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Personal Information

- **Date of Birth:** August 28, 1979
- **Occupation:** Professor, Electronics and Communications Engineering Department, American University in Cairo (AUC)
- **Nationality:** Egyptian

Education

- **University of Maryland**, College Park, MD
  Ph.D. in Electrical and Computer Engineering, Spring 2008 (GPA = 4.0/4.0)
  Thesis title: "Diversity in Cooperative Networks: How to Achieve and Where to Exploit?"
  Advisor: Prof. K. J. Ray Liu.
- **University of Maryland**, College Park, MD
  M.Sc. in Electrical Engineering, Fall 2007 (GPA= 4.0/4.0)
- **Alexandria University**, Egypt
  M.Sc. in Electrical Engineering, April 2004 (GPA= 4.0/4.0)
  Thesis title: "Blind Channel Estimation in OFDM systems"
- **Alexandria University**, Egypt
  B.Sc. in Electrical Engineering, June 2001
  Cumulative Grade "Distinction with Degree of Honor (94.27%)".
  Department Rank: First on a class of 267 students
  Graduation Project: "Personal Communications"

Honors

- **The IEEE Communications Society Best Tutorial Paper Award**, 2025
- **Faculty Merit Award for Excellence in Research and Creative Endeavors**, The American University in Cairo, 2021
- **IEEE TCGCC 2019 Best Conference Paper Award**, IEEE Communications Society (comsoc) Technical Committee on Green Communications and Computing (TCGCC), 2019
- **Presidential Medal of Excellence of the First Grade**, 2017
- **State Encouragement Award**, 2016
- **IEEE Senior Member**, 2014
- Included in **Who's Who** in World, 2010 Edition
- **Member of The Honor Society of Phi Kappa Phi**
- On the final list of top 5 students nominated for the Distinguished Dissertation Fellowship, University of Maryland 2008
- **Future Faculty Program (FFP) Fellowship**, University of Maryland 2007-2008

- ◇ **University of Maryland Graduate School Super Fellowship**, 2004-2006
- ◇ Certificate of Honor from the Egyptian President in 2002 for being ranked First among all departments in College of Engineering, Alexandria University
- ◇ Distinction with Honors at B.Sc. degree, and ranked First on a class of 267 students, Alexandria University 2001
- ◇ Certificate of Merit, First Class Honors, for being one of the top ten students in the electrical engineering department during my undergraduate study, Alexandria University, Egypt 1997-2001

Other Honors

- ◇ **Mohamed T. Ismail won the AUC Medhat Haroun Award for Scholarly Excellence** for his master's thesis work, recognized as the outstanding thesis work in an engineering-related discipline for theses completed during the calendar year 2022. **I co-advised Mohamed thesis work with Dr. Hossam Sharara**, 2023
- ◇ **Mohamed Nomeir won the AUC Medhat Haroun Award for Scholarly Excellence** for his master's thesis work, recognized as the outstanding thesis work in an engineering-related discipline for theses completed during the calendar year 2021. **I co-advised Mohamed thesis work with Dr. Yasser Gadallah**, 2022

Research Interests

- ◇ **Current Research Interests**
  - Applications of machine learning in communications and networks
  - Reconfigurable Intelligent Surfaces (RIS)
  - Massive MIMO/Cell-Free Massive MIMO
  - Age of Information
  - Back-scattered Communications
- ◇ **Previous Research Interests**
  - Layered Channel Coding
    - Coherent and non-coherent layered channel coding
    - Relay-assisted layered channel coding
  - Cognitive Radio Networks
    - Throughput maximization
    - Secondary users access schemes
    - Cognitive relaying
  - Sensor Networks
    - Distributed detection in wireless sensor networks
    - Censoring in wireless sensor networks
  - Smart Grid Communications
    - Joint detection-estimation
    - Unequal error protection over PLCs
  - Interference Alignment
    - Linear interference alignment
  - Interference Channels
    - DMT for the Z-interference channel
    - DMT for ARQ over the Z-interference channel

- Cooperative Communications
  - Design of distributed space-time codes (DSTC)
  - Design of distributed space-frequency codes (DSFC)
- Source and Channel Diversity over Relay Channels
  - Distortion exponent for source and channel diversities achieving schemes
  - Selecting the optimum number of relays for cooperation
  - Optimal rate allocation between source and channel encoders
- Blind Channel Estimation in OFDM and MIMO-OFDM Systems
  - Subspace decomposition based algorithms
  - Finite alphabet based algorithms

Grants

- **Qatari National Research Program (NRP), the QRDI-OOREDOO Joint Funding on Future Communications Call (FCC)**, PI
  Project Title: Towards AI-Native 6G: Agentic AI MultiAgent Framework for Self Evolving Network Optimization
  Fund Amount: 1,000,000 QAR (around 274,000 USD)
  Duration: 2026 - 2028
- **Purdue University**, PI
  Project Title: Basic Research in Communication Systems and Sensors
  Fund Amount: 518,200 USD
  Duration: November 2022 - September 2028
- **Egypt-China Cooperation Program**, Co-PI
  Project Title: Research on Key Technologies of High Reliability Enhancement for 6G Wireless Network
  July 2025 - June 2027
- **The American University in Cairo: AUC Climate Change Initiative**, Co-PI
  Project Title: An integrated analysis of green modes of mobility in new urban communities
  May 2022
- **German-Egyptian progress partnership; short-term measures**, Co-PI
  Project Title: Intelligent Industrial Internet-of-Things (I3oT)
  September 2021 - December 2021
- **The American University in Cairo: The Bartlett Family Grant**, Co-PI
  Project Title: Surviving Cancer to Die of Heart Disease? Predicting when Stopping this Killer Disease will Stop Hearts
  Feb. 2020 - Jan. 2023
- **German-Egyptian progress partnership; short-term measures**, Co-PI
  Project Title: Improving the Transformation to Reliable Wireless Communication or the Internet of Things
  September 2019 - December 2019
- **The American University in Cairo: The Bartlett Family Grant**
  Project Title: Short Visit to Princeton University
  April 2019
- **The American University in Cairo**, PI
  Project Title: Machine Learning-Based LTE Network Optimization and Capacity Forecasting and Planning
  Fund Amount: 510,240 EGP
  Duration: two years, July 2018 - June 2020

- ◇ **The Swedish Foundation for International Cooperation in Research and Higher Education (STINT)**, Co-PI
  Project Title: Collaboration between Sweden and Egypt to improve reliability and security for Internet of Things technology and its applications
  Fund Amount: 17,000 USD
  Duration: April 2018 - February 2019
- ◇ **National Telecommunications Regulatory Agency (NTRA)**, Co-PI
  Project Title: CRC: Collaborative Research and Teaching Testbed for Wireless Communications and Networks-Phase II
  Fund Amount: 2,901,400 EGP
  Duration: August 2017 - April 2019
- ◇ **National Telecommunications Regulatory Agency (NTRA)**, Consultant
  Project Title: Cognitive Radio Cloud (CRC): Enabling a Collaborative Environment for Wireless Communication and Networking Research
- ◇ **Qatar National Research Fund (QNRF)**, Co-PI
  Project Title: A New Layered Transmission Approach for Next Generation Communication Networks
  Fund Amount: 1,014,107 USD
  Duration: Jan. 2013 - Dec. 2015
- ◇ **Intel Labs University Research Office (URO)**, Co-PI
  Project Title: Reliable low-power wireless communication architectures for smart grid and factory automation applications
  Fund Amount: 40,000 USD
  Duration: Sept. 2012 - May 2014
- ◇ AUC Internal Grants
  - Conference Travel Grant: WCNC 2012, WCNC 2014, DySPAN 2014, Globecom 2014, Globecom 2015, WCNC 2016, ISIT 2016, ICC 2017, Globecom 2018, CCNC 2020
  - Teaching Enhancement Grant to attend the ABET Accreditation Workshop, 2013

Publications

- ◇ **Books**
  - **K. G. Seddik**, Diversity in Cooperative Networks: How to Achieve and Where to Exploit?, VDM-Verlag, 2008 (my Ph.D. Thesis)

- ◇ **Book Chapters**
  - A. Elzanati, M. Abdelkader, and **K. G. Seddik**, "A Collaborative Approach for Compressive Spectrum Sensing," in "Software-Defined and Cognitive Radio Technologies for Dynamic Spectrum Access and Management," IGI Global, 2014

- ◇ **Journal Papers**

1. M. Hagag, K. H. El-Gendy, B. Zyoud, T. Jones, **K. G. Seddik**, and D. Peroulis, "Integrated Superconducting High-Q Seamless Cavity for Quantum Memory and Qubit Readout Applications", *IEEE Transactions on Quantum Engineering*, vol. 7, art. no. 5100116, 2026
2. A. Abdelraheem, M. M. Elesawy, A. D. Santiago-Vargas, **K. G. Seddik**, and D. Peroulis, "Miniature Scanning Chern Topological Antenna with Eliminated Trivial Photonic-Crystal-Insulator", *IEEE Open Journal of Antennas and Propagation*, vol. 7, no. 3, pp. 996-1008, June 2026

3. M. AlaaEldin, M. Al-Jarrah, X. Mu, E. Alsusa, **K. G. Seddik**, and M. Matthaiou, "RIS-enabled Multi-user M-QAM Uplink NOMA Systems: Design, Analysis, and Optimization", *IEEE Transactions on Communications*, vol. 74, pp. 6043–6058, March 2026
4. A. AlAlwani, K. Banawan, **K. G. Seddik**, and M. Karmoose, "Scalable User Association with Least-Conflict Pilot Assignment in Cell-Free Massive MIMO", *IEEE Wireless Communications Letters*, vol. 15, pp. 1055–1059, 2026
5. A. Elbakary, C. Ben Issaid, T. ElBatt, **K. G. Seddik**, and M. Bennis, "MIRA: A Method of Federated MultI-Task Learning for LaRge LAnguage Models", *IEEE Networking Letters*, vol. 7, no. 3, pp. 171–175, Sept. 2025
6. A. Abdelraheem, D. Peroulis, D. Eroglu, and **K. G. Seddik** , "Multipolar On-Resonance Interference for Super-Gain Electrically Small Dielectric Resonator Antenna (ESDRA) Design", *IEEE Open Journal of Antennas and Propagation*, vol. 6, no. 4, pp. 1135–1155, Aug. 2025
7. M. Hagag, T. Jones, **K. G. Seddik**, and D. Peroulis, "Nonreciprocal Signal Growth in Space-Time Modulated Transmission Lines", *Scientific Reports*, 15, (1899) 2025
8. M. Alaa ElDin, E. Alsusa, M. Al-jarrah, **K. G. Seddik**, and M. Matthaiou, "Generalized BER Performance Analysis for SIC-based Uplink NOMA", *IEEE Open Journal of the Communications Society*, vol. 6, pp. 1246–1265, 2025
9. M. Hagag, T. Jones, **K. G. Seddik**, and D. Peroulis, "Signal Growth in a Pure Time-Modulated Transmission Line and the Loss Effect", *Royal Society Open Science*, vol. 11, no. 11, Nov. 2024
10. M. Alaa ElDin, E. Alsusa, **K. G. Seddik**, M. Al-jarrah, and C. Papadias, "Optimization of Energy-Constrained IRS-NOMA Using a Complex Circle Manifold Approach", *IEEE Internet of Things Journal*, vol. 11, no. 20, pp. 33133–33150, Oct. 2024
11. B. Gabr, A. H. Sakr, H. ElSawy, **K. G. Seddik**, and W. Mesbah, "Hybrid k-preemptive Transmission Scheme for Minimal Age of Information in IoT Networks", *IEEE Wireless Communications Letters*, vol. 13, no. 9, pp. 2342–2346, Sept. 2024
12. M. A. ElMossallamy, M. Pan, R. Jäntti, **K. G. Seddik**, G. Y. Li, and Z. Han, "Noncoherent Frequency Shift Keying for Ambient Backscatter over OFDM Signals ," *IEEE Open Journal of the Communications Society*, vol. 5, pp. 5219–5231, 2024
13. B. Salama, A. Elgharably, M. Aboelwafa, G. Alsuhli, K. Banawan, and **K. G. Seddik**, "Self-Optimized Agent for Load Balancing and Energy Efficiency: A Reinforcement Learning Framework with Hybrid Action Space", *IEEE Open Journal of the Communications Society*, vol. 5, pp. 4902–4919, 2024
14. M. M. El-Husseiny, I. Mashaly, N. Azouz, N. Sakr, **K. G. Seddik**, and S. Atallah, "Exploring sustainable urban mobility in Africa/MENA universities towards intersectional future research", *Transportation Research Interdisciplinary Perspectives, Elsevier*, vol. 26, July 2024
15. K. Banawan, A. Arafa, and **K. G. Seddik**, "Multi-Process Estimation Over Erasure Channels With and Without Feedback", *IEEE Journal on Selected Areas in Information Theory*, vol. 4, pp. 607–623, Nov. 2023
16. G. Alsuhli, K. A. Banawan, K. M. Attiah, A. Elezabi, **K. G. Seddik**, A. Gaber, M. Zaki, and Y. Gadallah, "Mobility Load Management in Cellular Networks: A Deep Reinforcement Learning Approach", *IEEE Transactions on Mobile Computing*, vol. 22, no. 3, pp. 1581–1598, March 2023
17. M. Nomeir, Y. Gadallah, and **K. G. Seddik**, "Machine Learning-Based Uplink Scheduling Approaches for Mixed Traffic in Cellular Systems", *IEEE Access*, vol. 11, pp. 10238–10253, Jan. 2023
18. M. Alaa ElDin, E. Alsusa, and **K. G. Seddik**, "IRS-Assisted Physical Layer Network Coding over Two-Way Relay Fading Channels", *IEEE Transactions On Vehicular Technology*, vol. 71, no. 8, pp. 8424–8440, August 2022
19. **K. G. Seddik**, "On the Degrees of Freedom of IRS-Assisted Non-coherent MIMO Communications", *IEEE Communications Letters*, vol. 26, no. 5, pp. 1175–1179, May 2022

20. M. ElMossallamy, R. Sultan, **K. G. Seddik**, G. Y. Li, and Z. Han, "Maximizing Dirty-Paper Coding Rate of RIS-assisted Multi-User MIMO Broadcast Channels", *Intelligent and Converged Networks*, vol. 3, no. 1, pp. 64–73, March 2022
21. M. Alaa ElDin, E. Alsusa, **K. G. Seddik**, and W. Mesbah, "AoD-Adaptive Channel Feedback for FDD Massive MIMO Systems with Multiple-Antenna Users", *IEEE Access*, vol. 10, pp. 4431–4447, Jan. 2022
22. A. Arafa, K. Banawan, **K. G. Seddik**, and H. V. Poor, "Sample, Quantize and Encode: Timely Estimation Over Noisy Channels", *IEEE Transactions On Communications*, vol. 69, no. 10, pp. 6485–6499, Oct. 2021
23. R. Sultan, **K. G. Seddik**, Z. Han, and B. Aazhang, "Joint Transmitter-Receiver Optimization and Self-interference Suppression in Full-Duplex MIMO Systems", *IEEE Transactions On Vehicular Technology*, vol. 70, no. 7, pp. 6913–6929, July 2021
24. M. ElMossallamy, **K. G. Seddik**, W. Chen, L. Wang, G. Y. Li, and Z. Han, "RIS Optimization on the Complex Circle Manifold for Interference Mitigation in Interference Channels", *IEEE Transactions On Vehicular Technology*, vol. 70, no. 6, pp. 6184–6189, June 2021
25. M. ElMossallamy, H. Zhang, R. Sultan, **K. G. Seddik**, L. Song, G. Y. Li, and Z. Han, "On Spatial Multiplexing Using Reconfigurable Intelligent Surfaces", *IEEE Wireless Communications Letters*, vol. 10, no. 2, pp. 226–230, Feb. 2021
26. K. M. Attiah, **K. G. Seddik**, and R. Gohary, "Differential Unitary Space-Time Constellations from Spherical Codes", *IEEE Wireless Communications Letters*, vol. 9, no. 11. pp. 1909–1913, Nov. 2020
27. M. Aboelwafa, **K. G. Seddik**, M. Eldefrawy, Y. Gadallah and M. Gidlund, "A Machine Learning-Based Technique for False Data Injection Attacks Detection in Industrial IoT", *IEEE Internet of Things Journal*, vol. 7, no. 9, pp. 8462–8471, Sept. 2020
28. M. A. ElMossallamy, H. Zhang, L. Song, **K. G. Seddik**, Z. Han and G. Y. Li, "Reconfigurable Intelligent Surfaces for Wireless Communications: Principles, Challenges, and Opportunities", *IEEE Transactions on Cognitive Communications and Networking*, vol. 6, no. 3, pp. 990–1002, Sept. 2020
29. S. Attalla, **K. G. Seddik**, A. El-Sherif and S. Rabia, "Hybrid ARQ-CQI Feedback-Based Access Scheme in Cognitive Radio Networks", *IEEE Transactions on Cognitive Communications and Networking*, vol. 6, no. 2, pp. 728–739, June 2020
30. R. Sultan, L. Song, **K. G. Seddik**, and Z. Han, "Joint Resource Management with Distributed Uplink Power Control in Full-Duplex OFDMA Networks", *IEEE Transactions on Vehicular Technology*, vol. 69, no. 3, pp. 2850–2863, March 2020
31. A. Gaber, E. Youssef, M. R. M. Rizk, M. Salman, **K. G. Seddik**, "Cooperative Delay-Constrained Cognitive Radio Networks: Delay-Throughput Trade-off with Relaying Full-Duplex Capability," *IEEE Access*, vol. 8, pp. 9157–9171, Jan. 2020
32. M. Elwekeil, M. Abdalzaher, **K. G. Seddik**, "Prolonging Smart Grid Network Lifetime through Optimizing Number of Sensor Nodes and Packet Length," *IET Communications*, vol. 13, no. 16, pp. 2478–2484, Oct. 2019
33. M. Abdel-Malek, **K. G. Seddik**, T. ElBatt and Y. Mohasseb,"Effective Capacity Optimization for Cognitive Radio Networks Under Primary QoS Provisioning," *Wireless Networks, Springer*, April 2019
34. M. A. ElMossallamy, Z. Han, M. Pan, R. Jäntti, **K. G. Seddik** and G. Y. Li,"Noncoherent Backscatter Communications over Ambient OFDM Signals," *IEEE Transactions on Communications*, vol. 57, no. 5, pp. 3597–3611, May 2019
35. M. Awad, **K. G. Seddik**, and A. Elezabi, "Low-Complexity Semi-Blind Channel Estimation Algorithms for Vehicular Communications using the IEEE 802.11p Standard," *IEEE Transactions on Intelligent Transportation Systems*, vol. 20, no. 5, pp. 1739–1748, May 2019

36. M. Aboelwafa, M. Abd-Elmagid, A. Biason, **K. G. Seddik**, T. ElBatt and M. Zorzi, "Towards Optimal Resource Allocation in Wireless Powered Communication Networks with Non-Orthogonal Multiple Access," *Elsevier Ad Hoc Networks*, vol. 85, pp. 1–10, March 2019
37. M. A. ElMossallamy, **K. G. Seddik** and R. Gohary, "Multi-resolution Multicasting Using Grassmannian Codes and Space Shift Keying," *IEEE Transactions on Vehicular Technology*, vol. 68, no. 1, pp. 988–992, Jan. 2019
38. A. Guirguis, F. Digham, **K. G. Seddik**, M. Ibrahim, K. A. Harras, and M. Youssef, "Primary User-aware Optimal Discovery Routing for Cognitive Radio Networks," *IEEE Transactions on Mobile Computing*, vol. 18, no. 1, pp. 193–206, Jan. 2019
39. M. Abd-Elmagid, T. ElBatt, **K. G. Seddik**, and O. Ercetin,"Stable Throughput of Cooperative Cognitive Networks with Energy Harvesting: Finite Relay Buffer and Finite Battery Capacity," *IEEE Transactions on Cognitive Communications and Networking*, vol. 4, no. 4, pp. 704–718, Dec. 2018
40. S. Attalla, **K. G. Seddik**, A. El-Sherif and S. Rabia, "Soft-Sensing CQI Feedback-Based Access Scheme in Cognitive Radio Networks," *IEEE Transactions on Cognitive Communications and Networking*, vol. 4, no. 3, pp. 486–499, Sept. 2018
41. M. Abd-Elmagid, T. ElBatt and **K. G. Seddik**,"Optimization of Energy-Constrained Wireless Powered Communication Networks with Heterogeneous Nodes," *Wireless Networks, Springer*, Sept. 2017
42. **K. G. Seddik**, R. Gohary, M. T. Hussien, M. Shaqfeh, H. Alnuweiri and H. Yanikomeroglu, "Multi-Resolution Multicasting Over the Grassmann and Stiefel Manifolds," *IEEE Transactions on Wireless Communications*, vol. 16, no. 8, pp. 5296–5310, August 2017
43. A. M. Elmahdy, A. El-Keyi, Y. Mohasseb, T. ElBatt, M. Nafie, **K. G. Seddik**, and T. Khattab, "Degrees of Freedom of the Full-Duplex Asymmetric MIMO 3-Way Channel with Unicast and Broadcast Messages," *IEEE Transactions on Communications*, vol. 65, no. 8, pp. 3276–3287, August 2017
44. M. S. Abdalzaher, **K. G. Seddik** and O. Muta, "Using Stackelberg game to enhance cognitive radio sensor networks security," *IET Communications*, vol. 11, no. 9, pp. 1503–1511, June 2017
45. A. M. Elmahdy, A. El-Keyi, T. ElBatt and **K. G. Seddik**, "Optimizing Cooperative Cognitive Radio Networks Performance with Primary QoS Provisioning," *IEEE Transactions on Communications*, vol. 65, no. 4, pp. 1451–1463, April 2017
46. R. Sultan, L. Song, **K. G. Seddik**, and Z. Han, "Full-Duplex Meets Multiuser MIMO: Comparisons and Analysis," *IEEE Transactions on Vehicular Technology*, vol. 66, no. 1, pp. 455–467, Jan. 2017
47. A. Anwar, **K. G. Seddik**, T. ElBatt and A. Zahran, "Effective Capacity of Delay Constrained Cognitive Radio Links Exploiting Primary Feedback," *IEEE Transactions on Vehicular Technology*, vol. 65, no. 9, pp. 7334–7348, Sept. 2016
48. M. Salah, **K. G. Seddik**, M. Elsabrouty, O. Muta, H. Furukawa, A. Abdel-Rahman, "Game Theory MeetsWireless Sensor Networks Security Requirements and Threats Mitigation: A Survey," *Sensors*, vol. 16, no. 7, June 2016
49. Y. H. Ezzeldin and **K. G. Seddik**,"Pseudo-Lattice Treatment for Subspace Aligned Interference Signals," *IEEE Transactions on Vehicular Technology*, vol. 63, no. 9, pp. 4729–4734, Nov. 2014
50. A. Arafa, **K. G. Seddik**, A. K. Sultan, T. ElBatt and A. A. El-Sherif, "A Feedback- Soft Sensing-Based Access Scheme for Cognitive Radio Networks," *IEEE Transactions on Wireless Communications*, vol. 12, no. 7, pp. 3226–3237, July 2013
51. A. Y. Al-Nahari, **K. G. Seddik**, M. I. Dessouky, and F. E. Abd El-Samie, "Distributed Space-Frequency Coding for Cooperative Diversity over Broadband Relay Channels with DF Relaying," *IEEE Transactions on Vehicular Technology*, vol. 61, no. 7, pp. 3266–3272, Sept. 2012

52. **K. G. Seddik**, A. Kwasinski, and K. J. R. Liu, "Asymptotic Distortion Performance of Source-Channel Diversity over Multi-Hop and Relay Channels," *IEEE Transactions on Mobile Computing*, vol. 9, no. 2, pp. 270–287, Feb. 2010
53. A. S. Ibrahim, **K. G. Seddik**, and K. J. R. Liu, "Connectivity-Aware Network Maintenance and Repair via Relays Deployment," *IEEE Transactions on Wireless Communications*, vol. 8, no. 1, pp. 356–366, Jan. 2009
54. **K. G. Seddik** and K. J. R. Liu, "Distributed Space-Frequency Coding over Broadband Relay Channels," *IEEE Transactions on Wireless Communications*, vol. 7, no. 11, pp. 4748–4759, Nov. 2008
55. **K. G. Seddik**, A. K. Sadek, A. S. Ibrahim, and K. J. R. Liu, "Design Criteria and Performance Analysis for Distributed Space-Time Coding," *IEEE Transactions on Vehicular Technology*, vol. 57, no. 4, pp. 2280–2292, July 2008
56. **K. G. Seddik**, A. S. Ibrahim, and K. J. R. Liu, "Trans-Modulation in Wireless Relay Networks," *IEEE Communications Letters*, vol. 12, no. 3, pp. 170–172, March 2008
57. **K. G. Seddik**, A. K. Sadek, W. Su, and K. J. R. Liu, "Outage Analysis and Optimal Power Allocation for Multi-Node Relay Networks," *IEEE Signal Processing Letters*, vol. 14, no. 6, pp. 377–380, June 2007

◇ **Conference Papers**

58. M. Madany, **K. G. Seddik**, and Tamer ElBatt, "Defending Federated Learning against Model Poisoning under Client Dropout," IEEE 24th Consumer Communications & Networking Conference (CCNC), Las Vegas, USA, Jan. 2027
59. A. M. AlAlwani, K. A. Banawan, M. Karmoose, and **K. G. Seddik**, "Adaptive Association for Cell-Free Massive MIMO Under Fronthaul Capacity Constraints," IEEE 24th Consumer Communications & Networking Conference (CCNC), Las Vegas, USA, Jan. 2027
60. A. M. AlAlwani, M. G. Khafagy, K. A. Banawan, M. Aboelwafa, A. Gaber, and **K. G. Seddik**, "Throughput-Aware Hierarchical Energy Saving in Cellular Networks via Joint MIMO Reconfiguration and Capacity-Cell Sleep," IEEE 24th Consumer Communications & Networking Conference (CCNC), Las Vegas, USA, Jan. 2027
61. F. Abouelghit and **K. G. Seddik**, "Reward Shaping for Reinforcement Learning-based Placement and Power Allocation of Flying Base Stations," IEEE Future Networks World Forum (FNWF), Lisbon, Portugal, Oct. 2026
62. A. El Soukkary and **K. G. Seddik**, "RL-Based Mobility Load Balancing for Energy Efficiency in Multi-Band Cellular Systems," IEEE 37th Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Singapore, Singapore, Aug. 2026
63. A. Mostafa, M. M. Elesawy, **K. G. Seddik**, A. Abdelraheem, and D. Peroulis, "A Self-Matched Topological Waveguide Antenna," the 2026 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Detroit, Michigan, USA, July 2026
64. M. M. Elesawy, A. Abdelraheem, A. D. Santiago-Vargas, **K. G. Seddik**, and D. Peroulis, "Dispersion-Engineered Compact Chern Topological Leaky-Wave Antenna," the 2026 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Detroit, Michigan, USA, July 2026
65. A. Hany, K. Banawan, N. Sakr, **K. G. Seddik**, and T. ElBatt, "Communication-Efficient State Synchronization for Stable Second-Order Federated Learning," International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt), Columbus, USA, June 2026
66. F. Abouelghit and **K. G. Seddik**, "Genetic Algorithm-Based Placement and Resource Allocation For Flying Base Stations," IEEE Middle East Conference on Communications and Networking (IEEE MECOM), Cairo, Egypt, Nov. 2025

67. A. El Soukkary and **K. G. Seddik**, "Energy Efficient Load Balancing in Multiband Cellular Networks via Reinforcement Learning," IEEE 36th Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Istanbul, Turkey, Sept. 2025
68. A. M AlAlwani, A. M. Itman, A. Gaber, M. Zaki, M. G. Khafagy, K. A. Banawan, and **K. G. Seddik**, "Traffic-Aware Base Station Sleep Threshold Design with User Throughput Guarantees," IEEE 11th International Conference on Network Softwarization (NetSoft), Budapest, Hungary, June 25
69. S. Abouamasha, M. Aboelwafa, and **K. G. Seddik**, "Load Balancing and Energy Efficiency in Cellular Networks With a Scenario-Aware Reinforcement Learning Agent", IEEE Communications and Networking Conference (WCNC), Milano, Italy, March 2025
70. A. Elgharably, M. Aboelwafa, K. Banawan, and **K. G. Seddik**, "Hierarchical Multi-Agent Reinforcement Learning Framework for Cellular Mobility Load Management", IEEE 22nd Consumer Communications & Networking Conference (CCNC 2025), Las Vegas, USA, Jan 25
71. M. Hagag, T. Jones, **K. G. Seddik**, and D. Peroulis, "Signal amplification in time-modulated RF components with infinite superluminality", the 2024 IEEE International Symposium on Antennas and Propagation and ITNC-USNC-URSI Radio Science Meeting (IEEE AP-S/URSI), Florence, Italy, July 2024
72. A. Abdelraheem, **K. G. Seddik**, and D. Peroulis, "Electrically Small Antenna Based on Low Order Mie-Resonances", the 2024 IEEE International Symposium on Antennas and Propagation and ITNC-USNC-URSI Radio Science Meeting (IEEE AP-S/URSI), Florence, Italy, July 2024
73. A. Elbakary, C. Ben Issaid, M. Shehab, **K. G. Seddik**, T. ElBatt, and M. Bennis, "Fed-Sophia: A Communication-Efficient Second-Order Federated Learning Algorithm", IEEE International Conference on Communications (ICC), Denver, USA, June 2024
74. M. Alaa ElDin, E. Alsusa, and **K. G. Seddik**, "Design of IRS-Assisted Non-Binary Channel-Coded Physical Layer Network Coding", IEEE 97th Vehicular Technology Conference: VTC2023-Spring, Florence, Italy, June 2023
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116. A. M. Elmahdy, A. El-Keyi, Y. Mohasseb, T. ElBatt, M. Nafie and **K. G. Seddik**, "Asymmetric Degrees of Freedom of the Full-Duplex MIMO 3-Way Channel," IEEE Information Theory Workshop (ITW), Cambridge, United Kingdom, Sept. 2016

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126. M. T. Hussien, **K. G. Seddik**, R. Gohary, M. Shaqfeh, H. Alnuweiri and H. Yanikomeroglu, "Space-Time Block Codes over the Stiefel Manifold," IEEE Global Telecommunications Conference (GLOBECOM), San Diego, CA, USA, Dec. 2015

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131. A. Anwar, **K. G. Seddik**, T. ElBatt and A. Zahran, "On the Effective Capacity of Delay Constrained Cognitive Radio Networks with Relaying Capability," Crowncom Workshops - Cognitive Radio for 5G Networks, Doha, Qatar, April 2015 [invited]

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138. A. Ismail and **K. G. Seddik**, "A Mixed-Method Approach to Fault Tolerance and Management for Resilient Hierarchical Routing," the 6th International Congress on Ultra Modern Telecommunications and Control Systems (ICUMT), St. Petersburg, Russia, Oct. 2014.

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140. A. Ismail and **K. G. Seddik**, "The Design and Implementation of a Constrained WSN for Permaculture Farming in Egypt," IEEE International Conference on Emerging Technologies and Factory Automation (ETFA), Barcelona, Spain, Sept. 2014

141. A. Elzanati, M. Abdelkader, **K. G. Seddik** and A. Ghuniem, "Adaptive Spectrum Hole Detection Using Sequential Compressive Sensing," the International Wireless Communications and Mobile Computing Conference (IWCMC 2014), Nicosia, Cyprus, Aug. 2014

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Professional Activities

- ◇ Senior Member, IEEE
- ◇ Guest Associate Editor for Frontiers in Communications and Networks; research topic: AI for Physical Layer Wireless Techniques, 2027
- ◇ President, The Egyptian Committee for the International Union of Theoretical and Applied Mechanics (EC-IUTAM), March 2023 - June 2025
- ◇ Editor on the inaugural Editorial Board of the IEEE Transactions on Machine Learning in Communications and Networking
- ◇ Associate Editor for Frontiers in Communications and Networks - Specialty Area: Data Science for Communications
- ◇ Member of The Honor Society of Phi Kappa Phi
- ◇ IEEE Student Branch Advisor (American University in Cairo), 2019-2020
- ◇ Student Branch Advisor (Alexandria University), IEEE Alexandria & North Delta Subsection, 2010-2011
- ◇ IEEE Egypt/Alexandria Subsection Committee Member, Membership Development, 2010-2013
- ◇ Keynote Speaker
  - The IEEE Conference on the Intelligent Methods, Systems, and Applications (IMSA), Cairo, Egypt, 2023
- ◇ Conference Organizing Committees
  - Track Chair: 2025 IEEE Middle East Conference on Communications and Networking (MECOM)

- Workshops' Co-Chair: 16th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous), 2019

◇ Technical Program Committee (TPC)

- IEEE Wireless Communication and Networking Conference (WCNC), 2027
- ACM/IEEE International Conference on Cyber-Physical and Autonomous Systems (HSCC+ICCPS), 2027
- IEEE World Forum on Internet of Things (WF-IoT), 2026
- IEEE Conference on Standards for Communications and Networking (CSCN), 2026
- International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2026
- IEEE Global Telecommunications Conference (GLOBECOM), 2026
- IEEE Vehicular Technology Conference (VTC-Spring), 2026
- IEEE Symposium on Computers and Communications (IEEE-ISCC), 2026
- The International Conference on Communications, Signal Processing, and their Applications (ICCSPA), 2026
- IEEE Wireless Communication and Networking Conference (WCNC), 2026
- International Conference on Telecommunications (ICT), 2026
- IEEE Conference on Standards for Communications & Networking (IEEE CSCN), 2025
- IEEE Global Telecommunications Conference (GLOBECOM), 2025
- IEEE Symposium on Computers and Communications (ISCC), 2025
- International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2025
- The International Wireless Communications and Mobile Computing Conference (IWCMC), 2025
- IEEE ICC 2025 Seventh International Workshop on Data Driven Intelligence for Networks and Systems (DDINS), 2025
- IEEE World Forum on Internet of Things (WF-IoT), 2025
- IEEE Vehicular Technology Conference (VTC-Spring), 2025
- IEEE Wireless Communication and Networking Conference (WCNC), 2025
- IEEE Conference on Standards for Communications & Networking (IEEE CSCN), 2024
- IEEE World Forum on Internet of Things (WF-IoT), 2024
- IEEE Canadian Conference on Electrical and Computer Engineering (CCECE), 2024
- International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2024
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2024
- IEEE ICC Workshop on AI-ML-Powered Autonomous Telco Networks (IEEE ICC 2024 Workshop - APATN), 2024
- The International Wireless Communications and Mobile Computing Conference (IWCMC), 2024
- IEEE ICC 2024 Sixth International Workshop on Data Driven Intelligence for Networks and Systems (DDINS), 2024
- IEEE Symposium on Computers and Communications (ISCC), 2024
- IEEE Wireless Communication and Networking Conference (WCNC), 2024

- The 6th International Conference on Communications, Signal Processing, and their Applications (ICCSPA), 2024
- IEEE Conference on Standards for Communications and Networking (CSCN), 2023
- IEEE Future Networks World Forum (FNWF), 2023
- The International Wireless Communications and Mobile Computing Conference (IWCMC), 2023
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2023
- International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2023
- IEEE Vehicular Technology Conference (VTC-Spring), 2023
- IEEE Wireless Communication and Networking Conference (WCNC), 2023
- IEEE Vehicular Technology Conference (VTC-Fall), 2022
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2022
- International Workshop on e-Health Pervasive Wireless Applications and Services (eHPWAS), 2022
- IEEE Future Networks World Forum (IEEE FNWF), 2022
- IEEE International Mediterranean Conference on Communications and Networking (IEEE MeditCom), 2022
- International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2022
- The International Wireless Communications and Mobile Computing Conference (IWCMC), 2022
- IEEE Vehicular Technology Conference (VTC-Spring), 2022
- IEEE ICC Workshop, IEEE International Workshop on Data Driven Intelligence for Networks and Systems (DDINS), 2022
- IEEE Wireless Communication and Networking Conference (WCNC), 2022
- IEEE 5G World Forum, 2021
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2021
- International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2021
- The International Wireless Communications and Mobile Computing Conference (IWCMC), 2021
- IEEE Vehicular Technology Conference (VTC-Spring), 2021
- IEEE Wireless Communication and Networking Conference (WCNC), 2021
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2020
- IEEE 5G World Forum, 2020
- International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2019
- IEEE Vehicular Technology Conference (VTC-Fall), 2019
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2019

- IEEE 5G World Forum, 2019
- IEEE Wireless Communication and Networking Conference (WCNC), 2019
- The International Wireless Communications and Mobile Computing Conference (IWCMC), 2019
- IEEE Global Telecommunications Conference (GLOBECOM), 2018
- International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2018
- IEEE Globecom Workshop on Emerging Technologies for 5G Wireless Cellular Networks, 2018
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2018
- The International Wireless Communications and Mobile Computing Conference (IWCMC), 2018
- IEEE Vehicular Technology Conference (VTC-Spring), 2018
- IEEE 5G WORLD FORUM (WF-5G), 2018
- IEEE Global Telecommunications Conference (GLOBECOM), 2017
- IEEE Globecom Workshop on Emerging Technologies for 5G Wireless Cellular Networks, 2017
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2017
- IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2017
- The International Wireless Communications and Mobile Computing Conference (IWCMC), 2017
- IEEE Globecom Workshop on Emerging Technologies for 5G Wireless Cellular Networks, 2016
-
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2016
- IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2016
- International Workshop on the M2M and H2H Communications, 2016
- IEEE Global Telecommunications Conference (GLOBECOM), 2015
- IEEE Globecom Workshop on Emerging Technologies for 5G Wireless Cellular Networks, 2015
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2015
- IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2015
- International Conference on Cognitive Radio Oriented Wireless Networks (CROWNCOM), 2015
- IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), 2014
- Globecom Workshop - Emerging Technologies for 5G Wireless Cellular Networks, 2014
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), 2014
- IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), 2014
- IEEE Symposium on Wireless Technology & Applications (ISWTA), 2013, 2014

  - The International Conference on Connected Vehicles & Expo (ICCVE), 2012, 2013, 2014, 2015
  - IEEE Student Conference on Research and Development (SCOReD), 2012
  - IEEE Global Telecommunications Conference (GLOBECOM), 2012
  - International Conference on Computer Communication Networks (ICCCN), 2011
  - IEEE Vehicular Technology Conference (VTC): Spring 2010, Fall 2010
  - International Wireless Communications and Mobile Computing Conference (IWCMC), 2007
- ◇ Book Proposals Reviewer: CRC Press/Taylor and Francis Group
- ◇ Reviewer for IEEE Journals
  - IEEE Transactions on Information Theory
  - IEEE Transactions on Signal Processing
  - IEEE Transactions on Communications
  - IEEE Journal on Selected Areas in Communications (JSAC)
  - IEEE Transactions on Wireless Communications
  - IEEE Communications Magazine
  - IEEE Transactions on Mobile Computing
  - IEEE Access
  - IEEE Transactions on Computers
  - IEEE Transactions on Image Processing
  - IEEE Transactions on Vehicular Technology
  - IEEE Transactions on Information Forensics and Security
  - IEEE Transactions on Network and Service Management
  - IEEE Communications Letters
  - IEEE Wireless Communications Letters
  - IEEE Signal Processing Letters
  - IEEE Transactions on Cognitive Communications and Networking
  - IEEE Journal on Selected Areas in Information Theory (JSAIT)
  - IEEE Transactions on Machine Learning in Communications and Networking
  - IEEE Transactions on Intelligent Vehicles
  - IEEE Open Journal of the Communications Society
  - IEEE Transactions on Network and Service Management
  - IEEE Networking Letters
  - The Computer Journal
- ◇ Reviewer for Computer Communications, Elsevier
- ◇ Reviewer for the Journal of Wireless Networks, Springer
- ◇ Reviewer for European Transactions on Telecommunications
- ◇ Reviewer for EURASIP Journal on Advances in Signal Processing
- ◇ Reviewer for EURASIP Journal on Wireless Communications and Networking
- ◇ Reviewer for International Journal of Communication Networks and Distributed Systems
- ◇ Reviewer for the Journal of Systems and Software, Elsevier
- ◇ Grants Reviewer
  - Egyptian National Telecommunication Regulatory Agency (NTRA) (NTRA Research Funds)

- Binational Fulbright commission in Egypt (Fulbright Egyptian Scholar Program), 2012 and 2018
- Borg El Arab Innovation Cluster Reviewers Panel (joint with ITIDA)
- Arab-Gulf Cooperation Council (GCC) Countries Engineering Students Design Competition, 2013

Former PhD and MSc Students (Advisor or Co-Advisor)

1. **Ahmed Shoukry El Soukkary, MSc 2026**
   Master Thesis Title: Energy Efficient Load Balancing in Multi-band Cellular Networks via Reinforcement Learning

2. **Shorouk Abou Amasha, MSc 2025**
   Master Thesis Title: Load Balancing in Mobile Networks Using Deep Reinforcement Learning and Traffic Prediction

3. **Mohamed T. Ismail, MSc 2022**
   Master Thesis Title: Enhanced Data Sampling and Feature Generation for Machine Learning-based Lithography Hotspot Detection

4. **Mariam Aboelwafa, PhD 2021**
   PhD Thesis Title: Network Management, Optimization and Security with Some Machine Learning Applications in Wireless Networks

5. **Mohamed W. Nomeir, MSc 2021**
   Master Thesis Title: Machine Learning Based Critical Resource Allocation in Mixed-Traffic Cellular Networks

6. **Amr Kassab, MSc 2021**
   Master Thesis Title: Latency Optimization in Smart Meter Networks

7. **Ehab Elguindy, MSc 2020**
   Master Thesis Title: Reinforcement Learning-based Access Schemes in Cognitive Radio Networks

8. **Ali Gaber, PhD 2020**
   PhD Thesis Title: Cooperative Delay-Constrained Cognitive Radio Networks with Full-Duplex Capability: Secondary User Throughput Maximization and Delay-Throughput Trade-off

9. **Sara Attalla, PhD 2020**
   PhD Thesis Title: Unequal Error Protection for Power Line Communications over Impulsive Noise Channels

10. **Kareem Attia, MSc 2019**
    MSc Thesis Title: Unequal Error Protection for Power Line Communications over Impulsive Noise Channels

11. **Mahmoud Alaa, MSc 2019**
    MSc Thesis Title: Unequal Error Protection for Power Line Communications over Impulsive Noise Channels

12. **Osama Mostafa, MSc 2018**
    Master Thesis Title: Unequal Error Protection for Power Line Communications over Impulsive Noise Channels

13. **Mahmoud El Hosainy, MSc 2017**
    Master Thesis Title: Improved Fault-Tolerant PMU Placement using Algebraic Connectivity of Graphs

14. **Mohamed Abd-Elmagid, MSc 2017**
    Master Thesis Title: Optimization of Wireless Powered Communication Networks

15. **Mohamed A. Elmossallamy, MSc 2017**
    Master Thesis Title: Noncoherent MIMO Codes for Low-Medium SNRs, and Layered MIMO Space-Time Coding for Coherent and Noncoherent Receivers

16. **Mohamed Salah, PhD 2016**
    PhD Thesis Title: Application of Game Theory for Security Requirements and Threats Mitigation in Wireless Sensor Networks

17. **Mohamed Seif, MSc 2016**
    Master Thesis Title: Interference Management in Spectrally and Energy Efficient Wireless Networks

18. **Mai A. Abdel-Malek, MSc 2015**
    Master Thesis Title: Effective Capacity and Delay Optimization in Cognitive Radio Networks

19. **Mohamed T. Hussein, MSc 2015**
    Master Thesis Title: MIMO Layered Space-Time Coding with Coherent and Non-coherent Receivers

20. **Ali G. Ali, MSc 2015**
    Master Thesis Title: Smart Grids: Cyber Attacks Joint Detection-Estimation and PMU Placement with Communication Constraints

21. **Mohamed A. Attia, MSc 2015**
    Master Thesis Title: Resource Allocation for Layered Broadcast over Relay-Assisted Channels

22. **Moustafa Medhat, MSc 2015**
    Master Thesis Title: Channel Estimation and Tracking Algorithms for Vehicle to Vehicle Communications

23. **Ahmed Bedewy, MSc 2015**
    Master Thesis Title: Cognitive MAC Design with Cooperation and Energy Harvesting

24. **Yahya Ezzeldin, MSc 2014**
    Master Thesis Title: Lattices in Wireless Communications: Interference Alignment and Lattice-based LDPC Codes

25. **Ramy Ali, MSc 2014**
    Master Thesis Title: On Dynamic Spectrum Sharing: Pricing and Energy-Based Secondary Spectrum Access

26. **Ahmed Ismail, MSc 2014**
Master Thesis Title: Feasibility Study on the Design and Implementation of a Constrained WSN for Permaculture Farming in Egypt

27. **Ahmed Alwakeel, MSc 2014**
Master Thesis Title: Performance Improvement of Compressive Data Gathering in Wireless Sensor Networks

28. **Radwa Sultan, MSc 2013**
Master Thesis Title: Exploiting Spatial Holes in Wireless Communication Systems

29. **Feeby Salib, 2013**
Master Thesis Title: Some MIMO Applications in Cognitive Radio Networks

30. **Mohammed Karmoose, MSc 2013**
Master Thesis Title: Censoring for Distributed Detection Systems in Wireless Sensors Networks

31. **Islam El Bakoury, MSc 2013**
Master Thesis Title: Resource Allocation for Different Relaying Protocols in Cooperative Communications

32. **Ahmed Zanaty, MSc 2013**
Master Thesis Title: Collaborative Approaches for Compressive Spectrum Sensing in Cognitive Radio Networks

33. **Ahmed Arafa, MSc 2012**
Master Thesis Title: Feedback-Based Access Schemes for Cognitive Radio Networks

34. **Noha Helal, MSc 2012**
Master Thesis Title: Cooperative Relaying in Cognitive Radio Networks

35. **Mohammed Nafea, MSc 2012**
Master Thesis Title: On the Z-interference Channel: Diversity-Multiplexing-Delay Tradeoff

36. **Mohammed Zakaria Ibrahim, MSc 2011**
Master Thesis Title: Spectrum Sensing in Cognitive Radio Systems

Work Experience

- **Associate Dean for Graduate Studies and Research**, (July 20 - Present)
School of Sciences and Engineering (SSE)
American University in Cairo (AUC), Egypt
- **PhD Programs Graduate Director**, (July 20 - Present)
School of Sciences and Engineering (SSE)
American University in Cairo (AUC), Egypt
- **Youssef Jameel Science and Technology Research Center (YJ-STRC) Director**, (July 20 - Present)
School of Sciences and Engineering (SSE)
American University in Cairo (AUC), Egypt
- **Professor**, (July 19 - Present)
American University in Cairo (AUC), Egypt

- ◇ **Associate Chair**, (Feb. 18 - Present)
  Electronics and Communications Engineering Department
  American University in Cairo (AUC), Egypt
- ◇ **Associate Professor**, (July 15 - June 2019)
  American University in Cairo (AUC), Egypt
- ◇ **Assistant Professor**, (Sept. 11 - June 15)
  American University in Cairo (AUC), Egypt
  Teaching the courses: Fundamentals of Communications I, Fundamentals of Communications II, Enabling Technologies for High Data Rate Communications, Estimation, Classification and Detection Theory, and Information Theory and Coding.
  Conducting research in the areas of wireless communications and networking.
- ◇ **Member of Department ABET Committee**, (April 13 - Dec. 14)
  Electronics and Communications Engineering Department
  American University in Cairo (AUC), Egypt
- ◇ **Graduate Director**, (Aug. 13 - Present)
  Electronics and Communications Engineering Department
  American University in Cairo (AUC), Egypt
- ◇ **Acting Graduate Director**, (Jan. 13 - Aug. 13)
  Electronics and Communications Engineering Department
  American University in Cairo (AUC), Egypt
- ◇ **Assistant Professor**, (Oct. 10 - Aug. 11)
  Nile University, Egypt
  Teaching the courses: Estimation and Detection (Fall 10), Digital Communications (Spring 11).
  Conducting research in the areas of wireless communications and networking.
- ◇ **Assistant Professor**, (May 08 - Aug. 11)
  Department of Electrical Engineering, Alexandria University, Egypt.
  Teaching the courses: Modern Physics, Electronics.
- ◇ **Senior Systems Engineer + Consultant**, (Dec. 08 - June 2015)
  WiMatek Systems Inc.- VarkonSemi
  Developing a complete baseband implementation for the LTE system user equipment (UE). The implementation supports up to two transmit antennas and up to 4×2 implementation for the downlink.
- ◇ **Visiting Assistant Professor**, (March 09 - May 09, March 10 - May 10)
  Department of Electrical Engineering, Beirut Arab University, Lebanon.
  Teaching the following courses: Digital Communications, Wireless Communications, Optical Communications, Microwave Devices, Communication Networks, Electromagnetic Fundamentals.
- ◇ **Future Faculty Program Teaching**, (Jan. 08 - May 08)
  Department of Electrical and Computer Engineering, University of Maryland
  As a part of my Future Faculty Program I have co-taught the Engineering Probability course.
- ◇ **Graduate Teaching Assistant**, (Jan. 08 - May 08)
  Department of Electrical and Computer Engineering, University of Maryland.
- ◇ **Research Assistant**, (Sept. 04 - Dec. 06, June 07 - Dec. 07)
  Department of Electrical and Computer Engineering, University of Maryland.
  Research topic: Diversity in Cooperative Networks: How to Achieve and Where to Exploit?
- ◇ **Graduate Teaching Fellow**, (Jan. 07 - May 07)
  Department of Electrical and Computer Engineering, University of Maryland
  Assisted in teaching the Space-Time Signal Processing graduate course.

◇ **Teaching Assistant**, (Sept. 01 - July 04) Alexandria University, Egypt
Assisted in teaching: Microprocessor Architecture, Electronic Circuits, Optical Networks Design, Logic Design, Introduction to Computers, Advanced Communication Systems.