DR KHALED RABIE

ASSOCIATE PROFESSOR

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Education

2027-Oct.	**Manchester Metropolitan University, UK** PGCert in Learning and Teaching in Higher Education.
2015-Oct.	**The University of Manchester, UK** **Ph.D.** in Electrical and Electronic Engineering in the fields of Telecommunications and Networking.
2011-Jan.	**The University of Manchester, UK** **M.Sc.** in Communication Engineering and Networks (top of Class Student, Distinction, 82%). - Dissertation mark was the top of the MSc class.
2008-Mar.	**University of Tripoli, Libya** **B.Sc.** in Electrical and Electronic Engineering (top of Class Student, First, 85.24%).

Summary of Achievements

1. Research Outcome: 2 US patents (pending), 1 UK patent (pending); 240+ journal/conference papers (mostly IEEE); 3 Editorials; 2 White-papers on 6G systems; 1 book (published); 3 books (in progress); 2 book chapters (in progress). Google Scholar citations: 7,200+, h-index: 42, i10-index 146.

2. Research Funding: Secured and managed over £1.5m of funding over the past 4 years (as PI and/or academic lead), from the UK Royal Academy of Engineering, Innovate UK, European Regional Development Fund (ERDF), Global Challenges Research Fund (GCRF), NATO Science for Peace and Security (SPS) Programme, etc. Project partners included University of Oxford, BT, Semins etc. These projects are mostly in the areas of communication networks, AI/ML, and IoT systems.

3. Teaching Experience: A Fellow of the UK Higher Education Academy (FHEA) with strong commitment to teaching and intensive experience in designing and developing courses for both undergraduate and postgraduate levels in the field of Networking and Telecommunications.

4. Supervision & Mentorship: Graduated 3 PhD students, 8 MSc students and 40+ final year engineering students. Currently advising 4 PhD students, 2 KTP[1] Associates, and mentored 3 postdoctoral research associates.

5. Professional Activities: Editor of IEEE Wireless Communications Letters, Editor of IEEE Internet of Things Magazine and Associate Editor of IEEE Access. Guest edited special issues in 10+ journals. A Fellow of the European Alliance for Innovation.

6. External Visibility: Appointed as a visiting Associate Professor with the university of Johannesburg (South Africa). Delivered 10+ invited lectures and seminars at various venues and universities in Austria, India, UAE, Qatar, Greece, etc. Served as the General Chair of the 2022 EAI IoTaaS conference and an external PhD/MSc examiner for several institutions in Canada, Kazakhstan, South Africa and UK.

Awards and Honours

2025-Sept.	**World's Top 2% Scientists** Listed among the World's Top 2% Scientists by Sanford university & Elsevier for five consecutive years, USA.
2024-Nov.	**Third Place in the "Competition on Non-Terrestrial Networks for 6G" competition** Secured the 3rd place in the prestigious international "Competition on Non-Terrestrial Networks for 6G. The award-winning research paper is entitled "Secrecy Analysis of an Irregular RIS-Aided UAV Wireless System in Dynamic Environments". The event–launched by the Communications, Space, and Technology Commission (CST) in collaboration with IEEE and the International Telecommunication Union–attracted participation from 80+ universities and research centers worldwide.

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[1]Knowledge Transfer Partnership (KTP): https://www.ktp-uk.org/

2020-2024	**World's Top 2% Scientists** Listed among the World's Top 2% Scientists by Sanford university & Elsevier for five consecutive years, USA.
2023-Jun.	**IEEE IoT Magazine Best Editor Award** Received the best Editor award for my editorial service at the IEEE Internet of Things Magazine.
2022-Jun.	**Industry/Business Collaborator of the Year Award (Finalist)** Manchester Metropolitan University, UK.
2021-Nov.	**Best Paper Award** at IEEE CITS Received the best paper award at the IEEE International Conference on Computer, Information, and Telecommunication Systems (CITS), Turkey. The title of the winning paper is: "Impact of Channel Imperfection on the Performance of RIS-assisted Energy-Efficient Hybrid Precoding".
2021-Jun.	**Staff Head Start Award (Finalist)** Manchester Metropolitan University, UK.
2019-Aug.	**Editor of the Month Award** Received the Editor of the month award for August 2019 by the IEEE Access journal, which is the largest multidisciplinary IEEE journal.
2016-Sept.	Received the Manchester Metropolitan University — **Knowledge Exchange Project Award**. — **Outstanding Knowledge Exchange Project-of-the-Year Award**.
2015-Sept.	**Postgraduate Research Student of the Year** Nominated by the school of Electrical and Electronic Engineering at the university of Manchester for the Faculty's Distinguished Achievement Award for the "exceptional performance" during my PhD studies.
2015-Apr.	**Best Student Paper Award** Received the best paper award at the IEEE International Symposium on Power Line Communications and its Applications (ISPLC'15) in Austin, Texas, USA.
2013-July	**Volunteer-of-the-Year Award** Nominated for the Volunteer-of-the-Year award for the active involvement in the students' union at the University of Manchester.
2010-Dec.	**Best MSc Student Prize** Received the Agilent's best MSc student prize after ranking first in the MSc class which was attended by over 50 students from all over the world.
2008-May	**Minister of Oil Certificate of Honour** Selected amongst the top 10 students across all Libyan universities in the field of Electrical and Electronic Engineering and received an appreciation certificate from the Libyan Minister of Oil.

Work Experience

2024-Aug−Pres.	**King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia.** **Distinguished Associate Professor**. Department of Computer Engineering, **Teaching** a wide range of courses within the computer engineering department for both undergraduate and postgraduate levels. Courses taught include: — IoT: Applications and Implementation (Graduate course) — Introduction to AI (Undergraduate course). **Supervising** students (final year, MSc and PhD) and providing pastoral support to students at all levels. **Research** conducted in the areas of IoT, 6G, machine-to-machine communications, non-orthogonal multiple access, physical layer security, resource allocation etc.
2018−2024-Aug	**Manchester Met University, UK.** **Associate Professor**. Department of Engineering (2021-now), **Assistance Professor.** Department of Engineering (2018-2021), **Teaching** a wide range of courses within the electrical and electronic field for both undergraduate and postgraduate levels. Duties included designing, developing and delivering courses and labs. Designing assessment, marking, verification and moderation. Courses taught include: — Advanced Communications & Networks (MSc; class size: 7 students) — Communication and Network Technologies (3rd year; class size: 70+ students) — Industrial Internet of Things (MSc; class size: 20+ students)

– Electrical Engineering Principles (1st year, class size: 250+ students)
– Sustainable Engineering Systems (MSc; class size: 10+ students)
– Individual Engineering Project (3rd year; class size: 70+ students)
– Professional Design and Practice (2nd year; class size: 110+ students).

2016-2018 **Manchester Met University, UK**
Postdoctoral Research Associate with the department of Engineering
– Writing conference and journal articles and presenting research output at international conferences and workshops in the area of connectivity, IoT and smart cities.
– Managing projects and attending project meetings with academic and industrial partners, e.g., BT, Cisco, Asset mapping, Siemens etc.
– Mentoring and guiding MSc and PhD students as required.

2012-2015 **The University of Manchester, UK**
Teaching Assistant (Part time). School of Electrical and Electrical Engineering (2011-2015).
Responsibilities: delivering tutorials, labs and lectures contributing to various undergraduate and postgraduate modules within the school including
– Principles of Communication Systems (MSc)
– Advanced Digital Signal Processing (MSc)
– Digital Communications (MSc)
– Wireless Communications (MSc)
– Embedded Systems Project (2nd year)
– Analogue-to-digital communications (2nd year)
– Interdisciplinary Sustainable Development (2nd year)
– Sustainable Development (3rd year).

2008-Feb-Aug **Huawei Ltd, Tripoli, Libya**
– Worked as a network optimization engineer within the Radio Planning department.

Other Affiliations

2021-2024 **University of Johannesburg, South Africa**.
Visiting Associate Professor
– Giving seminars, providing mentorship and training when needed/requested.
– Conducting collaborative research.
– Publishing joint journal papers.
– Writing joint grant applications.
– Co-supervising MSc and PhD students.

2017-2024 **University of Klagenfurt, Austria**.
Visiting Researcher
– Giving seminars and publishing joint journal and conference papers.

Certification, Fellowships and Memberships

1. Fellow of the European Alliance for Innovation (2022).
2. Fellow of the UK Higher Education Academy (2017).
3. Senior Member of the Institute of Electrical and Electronic Engineers (2018).
4. Member of Institution of Engineering and Technology (MIET, UK).
5. UK Parliament's COVID-19 expert database (April, 2020).
6. Member of Engineering and Physical Sciences Research Council (EPSRC) Associate College (UK).

Postdoctoral Fellow, Student and KTP Supervision

Current

1. Dr. Asim Ihsan (Postdoctoral Research Fellow), KFUPM.

2. Dr. Mahmoud Elemam (Postdoctoral Research Fellow), KFUPM.

3. Zainab Saleh Almania (PhD student), KFUPM.

4. Anas Hussin (MS student), KFUPM.

5. Yaser Mounzer Almasri (MS student), KFUPM.

6. MOHAMMED ELNOUR (MS student), "Secrecy Rate of IRS-aided Networks", KFUPM.

7. Anas Khalid Saeed (MS student), "Capacity Optimization in UAV-Assisted RIS under Jittering and Imperfect CSI via Deep Reinforcement Learning", KFUPM.

8. Maryam Alabdullatif (PhD student), "Enhancing Cognitive Electronic Warfare with Transfer Deep Reinforcement Learning and Generative Models", KFUPM.

9. Amer Abualhassan (MS student) "Malicious Node Detection in IoT-based Wireless Sensor Networks: A Lightweight Few-shot Learning Approach", KFUPM.

10. Nana Onumah (PhD student), "Security of Vehicular to Vehicular Communications". Manchester Metropolitan University, UK (2021-2025).

Former

1. Irvine Mapfumo (PhD student), "Enhancing the Performance of Hybrid Power Line Communication - Visible Light Communication Systems", University of Johannesburg, South Africa (2021-2024).

2. Sunday Enahoro (PhD student), "Multi-physics Characterisation of a Reconfigurable RF Transceiver for 5G and Satellite Applications", Manchester Metropolitan University, UK (2020-2024).

3. Muhammad Umer Sohail (MS student), "Irregular RIS-aided UAV Wireless Systems in Unstable Environments", Manchester Metropolitan University, UK (2023-2024).

4. Maleho Sadiki, "Developing AI & ML Capabilities to Identify Crop Spectral Signatures using Remote Sensing Technology". University of Johannesburg, South Africa (2022-2023).

5. Umair Mehmood (KTP Associate), "Developing an Intelligent Vending Machine Network through a Blend of Artificial Intelligence & Business Operations". Manchester Metropolitan University, UK (2021-2023).

6. Corrado Puntillo (KTP Associate), "Smart Technology for Real Time Alarm & Remote Monitoring of Patient Oxygen Devices". Manchester Metropolitan University, UK (2019-2022).

7. Osama Saied (Postdoc), "Advanced Modulation Schemes for Visible Light Communication Systems". Manchester Metropolitan University, UK (2021).

8. Waled Gheth (PhD student), "Hybrid Communication System for Rail management". Manchester Metropolitan University, UK (2018-2021).

9. Zaid Abedeen (MS student), "A Wireless Sensor Network for Early Warning and Identification of Natural Disasters", Manchester Metropolitan University, UK (2023-2024).

10. Jahleel Durami (MS student), "Energy Efficient UAVs: Aided Wireless Communication Networks", Manchester Metropolitan University, UK (2023-2024).

Research Funding

Funded Projects

1. Title: Distinguished Professorship Award.
   Funder: KFUPM.
   Role/Budget/Date: PI; total: SAR 150,000; [2024-2026].

2. Title: Secrecy Rate Maximization in Future 6G Systems: A Deep Learning-based Approach.
   Funder: KFUPM.
   Role/Budget/Date: PI; total: SAR 92,822; [2025-2026].

3. Title: Developing an Affordable Modular IoT-enabled pre-harvest Test and Predictive Analytics Solution.
   Funder: Innovate UK & Global Challenges Research Fund (GCRF).
   Partner(s): Kwame Nkrumah University of Science and Technology (Ghana) and SESI Technologies Ltd (Ghana).
   Role/Budget/Date: PI & Academic Lead; total: £248k; [2023-2025].

4. Title: A Hybrid Wireless Sensor Network for Early Warning and Identification of Natural Disasters.
   Funder: NATO Science for Peace and Security.
   Partner(s): National Institute of Posts and Telecommunications (Morocco), Al-Hussein Bin Talal University (Jordan) and Mutah University (Jordan).
   Role/Budget/Date: PI & Academic Lead; total: €350k; [2022-2025].

5. Title: Reducing the noise floor in nano-mechanical testing instruments.
   Funder: Innovate UK: Welsh Government.
   Partner(s): Micro Materials Ltd.
   Role/Budget/Date: PI; total: ~£232k; [2022-2024].

6. Title: PV Second-life battery system with IoT capabilities for rural schools: Kenyan case study.
   Funder: Royal Academy of Engineering.
   Partner(s): University of Oxford, Aceleron and SVRG.
   Role/Budget/Date: PI & Lead; total: £20k; [2021-2022].

7. Title: Developing an Intelligent Vending Machine Network through a Blend of Artificial Intelligence & Business Operations.
   Funder: Innovate UK.
   Partner(s): Broderick Group Ltd.
   Role/Budget/Date: PI; total: ~£223k; [2021-2023].

8. Title: Developing AI & ML Capabilities to Identify Crop Spectral Signatures Using Remote Sensing Technology.
   Funder: Innovate UK & Global Challenges Research Fund (GCRF).
   Partner(s): University of Johannesburg and Geo-Space from South Africa.
   Role/Budget/Date: PI; total: ~£227k; [2022-2023].

9. Title: Touch-free Vending Machines.
   Funder: Broderick Group Ltd & Growth Company.
   Partner(s): Brodericks Group Ltd.
   Role/Budget/Date: Co-I; total: ~£10k; [January-March 2021].

10. Title: Enabling the Future 6G Networks: A PHY Prospective.
    Funder: Manchester Met University−Research Accelerator Grant.
    Role/Budget/Date: PI; total: £5k; [2021].

11. Title: Smart Technology for Real Time Alarm & Remote Monitoring of Patient Oxygen Devices.
    Funder: Innovate UK.
    Partners(s): Pure O2 Ltd.
    Role/Budget/Date: PI; total: £253k; [2019-2022].

12. Title: Data Access for Rail Communication and Passengers – PhD studentship.
    Funder: OSL Global.
    Role/Budget/Date: CoI; total: ~£95k, [2018-2021].

13. Title: City Verve: UK's Smart City IoT Project.
    Funder: Innovate UK.
    Partner(s): 23 partners across Greater Manchester including BT, Cisco, Siemens, etc.
    Role/Budget/Date: PDRA; total: £10M; MMU: £380k; [2016-2018].

14. Title: Smart In-Building Micro-Grid for Energy Management.
    Funder: EPSRC & Innovate UK.
    Partner(s): PhotonStar LED and Xsilon Ltd.
    Role/Budget/Date: PDRA; total: £730k; [2015-2017].

Professional Activities

1. **Editorial Board**
   - Associate Editor of IEEE Internet of Things Magazine (2021−Present).
   - Associate Editor of the IEEE Wireless Communications Letters (2020−Present).
   - Founding Associate Editor of Frontiers in Communications and Networks (2020−Present).
   - Executive Editor of the Emerging Telecommunications Technologies Journal (2019−2023).
   - Associate Editor of IEEE Access (2018−2023).
   - Area Editor of the Physical Communication Journal (2018−2022).

2. **Guest Editorial Roles**
   - Title: "AI-driven Internet of Medical Things for Smart Healthcare Applications: Challenges and Future Trends",
     Journal: *IEEE Journal of Biomedical & Health Informatics*, 2022.

   - Title: "Emerging Trends and Challenges in Internet-of-Underwater-Things",
     Journal: *IEEE Internet of Things Magazine*, 2022.

   - Title: "Recent Advances in Unmanned Aerial Vehicles for Next Generation Wireless Communications Networks",
     Journal*: Drones,* 2022.

- Title: "Network/Traffic Optimization towards 6G Network",
  Journal: *IET Networks,* 2022.

- Title: "Innovative Modulation Schemes for Next Generation Networks",
  Journal*: Frontiers in Communications and Networks,* 2022.

- Title: "Smart, Optimal, and Explainable Orchestration of Network Slices in 5G and Beyond Networks",
  Journal: *IEEE Wireless Communications Magazine*, 2021.

- Title: "Internet-to-Everything (I2X) Communications, Applications and Management in Future Networks".
  Journal: *Electronics*, 2021.

- Title: "Computational Intelligence Powered Edge Computing for Internet of Things".
  Journal: *Sensors*, 2020.

- Title: "Advances in Power Line Communication and its Applications".
  Journal: *IEEE Access* 2019.

3. **Conference and Workshop Organization**

   - TPC Co-chair of IEEE ICCE, Dubai (February, 2026).
   - General Co-chair of WiCON, Istanbul (September, 2025).
   - Co-chair of ICCES, Singapore (August, 2024).
   - Special Session Co-chair of CSNDSP, Italy (July, 2024).
   - Workshop Co-chair of IEEE ICC, Denver, USA (June, 2024).
   - Co-chair of IFIP IoT, Dallas, USA (November, 2023).
   - Track Co-chair of IEEE VTC-Spring, Florence, Italy (June, 2023).
   - Workshop Co-chair of 29th ICCES, China (May, 2023).
   - General Chair of EAI IoTaaS, UK (November, 2022).
   - Keynote & Panels Co-chair of IEEE WINCOM, Morocco (October, 2022).
   - Special Session Co-chair of IEEE GPECOM, Turkey (June, 2022).
   - Co-chair of IET/IEEE CSNDSP, Porto, Portugal (July, 2022).
   - Track Co-chair of IEEE VTC-Fall (September, 2021).
   - Publicity Co-chair of IEEE MeditCom, Athens, Greece (Sept, 2021).
   - Co-chair of IET/IEEE CSNDSP, Porto, Portugal (July, 2020).
   - Recent Results Co-chair of IEEE VTC-Spring, Antwerp, Belgium (May, 2020).
   - TPC Co-chair of IEEE ISPLC, Prague, Czech Republic (April, 2019).
   - Publicity Chair of INISCOM, Da Nang, Vietnam (August, 2018).
   - Co-chair of IET/IEEE CSNDSP, Budapest, Hungary (July, 2018).
   - Program Chair of IEEE ISPLC, Manchester, UK (April, 2018).

4. **Technical Program Committee (TPC) Membership**

   - IEEE PIMRC (Helsinki, Finland, September 2021).
   - IEEE Globecom (Madrid, Spain, December 2021).
   - IEEE MI-STA (Tripoli, Libya, May 2021).
   - IEEE ICC (London, UK, September 2020).
   - IEEE ISPLC (Malaga, Spain, April 2020).
   - IEEE VTC-Fall (Hawaii, September 2019).
   - IEEE CommNet (Rabat, Morocco, April 2019).
   - IEEE ATC (Ho Chi Minh city, Vietnam, October 2018).
   - IEEE GLOBECOM (Abu Dhabi, UAE, December 2018).
   - IEEE ICC (Kansas City, USA, May 2018).
   - IEEE ISPLC (Publication Chair, Manchester, April 2018).
   - IEEE GLOBECOM (Singapore, December 2017).
   - IEEE ATC (Quynhon, Vietnam, October 2017).
   - IEEE CIT (Helsinki, Finland, August 2017).
   - IEEE GreenCom (Exeter, England, June 2017).
   - IEEE VTC-Spring (Sydney, Australia, June 2017).
   - IEEE GLOBECOM (Washington DC, December 2016).
   - IEEE ATC (Hanoi, Vietnam, October 2016).
   - IEEE CSNDSP (Prague, Czech Republic, July 2016).
   - IEEE VTC-Spring (Nanjing, China, May 2016).
   - IEEE CIT (Liverpool, UK, October 2015).
   - IEEE ICC (London, UK, June 2015).

Selected Invited Talks & Keynotes

- "Intelligent Reflecting Surfaces: Fundamentals, Challenges and Applications", International Conference on Computing, IoT and Data Analytics, July 2023.

– "The Power of Connectivity and AI/ML in Shaping Future Societies",
  – IEEE Information Theory Society (ITS), Bangalore Chapter, India (May 2022).
  – Nazarbayev University, Astana, Kazakhstan (March 2022).

– "Towards 6G Networks: A New Age of Connectivity", Joint Research Seminar−University of Malaysia (Malaysia), Manchester Met University (UK), and Nagaoka University of Technology (Japan)−Virtual (October 2021).

– "Future 6G Networks: A PHY Perspective", International Workshop on Emerging Trends, Issues and Challenges in Computer Science and Applications (IWETCS), Charusat, India (March 2021).

– "Future 6G Wireless Networks', University of Engineering and Management, Kolkata, India (October 2020).

– "Towards 6G Networks: Broadband Connectivity", International Conference on Wireless and Satellite Communication, London, UK (May 2020).

– "The Power of Connectivity in Smart Building and Smart Cities", Texas A&M University at Qatar, Qatar (November 2018).

– "Advanced Algorithms for Power Line Communication Networks", University of Klagenfurt, Austria (March 2017).

– "On the Energy Efficiency Performance of Power Line Communication Systems", Information and Communication Technology Forum (ICTF), University of Patras, Greece (July 2016).

– "Signal Processing For Impulsive Noise Mitigation over Power Line Communication Channels", University of Klagenfurt, Austria (March 2014).

– "Improving Conventional OFDM Receivers with Nonlinear Pre-processors to Mitigate Impulsive Noise for PLC Systems", Khalifa University of Science, Technology and Research (KUSTAR), Abu Dhabi, UAE (April 2013).

Reviewing and External Examination Activities

2018-Pres.   **Expert Reviewer for External Funding Bodies**
  – Qatar University, Qatar.
  – Newton Funds, British Council, UK.
  – Engineering and Physical Sciences Research Council (EPSRC), UK.
  – Royal Academy of Engineering - Frontiers Champions Program, UK.
  – National Research Foundation, South Africa.

2018-Pres.   **MSc/PhD External Examiner**
  – University of Northampton, UK (PhD, June 2023)
  – Nazarbayev University, Kazakhstan (MSc, April 2022).
  – University of Glasgow, UK (PhD, February 2022 & March 2024).
  – Lakehead University, Canada (PhD, December 2021).
  – University of Johannesburg, South Africa (MSc, October 2019 & May 2022).

2014-pres.   **Journal Reviewing**
  IEEE Transactions on Communications, IEEE Transactions on Vehicular Technology, IEEE Transactions on Wireless Communications, IEEE Transactions on Green Communications and Networking, IEEE Transactions on Smart Grid, IEEE Transactions on Information Forensics & Security, IEEE Signal Processing Letters, IEEE Wireless Communications Letters, IEEE Communications Letters, IEEE Journal on Selected Areas in Communications, IEEE Systems Journal, IEEE Access. IEEE Transactions on Power Delivery, IEEE Transactions on Industrial Electronics, IEEE Transactions on Industrial Informatics.

Other Distinctions, Recognitions and Stem Indicators

1. Lead of the Manchester Met 6G Seminar Series−Part I (virtual), which has been attended so far by 350+ external participants from 60+ countries and 150+ different institutions both from academia and industry including MIT, Google, Nokia, Huawei etc.

2. Eight of my journal articles (six of which I was the first author) were included in REF2021[2], which makes 6.6% of the General Engineering Unit submissions (2021).

3. Received the Newton Researcher Links Travel Grant by the British Council, Warsaw, Poland (2018).

4. Received the Newton Researcher Links Travel Grant by the British Council, Istanbul, Turkey, (2017).

5. Awarded the Travel Grant by the IEEE International Symposium on Communication Systems, Networks, and Digital Signal Processing (CSNDSP), Prague, Czech Republic (2016).

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[2]Research Excellent Framework (REF): https://www.ref.ac.uk/

6. Selected to attend the first IEEE Communication Society (ComSoc) Summer School, Trento, Italy (2015).

7. Received the Travel Grant by IEEE International Symposium on Power Line Communications (ISPLC), Glasgow, UK (2013).

8. Awarded the very competitive Manchester Doctoral College PhD scholarship at the university of Manchester, UK (~£87,000, 2011).

9. Awarded a fully funded MSc scholarship by British Petroleum (BP) to study at the university of Manchester (~£30,000, 2008).

10. Lead of the Future Wireless Communication Networks Projects group for final year students at Manchester Metropolitan University, UK (2020-2021).

11. Collaborated with researchers from many top institutions from all around the globe, a sample is shown in APPENDIX I.

Publications

Patents

1. M. Elemam, K. Rabie and A. Muqaibel, "Energy-efficient UAV-mounted RIS FOR for IoT: A hybrid energy harvesting and DRL approach". 558859US, filed in June 2025.

2. C. Puntillo, K. Rabie, R. Blackhurst, P. Gough, R. Kharel and M. D. Buhari,, "Method and Apparatus for Monitoring Oxygen Devices", U.K. Patent Application Number PM361989GB, filed in December 2023.

Editorials and White-papers

1. R. H. Jhaveri, K. M. Rabie, Q. Xin, M. Chafii, T. A. Tran and B. M. ElHalawany, "Guest Editorial: Emerging Trends and Challenges in Internet-of-Underwater-Things," *IEEE Internet of Things Magazine*, vol. 5, no. 4, pp. 8-9, December 2022.

2. Fadlullah, Zubair; Fouda, Mostafa; Rabie, Khaled; Li, Ruidong, "Guest Editorial: Smart, optimal, and explainable orchestration of network slices in 5G and beyond networks", *IEEE Wireless Communications Magazine*, vol. 29, no. 1, pp. 94-95, Feb. 2022.

3. N. Rajatheva, I. Atzeni, E. Bjornson, A. Bourdoux, S. Buzzi, J. Dore, S. Erkucuk, M. Fuentes, K. Guan, Y. Hu, X. Huang, J. Hulkkonen, J. Jornet, M. Katz, R. Nilsson, E. Panayirci, K. Rabie, N. Rajapaksha, M. Salehi, H. Sarieddeen, T. Svensson, O. Tervo, A. Tolli, Q. Wu and W. Xu, "A White Paper on Broadband Connectivity in 6G", *6G Research Visions*, No. 10, University of Oulu, Finland, Jun. 2020.

4. H. Saarnisaari, S. Dixit, M-Slim Alouini, A. Chaoub, M. Giordani, A. Kliks, M. Matinmikko-Blue, N. Zhang, A. Agrawal, M. Andersson, V. Bhatia, W. Cao, Y. Chen, W. Feng, M. Heikkilä, J. Jornet, L. Mendes, H. Karvonen, B. Lall, M. Latva-aho, X. Li, K. Lähetkangas, M. Masonta, A. Pandey, P. Pirinen, K. Rabie, T. Ramoroka, H. Saarela, A. Singhal, K. Tian, J. Wang, Y. Zhen, H. Zhou, "A 6G White Paper on Connectivity for Remote Areas" *6G Research Visions*, No. 5, University of Oulu, Finland, Jun. 2020.

5. K. Rabie, A. M. Tonello, N. Al-Dhahir, J. Song and A. Sendin, "IEEE Access Special Section Editorial: Advances in Power Line Communication and its Applications," *IEEE Access*, vol. 7, pp. 133371-133374, Sept. 2019.

Books and Book Chapters

1. Khaled Rabie, Chandran Karthik, Subrata Chowdhury, Pushan Kumar Dutta, "Deep Learning in Medical Image Processing and Analysis", Institute of Engineering and Technology (IET), ISBN-13: 978-1-83953-793-6, 2023.

2. T. Chandrakumar, Subrata Chowdhury, Bhisham Sharma and Khaled Rabie, "IoT and AI in Agriculture", CRC PRESS (in progress).

3. Abdellah Chehri and Khaled Rabie, "6G: Exploring the Future of Wireless Communication". CRC Press, Taylor & Francis Group (in progress).

4. T. Chandrakumar, Subrata Chowdhury, Bhisham Sharma and Khaled Rabie, "Internet of Things: Data-Centric Intelligent Computing, Informatics, and Communication", CRC PRESS (in progress).

5. Khaled Rabie and Fawad Ul Hassan, "IoT for Critical Big Data Applications", Book Chapter, Elsevier (submitted).

6. Irvine Mapfumo, Khaled Rabie and Thokozani Shongwe, "Noise mitigation", Book Chapter, Institute of Engineering and Technology (IET), (submitted).

Selected Journal Papers

1. Iqra Batool, Mostafa Iqra, Muhammad Ismail, Mohamed Ibrahem, Khaled Rabie, Shikhar Verma, Zubair Fadlullah, "Joint Optimization of IRS and THz Resource Allocation in 6G IoT Networks: An Adaptive Online MADDPG Approach", IEEE Internet of Things Journal, Aug. 2025.

2. T. Elganimi, K. Rabie, M. Aldababsa, and X, Li, Senior Member, "STAR-RISs Versus Decode-and-Forward Relaying: Which is Better?", IEEE Communications Letters, Aug. 2025.

3. A. S. Dughri, T. Y. Elganimi and K. M. Rabie, "A Novel Beam Tracking Scheme in RIS for Wideband THz Communication Systems," IEEE Communications Letters, vol. 29, no. 5, pp. 943-947, May 2025.

4. M. M. Salah, R. S. Saad, R. M. Zaki, K. Rabie and B. M. ElHalawany, "Multi-Armed Bandits for Resource Allocation in UAV-Assisted LoRa Networks," in IEEE Internet of Things Magazine, vol. 8, no. 2, pp. 40-45, March 2025.

5. M. N. Mowla, D. Asadi, S. Masum and K. Rabie, "Adaptive Hierarchical Multi-Headed Convolutional Neural Network With Modified Convolutional Block Attention for Aerial Forest Fire Detection," in IEEE Access, vol. 13, pp. 3412-3433, 2025.

6. A. T. Altakhaineh et al., "Outdoor Free Space Optical Systems: Motivations, Challenges, Contributions in Environmental Conditions, and Future Directions—A Systematic Survey," IEEE Access, vol. 13, pp. 49121-49161, 2025.

7. M. Wu, K. Guo, X. Li, M. Asif, C. Han and K. M. Rabie, "URLLC for DRL-RIS-AIDED SAGINs: New Mentalities, Trends and Preliminary Solutions," IEEE Communications Standards Magazine, vol. 9, no. 1, pp. 6-12, March 2025.

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Selected Conference Papers

1. A. Ben Fadel, T. Elganimi, K. Rabie, G. Nauryzbayev, X. Li, "Irregular STAR-RIS-Aided Wireless Systems with a Limited Number of Passive Elements," IEEE International Conference on Communications (ICC), 2024, accepted.

2. J. Elgregni, T. Elganimi, K. Rabie, "Distributed Multi-RIS-assisted GSM-MIMO System with Norm-Based RIS Selection Algorithm," IEEE Vehicular Technology Conference (VTC-Spring), 2024, accepted.

3. T. Elganimi, K. Rabie, A. Abu-Hudrouss, "A Cascaded Multi-IRS-assisted Signed Quadrature Spatial Modulation System," IEEE Vehicular Technology Conference (VTC-Spring), 2024, accepted.

4. A. Shah, M. Karabulut, K. Rabie, "Improvement of Emergency Communication Systems Using Drones in 5G and Beyond for Safety Applications", IEEE Future Networks World Forum (FNWF), Nov. 2023.

5. L. Tlebaldiyeva, S. Arzykulov, A. Dadlani, K. Rabie, G. Nauryzbayev, "Exploring the Performance of Fluid Antenna System (FAS)-aided B5G mmWave Networks", IEEE Global Communications Conference (GLOBECOM), Dec. 2023.

6. A. Rahman, B. Saqia, W. Khan, K. Rabie, M. Alam, K. Khan, "Enhancing Congestion Control to Improve User Experience in IoT Using LSTM Network", IEEE Vehicular Technology Conference (VTC-Fall), May 2023.

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APPENDIX I: A Sample of Top Collaborating Institutions with Output/Impact

Countries	Organisations	THE Ranking (National Ranking)	Area	Output/Impact
UK	University of Oxford	1 (1)	Smart Communities	- Received a joint award (Seed Funding; £20k) from the Royal Academy of Engineering to conduct a feasibility study in Kenya, Uganda and Tanzania. Project Title: PV Second-life battery system for rural schools: Kenyan case study. - After completing this feasibility study, we plan to apply for a bigger funding ~£300k.
China	Tsinghua University Jinan University Henan Polytechnic University	16 (1) 601–800 (42) Not ranked	5G and 6G Networks	- 13 joint journal articles and a few conference papers. - Organised several special issues in international journals such as IEEE Access, Electronics etc.
South Korea	Seoul National University Sejong University	54 (1) 251-300 (9)	6G Systems	- Published two research articles.
Finland	University of Oulu	251-300 (4)	Remote Connectivity and 6G Broadband	- Submitted a joint research application to Europe Commission totalling €5m. - Published two white-papers on the future 6G systems. - Published 3 joint papers.
Austria	University of Klagenfurt	351–400 (5)	Connectivity	- Delivered two Guest Lectures. - Published 7 joint research papers. - Organised a couple of conferences and special issues together.
Turkey	Koç University Istanbul Technical University	501–600 (5) 601–800 (7)	IoT/6G	- One invited talk. - Two joint journal papers.
Australia	La Trobe University	201-250 (14)	IoT and Energy Management	- Submitted a joint funding application to the Royal Society requesting £12k to conduct research on "Novel Resource Management Framework for Self- Sustainable IoT and Emerging Applications".
Malaysia	Universiti Kebangsaan Malaysia	601-800 (3)	Remote Sensing	Submitted a seed-fund grant application to the Royal Academy of Engineering (£20k).
South Africa	University of Johannesburg	601–800 (7)	AI/Smart Systems	- Appointed as a visiting associate professor in the department of electrical and electronic engineering (2021-2024). - Received a joint research grant (Innovate UK and GCRF); budget ~227k. - Submitted a joint funding application to the Royal Society (£12k). Proposal title: Automotive Power Line Communication. - PhD co-supervisor & MSc external examiner.
Qatar	Texas A&M University Hamad Bin Khalifa University	193 (47) Not ranked	Smart Cities & Smart Buildings	- Delivered an invited talk entitled "Power of Connectivity in Smart Building and Smart Cities". - Published 6 joint research articles.
Chile	University of Chile	801–1000 (3)	Smart Communities	Submitted a joint research application to the Royal Academy of Engineering (£20k).
Jordan	Hashemite University German Jordanian University	1201+ (4) Note ranked	IoT AL/ML Sensors	- Submitted a joint research application to NATO (£300k). - Published 8 joint research articles.
KSA	King Abdullah University of Science and Technology	Not ranked	5G, B5G, 6G, PHY layer solutions	- Their professors delivered two invited talks at different MMU research events. - Published 5 joint research articles.