Mahnoor Anjum

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Awards & Grants

Development and Research Training Grant, UNSW, Sydney, Australia 2025
Exemplary reviewer award, IEEE Wireless Communications Letters 2024
Best paper award, 3rd Workshop on Sustainable and Resilient Industrial Networks at IEEE GLOBECOM 2023
University International Postgraduate Award (UIPA), UNSW, Sydney, Australia 2023
Distinction in master of science in electrical engineering, NUST, Pakistan 2022
Rector's medal nomination for Bachelor thesis, NUST, Pakistan 2019
A1 exceptional in higher secondary school certification (HSSC), FBISE, Islamabad, Pakistan 2014
A+ distinction in secondary school certification (SSC), BISE, Rawalpindi, Pakistan 2012

Education

University of New South Wales, Sydney, Australia 2023 – present
PhD in Electrical Engineering
∗ **Thesis:** Design of integrated sensing and communication systems
∗ **Advised by** Dr. Deepak Mishra & Prof. Aruna Seneviratne

National University of Sciences & Technology, Pakistan 2020 – 2022
Master of Electrical Engineering **CGPA:** 4.0/4.0
∗ **Thesis:** Optimization of RIS-assisted communication systems using machine learning
∗ **Advised by** Prof. Syed Ali Hassan

National University of Sciences & Technology, Pakistan 2015 – 2019
Bachelor of Electrical Engineering **CGPA:** 3.1/4.0
∗ **Thesis:** Design and implementation of an object tracking system using LoRa technology
∗ **Advised by** Prof. Syed Ali Hassan

Work Experience

Research Assistant | University of New South Wales, Sydney, Australia 03/2024 – present
Design and analyze quantum communication systems using statistical analysis, machine learning, and optimization techniques.

Visiting Researcher | Kyung Hee University, South Korea 12/2024 – 02/2025
Design and analyze near-field integrated sensing and communication systems at the Wireless Systems Lab.

Senior Design Engineer | Adept Tech Solutions, CA, USA 07/2022 – 08/2023
Designed, implemented and developed production-ready solutions with a directed focus on machine learning, data science, big data analytics, algorithm design and communication systems.

Design Engineer | Adept Tech Solutions, CA, USA 06/2019 – 06/2022
Prototyped and developed algorithms for data-driven solutions using machine learning, big data analytics, data science and communication theory.

Research Assistant | Information Processing and Transmission Lab, SEECS, NUST 01/2022 – 03/2023
Utilized machine learning and stochastic methods to analyze a time-weighted positioning system based on LoRa technology. Explored system level optimization of IRS-assisted 3D-interconnected communication systems using machine learning.

Research Assistant | Information Processing and Transmission Lab, SEECS, NUST 01/2020 – 06/2020
Researched wireless and data-driven systems using machine learning and data science techniques. Published two articles.

Researcher | Information Processing and Transmission Lab, SEECS, NUST 07/2018 – 05/2019
Researched and documented communication systems and networks, tracking techniques and algorithms, time synchronization, LPWAN technologies and published a paper in IWCMC 2019.

Research Intern | IMPACTS Lab KAUST, Saudi Arabia 08/2018 – 09/2018
Researched tracking systems, localization systems, Simblee Programming and communication systems. Learned application development, PCB design, PCB fabrication, and 3D printing.

Intern | SWAM Lab, SEECS, NUST 06/2018 – 08/2018
Programmed mathematical models of neural networks using PyTorch and Matlab.

Intern | Signal Processing and Machine Learning Lab, SEECS, NUST 06/2018 – 08/2018
Programmed reusable codes of machine learning algorithms, deep learning algorithms, artificial intelligence, computer vision and natural language processing.

Intern | CEFAR Lab, SEECS, NUST 06/2017 – 09/2017
Worked on the Internet of Things (IoT), Microcontroller programming, development boards, sensors, and motors.

Development Intern | KSOFT, Software house, Islamabad 07/2017 – 08/2017
Worked with advanced electronics, development boards, GUI design and computer networking.

Academic Experience

Marker | **ELEC2141 Digital Circuit Design** 02/2025 – 05/2025
School of Electrical Engineering and Telecommunications, UNSW, Sydney

Lab Demonstrator | **DESN1000 Introduction to Engineering Design and Innovation** 02/2025 – 05/2025
School of Electrical Engineering and Telecommunications, UNSW, Sydney

Lab Demonstrator | **ELEC3104 Digital Signal Processing** 09/2024 – 12/2024
School of Electrical Engineering and Telecommunications, UNSW, Sydney

Workshop Facilitator | **UNSW Science Week** 08/2024 - 08/2024
School of Electrical Engineering and Telecommunications, UNSW, Sydney

Lab Demonstrator | **ELEC9123 Design Proficiency** 05/2024 – 09/2024
School of Electrical Engineering and Telecommunications, UNSW, Sydney

Teaching Assistant | **CS470 Machine Learning** 01/2019 – 05/2019
School of Electrical Engineering and Computer Science, NUST, Pakistan

Teaching Assistant | **SE801 Artificial Neural Networks** 09/2018 – 01/2019
School of Electrical Engineering and Computer Science, NUST, Pakistan

Workshop Facilitator | **Internet-of-Things Workshop** 2017
School of Electrical Engineering and Computer Science, NUST, Pakistan

Technical Skills

Programming
Python, MATLAB, JavaScript, C/C++, R

Machine Learning & Computer Vision
Tensorflow, ScikitLearn, Keras, OpenCV, PySpark

Data Science
Numpy, Pandas, Matplotlib, Seaborn, SciPy, SQL, Tableau, QGIS

Web Development
HTML/CSS, Bootstrap, JavaScript, Streamlit

Automation & Testing
Beautiful Soup, Selenium, Regex, Unit testing

Hardware
Microcontrollers, Integrated Circuits, Development Boards, Peripheral interfacing

Software
OS: Linux & Windows (OS), Networking: Wireshark & Sockets, Documentation: LaTeX & Microsoft Office Suite

DevOps & Cloud
Docker, Amazon Web Services (AWS)

API Development
Flask, FastAPI

Big Data
Spark, Dask, Ray

Design & Modeling
Adobe Illustrator, Adobe Photoshop, Blender, AutoCAD

Version Control
Git/GitHub

Journal Papers

Green Transceiver Design and Antenna Selection for QoS-Aware ISAC Systems IEEE TGCN
M Anjum, D Mishra, A Seneviratne [under review]

Analysis of time-weighted LoRa-based positioning using machine learning Elsevier Computer Communications
M Anjum, MA Khan, SA Hassan, H Jung, K Dev

RSSI fingerprinting-based localization using machine learning in LoRa networks IEEE Internet of Things Magazine
M Anjum, MA Khan, SA Hassan, A Mahmood, HK Qureshi, M Gidlund

A battery health monitoring method using machine learning: A data-driven approach MDPI Energies
M Anjum, MA Khan, SA Hassan, HA Khalid, A Gastli, LB Brahim

Conference Papers

Service fairness enhancement for BDRIS assisted fluid antenna systems VTC '25
M Anjum, MA Khan, D Mishra, H Jung, A Seneviratne

QoS-aware power minimization for fluid antennas assisted integrated sensing and communication ICC '25
M Anjum, D Mishra, M Matthaiou, A Seneviratne

Green transceiver design for integrated sensing and backscatter communication with QoS demands ICC '25
M Anjum, D Mishra, A Seneviratne

RL-enabled resource allocation in BD-RIS-assisted MIMO systems INISCOM '25
MA Khan, M Anjum, M Usman, H Jung, M Guizani

Deep RL-based resource allocation for user fairness in STAR-RIS-assisted NOMA-enabled B5G networks GLOBECOM '24
M Usman, M Anjum, MA Khan, SA Hassan, H Jung

Power-efficient transceiver design for full-duplex dual-function radar communication systems SPAWC '24
M Anjum, D Mishra, A Seneviratne

A multi-level ML-based optimization framework for IIoT networks with distributed IRS assisted UAVs GLOBECOM '23
M Anjum, MA Khan, SA Hassan, H Jung, A Mahmood, M Gidlund

Machine learning-based resource allocation for IRS-aided UAV networks GLOBECOM '23
MA Khan, M Anjum, SA Hassan, H Jung

Dedicated versus shared element-allotment in IRS-aided wireless systems: when to use what? VTC '23
M Anjum, MA Khan, S Basharat, SA Hassan, H Jung

Analysis of RSSI fingerprinting in LoRa networks IWCMC '19
M Anjum, MA Khan, SA Hassan, A Mahmood, M Gidlund

Book Chapters

Designing an end-2-end sustainable IoT network: A comprehensive guideline Elsevier, 2025
M Anjum, MA Khan, H Jung [under review]

Artificial intelligence in mobile and modern wireless Networks IGI Global, 2023
MA Khan, M Anjum, SA Hassan, H Jung

Theoretical landscape of LPWANs Springer Nature, 2023
M Anjum, MA Khan, SA Hassan, H Jung

Applications of LPWANs Springer Nature, 2023
MA Khan, M Anjum, SA Hassan, H Jung

Activities

Poster Presentation | PST2024 Industry Day 2024
Poster: Green Transceiver Design for Dual Function Radar Communication Systems

Champion | UNSW STEMM Champions Program 2024

Vice President | Distinguished Innovations, Collaboration & Entrepreneurship (DICE), NUST 2018

Marketing Executive | Association for Computing Machinery (ACM) NUST 2017

Deputy Director Admin Events | Finding Innovative & Creative Solutions for Society (FICS), NUST 2017

Treasurer | Institute of Electrical and Electronics Engineers (IEEE), SEECS Chapter 2017

Internee | World Wildlife Fund (WWF), Pakistan 2013

Services

Technical Program Committee Member 2025
IEEE ICC 2025: Track Integrated Sensing And Communications

Reviewer 2025
IEEE Vehicular Technology Conference
IEEE Wireless Communications Letters
IEEE Transactions on Communications
IEEE Communications Letters
IEEE Access

Technical Program Committee Member 2024

IEEE VTC Spring 2024: Track UAV Communications, Vehicular Networks, and Telematics
IEEE VTC Fall 2024: Vehicular Communications, Unmanned Vehicle Communications, Vehicular Networks and Telematics

Reviewer 2024

IEEE Wireless Communications Letters
IEEE Global Communications Conference
International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems
IEEE Transactions on Intelligent Vehicles

Reviewer 2023

IEEE Access
IEEE Wireless Communications Letters
IEEE Global Communications Conference
IEEE International Conference on Communications

Reviewer 2022

IEEE Global Communications Conference

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