globecom'22) Workshops (Globecom. Workshops 2022)*, Jul. 2022.

39. S. Liu, H. Dahrouj, and M.-S. Alouini, "User Scheduling in Integrated Satellite-HAPS-Ground Networks Using Ensembling Deep Neural Networks", in *World Wireless Research Forum (WWRF 48)*, Bristol, UK, Jun. 2022.

38. R. Reifert, A. Al-Ameer, H. Dahrouj, A. Chaaban, A. Sezgin, T. Y. Al-Naffouri and M.-S. Alouini, "Joint Beamforming and Clustering for Energy Efficient Multi-Cloud Radio Access Networks", accepted in *IEEE Wireless Communications and Networking Conference (WCNC'2022)*, Austin, USA, Apr. 2022.

37. A. Al-Ameer, H. Dahrouj, A. Chaaban, A. Sezgin, T. Y. Al-Naffouri and M.-S. Alouini, "Power Minimization via Rate Splitting in Downlink Cloud-Radio Access Networks", in *IEEE International Conference on Communications Workshops (ICC Workshops)*, Jun. 2020.

36. A. Al-Ameer, H. Dahrouj, A. Chaaban, A. Sezgin, T. Y. Al-Naffouri and M.-S. Alouini, "Distributed Cloud Association and Power Control for Downlink Multicloud Radio Access Networks", in *IEEE International Conference on Communications Workshops (ICC Workshops)*, Jun. 2020.

35. N. Kouzayha, H. ElSawy, H. Dahrouj, K. Al-Shaikh, T. Y. Al-Naffouri and M.-S. Alouini, "Stochastic Geometry Analysis of Hybrid Aerial Terrestrial Networks with mmWave Backhauling", in *IEEE International Conference on Communications (ICC)*, Jun. 2020.

34. A. Faisal, R. Al-Ghamdi, H. Dahrouj, H. Sarieddine, N. Saeed, T. Y. Al-Naffouri and M.-S. Alouini, "Diversity Schemes in Multi-hop Visible Light Communications for 6G Networks", in 17-th Learning and Technology Conference (L&T) - 5G & Beyond: Paving the way to 6G, Jeddah, KSA, Jan. 2020.

33. A. Faisal, H. Sarieddine, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Ultra-Massive MIMO Systems at Terahertz: Prospects and Challenges", in *World Wireless Research Forum (WWRF43)*, London, UK, Oct. 2019.

32. R. Alghamdi, N. Saeed, H. Dahrouj, M.-S. Alouini, and T. Y. Al-Naffouri, "Towards Ultra-Reliable Low-Latency Underwater Optical Wireless Communications", in *IEEE Vehicular Technology Conference (VTC Fall'19)*, Honolulu, Hawaii, Sep. 2019.

31. A. Al-Ameer, H. Dahrouj, A. Chaaban, A. Sezgin, T. Y. Al-Naffouri and M.-S. Alouini, "Rate Splitting and Common Message Decoding for MIMO C-RAN Systems", in *IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC 2019)*, Cannes, France, Jul. 2019. (invited paper)

30. I. Randrianantenaina, M. Kaneko, H. Dahrouj, and M.-S. Alouini, "NOMA-based Fog-RAN: Opportunities and Challenges", in *World Wireless Research Forum (WWRF42)*, Tokyo, May 2019.

29. O. Dhif-Allah, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Robust Beamforming for Cache-Enabled Cloud Radio Access Networks", in *IEEE Global Commun. Conf. (Globecom'18) Workshops (Globecom. Workshops 2018)*, Abu Dhabi, UAE, Dec. 2018.

28. M. Obeed, H. Dahrouj, A. Salhab, S. Zummo and M.-S. Alouini, "DC-Bias Allocation in Cooperative VLC Networks via Joint Information and Energy Transfer", in *IEEE Global Commun. Conf. (Globecom'18)*, Abu Dhabi, UAE, Dec. 2018.

27. I. Randrianantenaina, M. Kaneko, H. Dahrouj, H. ElSawy, and M.-S. Alouini, "Joint Scheduling and Power Adaptation in NOMA-based Fog-Radio Access Networks", in *IEEE Global Commun. Conf. (Globecom'18)*, Abu Dhabi, UAE, Dec. 2018.

26. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Joint Scheduling and Beamforming via Cloud-Radio Access Networks Coordination", in *IEEE Vehicular Technology Conference (VTC Fall'18)*, Chicago, USA, August 2018.

25. A. Al-Ameer, H. Dahrouj, A. Chaaban, A. Sezgin and M.-S. Alouini, "Interference Mitigation via Rate-Splitting in Cloud Radio Access Networks", in *IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC 2018)*, Kalamata, Greece, Jun. 2018. (invited paper)

24. I. Randrianantenaina, H. Dahrouj, H. ElSawy, and M.-S. Alouini, "Distributed Resource Allocation in Full-Duplex Cellular Networks with Partial Spectrum Overlap", in *IEEE Wireless Communications and Networking Conference (WCNC'18)*, Barcelona, Spain, Apr. 2018.

23. L. Niyazi, A. Chaaban, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Energy-Aware Sensor Networks via Sensor Selection and Power Allocation", in *IEEE Vehicular Technology Conference (VTC'17): Workshop on Next Generation Backhaul/Fronthaul Networks (IEEE BackNets 2017)*, Toronto, Canada, Sep. 2017.

22. M. Bahri, M. M. Hussain, T. Brahimi and H. Dahrouj, "FDM 3D printed coffee glove embedded with flexible electronic," IEEE Learning and Technology Conference (L&T) - The MakerSpace: from Imagining to Making, Jeddah, KSA, Apr. 2017.

21. O. Dhif-Allah, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Distributed Robust Power Minimization for the Downlink of Multi-Cloud Radio Access Networks", in *IEEE Global Telecommun. Conf. (Globecom'16)*, Washington, USA, Dec. 2016.

20. B. Al-Oquibi, O. Amine, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Energy efficiency for cloud-radio access networks with imperfect channel state information", in *IEEE Personal, Indoor, and Mobile Radio Communications (PIMRC): Workshop: Inclusive Radio Communication Networks for 5G and Beyond (IRACON2016) (IEEE PIMRC 2016 Workshop IRACON2016)*, Valencia, Spain, Sep. 2016.

19. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Resilient Backhaul Network Design Using Hybrid Radio/Free-Space Optical Technology", in *IEEE International Conference on Communications (ICC)*, Kuala Lumpur, Malaysia, May 2016.

18. I. Randrianantenaina, H. ElSawy, H. Dahrouj, and M.-S. Alouini, "Interference Management with Partial Uplink/Downlink Spectrum Overlap", in *IEEE International Conference on Communications (ICC)*, Kuala Lumpur, Malaysia, May 2016.

17. O. Dhif-Allah, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Decentralized Group Sparse Beamforming for Multi-Cloud Radio Access Networks", in *IEEE Global Telecommun. Conf. (Globecom'15)*, San Diego, USA, Dec. 2015.

16. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Hybrid Scheduling/Signal-Level Coordination in the Downlink of Multi-Cloud Radio-Access Networks", in *IEEE Global Telecommun. Conf. (Globecom'15)*, San Diego, USA, Dec. 2015.

15. K. Elkhalil, M. E. Eltayeb, H. Dahrouj and T. Y. Al-Naffouri, "Distributed User Selection in Network MIMO Systems with Limited Feedback", in *IEEE Vehicular Technology Conference (VTC Fall'15)*, Boston, USA, Sep. 2015.

14. O. Dhif-Allah, H. Dahrouj, M.-S. Alouini and T. Y. Al-Naffouri, "Hybrid backhauling for cloud radio-access networks", in *IEEE Vehicular Technology Conference (VTC Fall'15)*, Boston, USA, Sep. 2015.

13. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Cost Efficient Cellular Backhaul Network Design Using Hybrid Radio-Free Space Optical Technology", in *Workshops in IEEE International Conference on Communications (ICC)*, London, UK, Jun. 2015.

12. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Coordinated Scheduling for the Downlink of Cloud Radio-Access Networks", in *IEEE International Conference on Communications (ICC)*, London, UK, Jun. 2015.

11. H. Dahrouj, Tareq Y. Al-Naffouri and M.-S. Alouini, "Distributed Cloud Association for Downlink Multicloud Radio Access Networks", in *IEEE 49th Annual Conference on Information Sciences and Systems(CISS)*, Baltimore, USA, Mar. 2015.

10. H. Dahrouj, T. Tang, H. T. Chen and R. Selea, "Fairness and Throughput Balancing via Power Control in Wireless Backhaul Networks", in *Proc. IEEE 27th Queen's Biennial Symposium on Communications*, Kingston, Ontario, Canada, Jun. 2014.

9. H. Dahrouj, W. Yu, T. Tang, J. Chow and R. Selea, "Coordinated scheduling for wireless backhaul networks with soft frequency reuse", in *21st European Signal Processing Conference (EUSIPCO)*, Marrakech, Morocco, Sep. 2013. (invited paper)

8. H. Dahrouj, W. Yu, J. Chow and R. Selea, "Interference mitigation via power control under the one-power-zone constraint", in *IEEE Global Telecommun. Conf. (Globecom)*, Anaheim, CA, USA, Dec. 2012.

7. K. Hosseini, H. Dahrouj and R. Adve, "Distributed clustering and inter-cluster interference management in two-tier networks", in *IEEE Global Telecommun. Conf. (Globecom)*, Anaheim, CA, USA, Dec. 2012.

6. H. Dahrouj, W. Yu and T. Tang, "On power spectrum optimization by iterative function evaluation", in *Proc. IEEE 26th Queen's Biennial Symposium on Communications*, Kingston, Ontario, Canada, May 2012.

5. H. Dahrouj, W. Yu, T. Tang and S. Beaudin, "Power spectrum optimization for interference mitigation via iterative function evaluation", in *Proc. IEEE Global Telecommun. Conf. (Globecom), First Workshop on Distributed Antenna Systems for Broadband Mobile Communications*, Houston, TX, Dec. 2011.

4. H. Dahrouj and W. Yu, "Achievable rate improvement using common message decoding for multicell networks", in *Proc. IEEE 44th Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, California, Nov. 2010. (invited paper)

3. H. Dahrouj and W. Yu, "Interference mitigation with joint beamforming and common message decoding in multicell systems", in *Proc. IEEE Int. Sym. Inf. Theory (ISIT)*, Austin, Texas, USA, Jun. 2010.

2. H. Dahrouj and W. Yu, "Coordinated beamforming for the multi-cell multi-antenna wireless system", in *Proc. IEEE 42nd Annual Conference on Information Sciences and Systems (CISS)*, Princeton University, New Jersey, USA, Mar. 2008, pp. 429-434.

1. H. Dahrouj, S. Abdallah and S.S. Abdallah, "Design and implementation of an experimental FM Based Passive Radar", in *Proc. 4th FEA student conference at the American University of Beirut*, Beirut, Jun. 2005, pp. 165-168.

Posters

5. F. Souayfane, R. De Lima, H. Dahrouj, and O. Knio, "Towards Sustainable Energy-Efficient Buildings in KSA: A Weather-Clustering and Energy-Thermal Comfort Optimization Approach", KAUST, Saudi Arabia, Dec. 2021.

4. H. Dahrouj, A. Douik, O. Dhifallah, M.-S. Alouini and T. Y. Al-Naffouri, "Resource Allocation in Heterogeneous Cloud Radio Access Networks: Advances and Challenges", *The third Arab American Frontiers symposium*, KAUST, Saudi Arabia, Dec. 2015.

3. W. Yu, H. Dahrouj and B. Khoshnevis, "Cooperative communication for future wireless cellular networks", *Canada Research Chair 10th Anniversary Event*, Toronto, Canada, Nov. 2010. (invited poster)

2. H. Dahrouj and W. Yu, "Achievable rate improvement using common message decoding for multicell networks", *44th Annual Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, California, Nov. 2010. (invited poster)

1. H. Dahrouj and W. Yu, "Coordinated beamforming and common message decoding for intercell Interference mitigation", *2010 Information Theory and Applications Workshop (ITA)*, University of California, San Diego, CA, USA, Feb. 2010.

Talks

18. H. Dahrouj, "On the Deployment of Reconfigurable Intelligent Surfaces at the Terahertz Bands: Prospects and Challenges", in *IEEE Conference on Advanced Communication Technologies and Networking (CommNet 2021)*, Virtual Conference, Dec. 2021.

17. M. Obeed, H. Dahrouj, A. Salhab, S. Zummo and M.-S. Alouini, "DC-Bias Allocation in Cooperative VLC Networks via Joint Information and Energy Transfer", in *IEEE Global Commun. Conf. (Globecom'18)*, Abu Dhabi, UAE, Dec. 2018.

16. H. Dahrouj, "On the Design of Hybrid Radio/Free-Space Optical Backhauls for Next Generation Wireless Systems", Keynote Speech in *IEEE Vehicular Technology Conference (VTC'17): Workshop on Next Generation Backhaul/Fronthaul Networks (IEEE BackNets 2017)*, Toronto, Canada, Sep. 2017.

15. L. Niyazi, A. Chaaban, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Energy-Aware Sensor Networks via Sensor Selection and Power Allocation", in *IEEE Vehicular Technology Conference (VTC'17): Workshop on Next Generation Backhaul/Fronthaul Networks (IEEE BackNets 2017)*, Toronto, Canada, Sep. 2017.

14. O. Dhif-Allah, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Distributed Robust Power Minimization for the Downlink of Multi-Cloud Radio Access Networks", in *IEEE Global Telecommun. Conf. (Globecom'16)*, Washington, USA, Dec. 2016.

13. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Resilient Backhaul Network Design Using Hybrid Radio/Free-Space Optical Technology", in *IEEE International Conference on Communications (ICC)*, Malaysia, May 2016.

12. O. Dhif-Allah , H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Decentralized Group Sparse Beamforming for Multi-Cloud Radio Access Networks", in *IEEE Global Telecommun. Conf. (Globecom'15)*, San Diego, USA, Dec. 2015.

11. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Hybrid Scheduling/Signal-Level Coordination in the Downlink of Multi-Cloud Radio-Access Networks", in *IEEE Global Telecommun. Conf. (Globecom'15)*, San Diego, USA, Dec. 2015.

10. A. Douik, H. Dahrouj, T. Y. Al-Naffouri and M.-S. Alouini, "Cost Efficient Cellular Backhaul Network Design Using Hybrid Radio-Free Space Optical Technology", in *Workshops in IEEE International Conference on Communications (ICC)*, Jun. 2015.

9. H. Dahrouj, W. Yu, T. Tang, J. Chow and R. Selea, "Coordinated scheduling for wireless backhaul networks with soft frequency reuse", *21st European Signal Processing Conference (EUSIPCO)*, Marrakech, Morocco, Sep. 2013. (invited talk)

8. H. Dahrouj, W. Yu, J. Chow and R. Selea, "Interference mitigation via power control under the one-power-zone constraint", *IEEE Global Telecommun. Conf. (Globecom)*, Anaheim, CA, USA, Dec. 2012.

7. H. Dahrouj, W. Yu and T. Tang, "On power spectrum optimization by iterative function evaluation", *IEEE 26th Queen's Biennial Symposium on Communications*, Kingston, Ontario, Canada, May 2012.

6. H. Dahrouj, W. Yu, T. Tang and S. Beaudin, "Power Spectrum Optimization for Interference Mitigation Via Iterative Function Evaluation", *IEEE Global Telecommun. Conf. (Globecom, First Workshop on Distributed Antenna Systems for Broadband Mobile Communications)*, Houston, Texas, USA, Dec. 2011.

5. H. Dahrouj and W. Yu, "Interference mitigation with joint beamforming and common message Decoding in multicell systems", *IEEE Int. Sym. Inf. Theory (ISIT)*, Austin, Texas, USA, Jun. 2010.

4. H. Dahrouj and W. Yu, "Coordinated beamforming for the multi-cell multi-antenna wireless system", *Third Canadian Summer school of Communication and Information theory*, Banff, Alberta, Canada, Aug. 2008.

3. H. Dahrouj and W. Yu, "Coordinated beamforming for the multi-cell multi-antenna wireless system", *First Annual School on Information Theory*, University Park Campus, Penn State University, PA, USA, Jun. 2008.

2. H. Dahrouj and W. Yu, "Coordinated beamforming for the multi-cell multi-antenna wireless system", *42nd Annual Conference on Information Sciences and Systems(CISS)*, Princeton, NJ, U.S.A., Mar. 2008.

1. H. Dahrouj, S. Abdallah and S. S. Abdallah, "Design and implementation of an experimental FM Based Passive Radar", *4th FEA student conference at the American University of Beirut*, Beirut, Lebanon, Jun. 2005.

SUPERVISION EXPERIENCE

Co-mentored graduate students from KAUST, Ruhr-Universitat Bochum, and the University of Toronto (UofT), and undergraduate students from Effat University, the University of Electronic Science and Technology of China (UESTC), and Ecole Polytechnique de Tunisie (EPT):

- Ph.D. Candidates:

  1. Rawan Alghamdi   KAUST, Fall 2022 - Present
     - Works on optimizing future sustainable cloud-enabled underwater networks.
  2. Lama Niyazi   KAUST, Fall 2019 - Present
     - Works on analyzing and characterizing a class of machine learning techniques using random matrix theory.

3. Robert Reifert   Ruhr-Universitat Bochum, Spring 2021 - Present

 – Works on distributed learning for multicloud-enabled networks.

4. Eder Baron   KAUST, Fall 2020 - Spring 2021

 – Works on developing control theory-based algorithms for distributed power systems.

5. Alaa Al-Ameer   Ruhr-Universitat Bochum, Fall 2017 - Winter 2021

 – Works on rate splitting and common message decoding in cloud-enabled networks.

6. Mohanad Obeed   KAUST, Spring 2018 - August 2019

 – Works on DC-bias allocation in visible light communication (VLC) networks.

7. Itsikiantsoa Randrianantenai   KAUST, Fall 2015 - January 2020

 – Works on interference management in full-duplex systems.

8. Foad Sohrabi   UofT, Fall 2013 - Spring 2014

 – Investigated the coordinated hybrid digital and RF beamforming.

9. Gokul Sridharan   UofT, Fall 2011 - Spring 2014

 – Investigated interference alignment to minimize interference in wireless networks.

10. Kianoush Hosseini   UofT, Winter 2012 - Winter 2013

 – Developed interference management techniques in heterogeneous networks.

11. Ehsan Karamad   UofT, Winter 2012 - Fall 2012

 – Investigated uplink resource allocation problem for wireless backhaul networks.

12. Yuhan Zhou   UofT, Fall 2011 - Summer 2012

 – Studied the effect of introducing picocells in heterogeneous networks.

- Masters of Applied Science (M.A.Sc.) Candidates:

1. Shasha Liu   KAUST, Fall 2022 - Present

 – Works on data-driven optimization for satellite-HAPS-ground networks.

2. Sirine Ben Ati   KAUST, Fall 2022 - Present

 – Works on interference cancellation in coexisting satellites and millimeter-wave systems.

3. Ruslan Zhagypar   KAUST, Fall 2021 - Present

 – Works on federated learning for wireless communications.

4. Rawan Al-Ghamdi   KAUST, Fall 2020 - Summer 2022

 – Works on resource allocation schemes in cloud-enabled HAPS.

5. Lama Niyazi   KAUST, Spring 2018 - Fall 2019

 – Works on machine learning using random matrix theory.

6. Nojood Al-Maayouf   KAUST, Fall 2017 - Winter 2020
   - Works on molecular communications.
7. Khlood Al-Shaikh   KAUST, Fall 2016 - Spring 2019
   - Works on interference modelling using stochastic geometry.
8. Bayan Al-Oquibi   KAUST, Fall 2016 - Spring 2018
   - Works on energy efficiency in cloud-enabled networks.
9. Oussama Dhif-Allah   KAUST, Spring 2014 - Summer 2016
   - Worked on resource allocation in cloud-enabled networks.
10. Amr Abd El-Hady   KAUST, Fall 2015 - Summer 2016
   - Worked on topics related to improper signaling.
11. Ahmed Douik   KAUST, Spring 2014 - Summer 2015
   - Worked on graph-theory applications in cloud-radio access networks.
12. Kaiming Shen   UofT, Spring 2012 - Fall 2013
   - Worked on topics related to joint power control and base-station assignment.
13. Binbin Dai   UofT, Winter 2012 - Summer 2012
   - Worked on topics related to power control based on game theory.

- Supervision of undergraduate research and capstones:

  1. Sirine Ben Ati   Winter 2022- Summer 2022
  2. Shasha Liu   Summer 2021- Summer 2022
  3. Sara Helal   Spring 2019- Summer 2022
  4. Heba Al-Morad   Spring 2019- Summer 2021
  5. Dalia Al-Hothali   Spring 2019- Spring 2020
  6. Rahaf Shalabi   Spring 2019- Spring 2020
  7. Reem Al-Hadrami   Spring 2019- Spring 2020
  8. Alice Faisal   Summer 2018- Spring 2020
  9. Rawan Al-Ghamdi   Summer 2018- Spring 2020
  10. Nargess Al-Ruwais   Spring 2018- Spring 2019
  11. Wardah Al-Aamri   Spring 2018- Spring 2019
  12. Mona Al-Qadi   Spring 2018- Fall 2018
  13. Nesrin Al-Mehmadi   Spring 2018- Fall 2018
  14. Bayan Al-Nahhas   Summer 2016 - Fall 2018
  15. Remaa Al-Saadi   Fall 2016 - Spring 2018
  16. Maram Al-Ghamdi   Fall 2016 - Spring 2018

17. Hajer Al-Oufi   Fall 2016 - Spring 2018

18. Alya Al-Jabri   Fall 2016 - Spring 2017

19. Rahaf Ben-Zagr   Fall 2016 - Spring 2017

20. Rawan Al-Ghamdi   Fall 2016 - Spring 2017

21. Somayyah Shafa-Amri   Fall 2016 - Spring 2017

22. Nojood Al-Mayoof   Spring 2016 - Spring 2017

23. Lama Niyazi   Fall 2015 - Spring 2017

24. Khlood Al-Shaikh   Spring 2015 - Summer 2016

25. Bayan Al-Oquibi   Spring 2015 - Summer 2016

26. Noor Bafageeh   Fall 2015 - Summer 2016

27. Omnia Hasanain   Fall 2015 - Summer 2016

28. Asmaa EL-Khatib   Fall 2015 - Summer 2016

SCHOLARLY ACTIVITIES

- Editor, IEEE Transactions on Vehicular Technology (2022-Present).

- Associate Editor, Frontiers in Communications and Networks (2020-Present).

- Lead Guest-Editor, Frontiers Special Issue on Resource Allocation in Cloud-Radio Access Networks and Fog-Radio Access Networks for B5G Systems (2020-Present).

- Co-chaired the "Applications of Artificial Intelligence with Machine Learning" symposium/track at the 2020 IEEE Vehicular Technology Conference (VTC Spring 2020).

- Have been serving on the technical program committee (TPC) of the *IEEE International Conference on Communications (ICC)* (2013-Present).

- Have been serving on the technical program committee (TPC) of the *IEEE Global Commun. Conf. (Globecom)* (2015-Present).

- Served on the TPC of the *IEEE Queen's Biennial Symposium on Communications (QBSC) 2014*, and the *IEEE Wireless Communications and Networking Conference (WCNC) 2014-2015 - (WCNC PHY)*.

- Session Chair for the *IEEE GLOBECOM 2012*, and *IEEE QBSC 2012*.

- Journal Reviewer for the *IEEE Transactions on Communications; IEEE Transactions on Signal Processing; IEEE Transactions on Wireless Communications; IEEE Transactions on Information Theory; IEEE Journal on Selected Areas in Communications; EURASIP Journal on Wireless Communications and Networking; IEEE Access; IEEE Communications Letters; IEEE Wireless Communications Letters; IEEE Communications Magazine; IEEE Wireless Communications Magazine.*

- Conference Reviewer for the *IEEE ICC; IEEE GLOBECOM; IEEE International Symposium on Information Theory (ISIT); IEEE Vehicular Technology Conference (VTC); IEEE QBSC; IEEE Conference on Information Science and Systems (CISS); IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC).*

AWARDS, DISTINCTIONS AND FELLOWSHIPS

- Faculty Award for Excellence in Research, Effat University   May 2017

- Faculty Award for Excellence in Teaching, Effat University   May 2017

- College of Engineering Research Excellence Award, Effat University   June 2016

- Faculty research grant award, awarded by Effat University   June 2015 - June 2020

- Collaborative research funding award, awarded by BLiNQ Networks Inc.   December 2010 - Feb. 2014

- Graduate research fellowship, awarded by NSERC under the Canada Research Chairs program   September 2005 - August 2010

- Collaborative research funding, awarded by LG Electronics   April 2006 - September 2008

- Graduate departmental fellowship, awarded by the Department of Electrical and Computer Engineering at the University of Toronto   September 2005 - August 2010

- Nominated and short-listed for a 2009 teaching excellence award at the University of Toronto April 2009

- Graduated with *high distinction*, Department of Electrical and Computer Engineering at the American University of Beirut   June 2005

- Undergraduate scholarship, Department of Electrical and Computer Engineering at the American University of Beirut   February 2001 - June 2005

- Dean's honor list, Department of Electrical and Computer Engineering at the American University of Beirut   February 2001 - June 2005

- Lebanese baccalaureate in *Elementary Mathematics* with *high distinction*   July 2000

Research Grants

- KACST grant under applied research program, awarded by KACST, KSA

- Connectivity and Livability Initiative Linkage grant, awarded by KAUST, KSA   January 2022 - January 2023

- KAUST Taqadam research grant, awarded by KAUST and SABB bank, KSA January 2017 - June 2020

- Postdoctoral research grant, awarded by Ontario Center of Excellence, Canada   October 2012 - Feb. 2014

- Postdoctoral collaborative research and development grant (CRD), awarded by NSERC-CRD, Canada   April 2012 - Feb. 2014

- Postdoctoral research grant, awarded by NSERC-ENGAGE, Canada   February 2011 - August 2011

AFFILIATIONS

- Senior membership in IEEE (Institute of Electrical and Electronics Engineers).

- IEEE Communications Society.

- IEEE Signal Processing Society.

- IEEE Vehicular Technology Society.

LANGUAGES

English, French, and Arabic: Fluently spoken and written.

REFERENCES

1. Prof. Wei Yu

   - Tel.: +1-416-946-8665
   - E-mail: weiyu@ece.utoronto.ca
   - Relationship: Ph.D. thesis advisor.
   - Affiliation: Department of Electrical and Computer Engineering, University of Toronto.

2. Prof. Mohamed-Slim Alouini

   - Tel.: +966-5-4470-0038
   - E-mail: slim.alouini@kaust.edu.sa
   - Relationship: Research reference.
   - Affiliation: Computer, Electrical and Mathematics Sciences and Engineering, King Abdullah University of Science and Technology (KAUST).

3. Prof. Frank Kschischang

   - Tel.: +1-416-978-0461
   - E-mail: frank@ece.utoronto.ca
   - Relationship: Ph.D. thesis committee member, and teaching reference.
   - Affiliation: Department of Electrical and Computer Engineering, University of Toronto.

4. Prof. Ashish Khisti

   - Tel.: +1-416-978-7215
   - E-mail: akhisti@ece.utoronto.ca
   - Relationship: Ph.D. thesis committee member, and teaching reference.
   - Affiliation: Department of Electrical and Computer Engineering, University of Toronto.

5. Prof. Basem Shihada

   - Tel.: +966-5-4470-0044
   - E-mail: basem.shihada@kaust.edu.sa
   - Relationship: Research reference.
   - Affiliation: Computer, Electrical and Mathematics Sciences and Engineering, King Abdullah University of Science and Technology (KAUST).

6. Prof. Tareq Y. Al-Naffouri

   - Tel.: +966-5-5152-3080
   - E-mail: tareq.alnaffouri@kaust.edu.sa
   - Relationship: Research reference.
   - Affiliation: Computer, Electrical and Mathematics Sciences and Engineering, King Abdullah University of Science and Technology (KAUST).