

PERSONAL INFORMATION

Ahmed Mohammed Noreldien MARAI AHMED



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Sex Male | Date of birth | Nationality Egyptian

APPLIED FOR
WORK EXPERIENCE

Post-Doc / R&D Researcher Position in Telecommunications Engineering

14 Oct. 2021–Present

PhD Researcher & ESR with MOTOR5G Project under MSCA

Telecommunication Dept., Faculty of Electronics, Telecommunication, and Information Technology, National University of Science and Technology Politehnica Bucharest, Bucharest, Romania

- Explore, study, and perform recent research topics related 5G and beyond networks, especially in millimetre waves, terahertz bands, reflecting intelligent surfaces, positioning, radio resource management, and light fidelity.
- Publish obtained results in reputed and prestigious journals and conference proceedings, also, write reports related to these results to submit it to the project committee.
- Research and collect data relevant to future wireless networks, interpret, synthesize and analyse these data to overcome issues facing these networks.
- Plan and modify research techniques and procedures related to 5G and beyond networks.
- Prepare materials required for applying for incoming projects and proposals.
- Assist in two bachelor courses, Signal and Systems for Engineering, and Mobile System and Programming for Wireless Networks.

5 May 2018 – 7 Oct. 2021

Teaching Assistant

Faculty of Engineering, Aswan university, Aswan, Egypt

- Reviewing and evaluating students' activities during undergraduate courses hence implementing methods that can improve their outcome and understanding.
- Supervise students in graduation and courses' projects "I led an undergraduate student project in the biomedical field last year and I could direct them during it."
- Provide constructive and timely feedback to students and advise them on areas of concern.
- Supervise students through course period.
- Explore recent research papers thus building based on them further contributions for conference papers and journals in the research field of wireless communication.

1 Aug 2016–1 Aug 2018

Research Assistant

Aswan Wireless Communication Research Centre, Aswan, Egypt

- Research and collect data relevant to 5G networks research topic.
- Interpret, synthesize and analyse data.
- Report on the status of research activities.
- Plan and modify research techniques and procedures.
- Write and edit materials for publication and presentation, i.e., research papers and their presentation.
- Prepare materials required for applying for incoming projects.

1 July 2015-Present

Freelancer Engineer - Online

- Perform online tasks in different fields, especially programming and writing.

EDUCATION

- Expected 1 June 2024 **PhD. in Telecommunication Engineering - Thesis Title: 'RF Propagation and 5G Site Positioning Design'**
Telecommunication Dept., Faculty of Electronics, Telecommunication, and Information Technology, National University of Science and Technology Politehnica Bucharest, Bucharest, Romania
- 1 Dec. 2016–12 Sept. 2019 **Master in Telecommunication Engineering - Thesis Title: 'Performance Evaluation of MmWave in 5G Networks'**
Electrical Engineering Department, Faculty of Engineering, Aswan University, Aswan, Egypt
Thesis and Paper Based Master's Degree – Excellent with honour.
- 21 Sept. 2011–28 July 2016 **Bachelor of Engineering in Electronics and Communication Engineering**
Electrical Engineering Department, Faculty of Engineering, Aswan University, Aswan, Egypt
Excellent 86% - 1st class of honour.
Graduation Project: Driver Aid Tools (Embedded System and Android Based Project)

CONFERENCES

- July 4-7, 2023 **2023 IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom)**
Istanbul, Turkey
- June 28-30, 2023 **12th International Conference on Modern Circuits and Systems Technologies (MOCAST)**,
Athens, Greece
- June 6-9, 2023 **2023 European Conference on Networks and Communications (EuCNC)**
Gothenborg, Sweden
- Dec. 4-6, 2022 **14th IEEE International Conference on Computational Intelligence and Communication Networks (CICN 2022)**
Al Khobar, Saudi Arabia
- Apr. 10-13, 2022 **2022 IEEE Wireless Communications and Networking Conference (WCNC)**
Hybrid conference in Austin, Texas, the United States
- June 6-9, 2022 **2022 IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom)**
Sofia, Bulgaria
- May 4-5, 2022 **International Conference on Future Access Enablers of Ubiquitous and Intelligent Infrastructures**
Online
- Dec. 16-18, 2019 **7th International Japan-Africa Conference on Electronics, Communications, and Computations, (JAC-ECC)**
Alexandria, Egypt
- Feb. 2019 **2nd Europe, Middle East, North African Regional ITS Conference**
Aswan, Egypt
- Feb. 19-21, 2018 **2018 International Conference on Innovative Trends in Computer Engineering (ITCE)**
Aswan, Egypt

TRAININGS, SEMINARS

- April 18-19 **Marie Sklodowska-Curie Actions conference: researchers' career: multiple pathways**
Mons, Belgium

Curriculum vitae

November 9-10, 2023	One6G Summit 2023 Munich, Germany
May 17-19, 2023	Workshop on “Enabling Technologies for Next Generation Telepresence Systems” Sofia Tech Park, Sofia, Bulgaria
November 10, 2022	One6G Summit 2022 online workshop (via Zoom)
7 Nov. – 10 Nov. 2022	Workshop on Global Optimization Methods Theory, Techniques, and MATLAB Simulations Aristotle University Research Dissemination Center, Thessaloniki (Greece)
10 Apr. 2022–13 Apr. 2022	2022 IEEE Wireless Communications and Networking Conference (WCNC) Hybrid conference (Attend online workshops/tutorials/sessions)
1 July 2015–15 July 2015	Summer Training National Telecommunication Regulation Agency (NTRA), Cairo (Egypt)
15 July 2015–15 Sept. 2015	Course in Android Developing International Telecommunication Institute (ITI), Cairo (Egypt) Android course sponsored by Google and Udacity
31 Aug. 2020 – 5 Oct. 2020	IoT (Internet of Things) Wireless & Cloud Computing Emerging Technologies Online Course in Coursera by Yonsei University
1 Nov. 2020 – 24 Dec. 2020	AR (Augmented Reality) & Video Streaming Services Emerging Technologies Online Course in Coursera by Yonsei University
1 Dec. 2020 – 28 Dec. 2020	Introduction to Biomedical Engineering Online Course in Coursera by Peter the Great St. Petersburg Polytechnic University
15 Nov. 2020 – 1 Feb. 2021	Wireless Communications for Everybody Online Course in Coursera by Yonsei University

PERSONAL SKILLS

Mother tongue(s) Arabic

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B2	B2	C1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

IELTs TRF Score (Overall)	Listening	Reading	Writing	Speaking
6	6	6	6	6

Communication skills

Teamwork: I have worked in several types of teams, e.g., research teams, and graduate project team.
Ability to work in a fast-paced environment to set deadlines.

Organisational / managerial skills

Leadership: Being President of Aswan Faculty of Engineering Student Union in undergraduate study for 2 years. Also, I was a co-founder in Beyond your Skills family at Aswan University. Moreover, I was a Vice President for Projects at Enactus Aswan University in 2016.

During my Master, I was a member of the organization community of ITCE 2018 conference and Europe, Middle East, North African Regional ITS Conference in 2019. Also, during the faculty period, I participate in different social activities.

In PhD degree journey, I was an active member in our research laboratory, Wireless Networks and Internet of Things (WNloTs), at National University of Science and Technology Politehnica Bucharest, Romania. We received several visits from secondary school and undergraduate students. On October 6, 2022, we received a visit from an ITU group with a company of young people and content creators called 'Generation Connect'.

Curriculum vitae

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem-solving
Proficient user	Proficient user	Basic user	Independent user	Proficient user

Digital skills - Self-assessment grid

Software Programming Languages: MATLAB, C++, Java, Java for Android, and Python.

Hardware Programming Languages: C, VHDL and System Verilog.

Network Simulation using NetSim Program, HTZ software, Basics in NS3.

Operating System: Linux and Windows.

Others: MS Office Tools (Word, Excel, and PowerPoint).

ADDITIONAL INFORMATION

RESEARCH TOPICS

5G and Beyond Networks, Millimetre Wave, Terahertz, and Light Fidelity Communications, Reconfigurable Intelligent Surface, Radio Resource Management, Positioning based Networks.

RESEARCH INTEREST

Currently, I direct my research to 5G and beyond networks where they can be applied depending on several bands such as millimetre wave, terahertz wave, and light fidelity. I focus on the cooperation between different bands to assist each other to overcome their existing challenges, e.g., mmWave and Li-Fi, with the assistance of Wi-Fi, can be beyond 5G network enablers. Second, benefiting from positioning information to overcome different issues that face mmWave, sub-terahertz, and Li-Fi bands. Moreover, I rely on using reflecting intelligent surfaces as a candidate to overcome blockage occurrence in high frequency bands, where I studied different use cases and scenarios. Alongside these topics, I try to widen my experience in internet of things and unmanned aerial vehicles networks. In my prior works, several approaches and techniques have been used to enhance 5G network performance, e.g., probability theory, optimization, fuzzy logic, neural network, and positioning. Moreover, I proposed several intelligent and novel algorithms that can be applied for a better network performance with lower complexity. Also, simulation methods occupy a position in my published papers. Furthermore, I have begun studying deeply on machine learning techniques, especially positioning based neural networks, besides looking over signal and image processing fields.

AREAS OF CO-TEACHING EXPERTISE

Digital Communication,
Communication Networks,
Digital Signal Processing,
Signals and Systems for Engineering,
Electric Circuit,
Mobile Systems and Programming for Wireless Networks
Electrical Test Laboratories.

Publications

Journals:

- [1] **A. M. Nor**, O. Fratu and S. Halunga, " **The Mobile Blockers Impact on RISs aided mmWave/THz Communication Systems**," Accepted in *IEEE Open Journal of the Communications Society*, doi: 10.1109/OJCOMS.2024.3398505.
- [2] **A. M. Nor**, O. Fratu and S. Halunga, "**Positioning Information-Based Codebook for Reconfigurable Intelligent Surface Passive Beamforming**," in *IEEE Open Journal of the Communications Society*, vol. 4, pp. 3115-3130, 2023, doi: 10.1109/OJCOMS.2023.3334474.
- [3] S. Hussein, O. A. Omar, **A. M. Nor**, O. Fratu, S. Halunga and A. S. Mubarak, "**Reconfigurable Intelligent Surfaces-assisted Enhanced Spatial Modulation for Future wireless networks**," in *IEEE Access*, doi: 10.1109/ACCESS.2023.3339644
- [4] **Nor, A.M.**; Fratu, O.; Halunga, S. "**Fingerprint Based Codebook for RIS Passive Beamforming Training**." *Appl. Sci.* 2023, 13, 6809. <https://doi.org/10.3390/app13116809>

- [5] **A. M. Nor**, Octavian Fratu, and Simona Halunga. 2022. “**Quality of Service Based Radio Resources Scheduling for 5G eMBB Use Case**” *Symmetry* 14, no. 10: 2193. <https://doi.org/10.3390/sym14102193>
- [6] **A. M. Nor**, Simona Halunga, Octavian Fratu, “**Survey on positioning information assisted mmWave beamforming training**” in *Ad Hoc Networks*, Vol. 135, 2022, 102947, <https://doi.org/10.1016/j.adhoc.2022.102947>
- [7] **A. M. Nor**, Simona Halunga, Octavian Fratu, “**Neural Network Based IRSs-UEs Association and IRSs Optimal Placement in Multi IRSs Aided Wireless System**” in *Sensors* 2022, no. 14: 5216. <https://doi.org/10.3390/s22145216>
- [8] **A. M. Nor**, “**Access Point Selection in Beyond 5G Hybrid MmWave/Wi-Fi/Li-Fi Network**” in *Physical Communication*, vol. 46, 2021, doi: <https://doi.org/10.1016/j.phycom.2021.101299>.
- [9] **A. M. Nor**, E. M. Mohamed, “**Li-Fi Positioning for Efficient MmWave Beamforming Training in Indoor Environment**” in *Mobile Networks and Applications*, vol. 24, p 517, 2019, doi: <https://doi.org/10.1007/s11036-018-1154-4>.

Conference Papers:

1. S. S. Sefati, O. Fratu, **A. M. Nor** and S. Halunga, "Enhancing Internet of Things Security and Efficiency: Anomaly Detection via Proof of Stake Blockchain Techniques," 2024 International Conference on Artificial Intelligence in Information and Communication (ICAIIIC), Osaka, Japan, 2024, pp. 591-595, doi: 10.1109/ICAIIIC60209.2024.10463516.
2. **A. M. Nor**, O. Fratu and S. Halunga, "The Human Blockage Impact on ARIS Assisted D2D Communication Systems," 2023 12th International Conference on Modern Circuits and Systems Technologies (MOCASST), Athens, Greece, 2023, pp. 1-4, doi: 10.1109/MOCASST57943.2023.10176475.
3. **A. M. Nor**, S. S. Sefati, O. Fratu and S. Halunga, "RXs Directions based Codebook Solution for Passive RIS Beamforming," 2023 IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom), Istanbul, Turkiye, 2023, pp. 330-335, doi: 10.1109/BlackSeaCom58138.2023.10299786
4. **A.M. Nor**, O. Fratu, and S. Halunga, “The Effect of Human Blockage on the Performance of RIS Aided Sub-THz Communication System”, 2022 14th International Conference on Computational Intelligence and Communication Networks (CICN), 2022, Al Khobar, Saudi Arabia.
5. **A. M. Nor** et al., "Demand based Proportional Fairness Scheduling for 5G eMBB Services," 2022 IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom), 2022, pp. 263-268, doi: 10.1109/BlackSeaCom54372.2022.9858321.
6. **A. M. Nor**, "Joint Proportional Fairness Scheduling Using Iterative Search for MmWave Concurrent Transmission," 2022 IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom), 2022, pp. 257-262, doi: 10.1109/BlackSeaCom54372.2022.9858130.
7. **Nor, A.M.**, Fratu, O., Halunga, S. (2022). **Optimal Placement of Two IRSs in Beyond 5G Indoor Network. In: Future Access Enablers for Ubiquitous and Intelligent Infrastructures.** FABULOUS 2022. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 445. Springer, Cham. https://doi.org/10.1007/978-3-031-15101-9_3
8. S. S. Sefati, **A. M. Nor**, O. Fratu, S. Halunga, “A Novel Routing Protocol based on Prediction of Energy Consumption and Link Stability in Mobile Internet of Thing (MIoT)” Accepted at 25th International Symposium on Wireless Personal Multimedia Communication, Herning, Denmark, 30 Oct. – 2 Nov. 2022.
9. O. Fratu, **A. M. Nor**, S. Halunga, Z. D. Zaharis, “RF Propagation and Interferences Challenges for UAVs Swarm Detection and Positioning” Accepted at 25th International Symposium on Wireless Personal Multimedia Communication, Herning, Denmark, 30 Oct. – 2 Nov. 2022.
10. **A. M. Nor** and E. M. Mohamed, "Millimeter Wave Beamforming Training Based on Li-Fi Localization in Indoor Environment," GLOBECOM 2017 - 2017 IEEE Global Communications Conference, 2017, pp. 1-6, doi: <https://doi.org/10.1109/GLOCOM.2017.8254474>.
11. **A. M. Nor**, H. Esmail and O. A. Omer, "Performance Evaluation of Proportional Fairness Scheduling in MmWave Network," 2019 International Conference on Computer and Information Sciences (ICCIS), 2019, pp. 1-6, doi: <https://doi.org/10.1109/ICCISci.2019.8716441>.
12. **A. M. Nor**, "Optical Dynamic Resource Allocation Based on Weighted Expected Spectral Efficiency," 2019 7th International Japan-Africa Conference on Electronics, Communications, and Computations, (JAC-ECC), 2019, pp. 9-12, doi: <https://doi.org/10.1109/JAC-ECC48896.2019.9051003>.
13. Alyosef et al., "A Survey on the Effects of Human Blockage on the Performance of mm Wave Communication Systems," 2022 IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom), 2022, pp. 249-253, doi: 10.1109/BlackSeaCom54372.2022.9858201.
14. A. Abdelreheem, **A. M. Nor**, A. S. A. Mubarak, H. Esmail and E. M. Mohamed, "Comparative study on millimeter wave location-based beamforming," 2018 International Conference on Innovative Trends in

Curriculum vitae

Computer Engineering (ITCE), 2018, pp. 236-239, doi: <https://doi.org/10.1109/ITCE.2018.8316631>.

References

- 1) Prof. Octavian Fratu, University Politehnica of Bucharest, Romania. (octavian.fratu@upb.ro)
- 2) Prof. Simona Halunga, University Politehnica of Bucharest, Romania. (simona.halunga@upb.ro)
- 3) Prof. Osama Ahmed Omer, Aswan University, Egypt. (omer.osama@aswu.edu.eg)
- 4) Prof. Ehab Khalaf Hamad, Aswan University, Egypt. (e.hamad@aswu.edu.eg)
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