

Umhara Rasool

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Location: Srinagar, India | Phone: (+91) 9797829986

EDUCATION

Doctorate in Electronics & Communication Engineering

Specialization: Antennas for Biomedical Applications

University of Kashmir, Srinagar | January 2020 – January 2025

Master of Technology in Electronics & Communication Engineering

Shri Mata Vaishno Devi University, Katra, Jammu | May 2017

CGPA: 9.13

Bachelor of Engineering in Electronics & Communication Engineering

University of Kashmir, Srinagar | February 2013

COMPETITIVE EXAMS QUALIFIED:

GATE (Graduate Aptitude Test in Engineering) – Electronics & Communication Engineering | March 2013

UGC JRF/SRF (Junior Research Fellowship/Senior Research Fellowship) – Electronic Science | July 2018

J&K SET (State Eligibility Test) – Electronic Science | July 2018

PROFESSIONAL EXPERIENCE

Lecturer

University of Kashmir (Various Departments)

April 2013 – Present

- **Departments:** Electronics & Communication Engineering, Electronics & IT, Computer Science Engineering
- **Timeline:**
 - April 2013 – January 2014: Department of Computer Science Engineering, North Campus
 - April 2014 – July 2015: PG Department of Electronics & IT
 - November 2017 – January 2020: Department of Electronics & Communication Engineering, Zakura Campus
 - March 2024 – Present: Department of Electronics & Communication Engineering, Zakura Campus

Key Responsibilities:

- Delivered lectures and laboratory sessions to undergraduate and postgraduate students across multiple departments, focusing on electronics, communication systems, and signal processing, integrating both theoretical and practical components into the curriculum to enhance student understanding.
- Supervised B.Tech and M.Tech students on final-year research projects, guiding them through ideation, experimentation, and thesis writing while ensuring they adhered to academic standards and produced high-quality research.
- Developed and improved course materials, including lectures, lab manuals, and assessments, ensuring alignment with academic standards and industry trends, with a particular focus on modern communication technologies and applications.
- Led curriculum development initiatives to integrate modern topics such as IoT applications, antenna design, and biomedical engineering, ensuring the curriculum remained up-to-date with industry and technological advancements.
- Mentored students through personalized academic support, fostering strong relationships, providing additional resources, and facilitating academic success both in coursework and research-related activities.

RESEARCH EXPERIENCE

Research Mentor, SPACE Lab

PG Department of Electronics & IT, University of Kashmir | January 2020 – February 2024

- Led the development of a circularly polarized metamaterial-inspired antenna for biomedical applications.
- Designed Moore's Fractal-inspired antennas for vital signs monitoring.
- Measured and tested antenna designs using advanced equipment, including VNA.
- Developed a human head phantom using various compounds for experimental research.
- Provided mentorship to 10 students working in microwave and optical sensor design, microwave imaging, and reconfigurable antenna designs.

PUBLICATIONS

1. **Rasool, U.** et al. (2022). *Design of a Compact Hybrid Moore's Fractal Inspired Wearable Antenna for IoT Enabled Bio-Telemetry in Diagnostic Health Monitoring System*. IEEE Access.
2. **Rasool, U.**, Sheikh, J.A., Ashraf, S. (2023). *Design of a Metasurface Inspired Circularly Polarized Dual-Band Compact Antenna for Biomedical Applications*. Progress In Electromagnetics Research M, Vol. 119, 1-12.
3. **Rasool, U.** et al. (2021). *Metamaterial Inspired Wideband On-Body Antenna Design for Biomedical Applications*. Materials Today Proceedings.
4. **Rasool, U.** et al. (2022). *Design of Multiband Pattern Reconfigurable Antenna Loaded with Circular Split Ring Resonators*. Recent Innovations in Computing, Springer.
5. **Ashraf, S.**, Sheikh, J.A., **Rasool, U.** (2022). *Comparative Analysis of Rectangular Framed S-Shaped Millimeter-Wave Antenna for Different Feeding Techniques*. Materials Today Proceedings.
6. **Ashraf, S.**, Sheikh, J.A., **Rasool, U.** (2022). *A Low-Profile High Gain U-Slotted Wideband Microstrip Antenna for 5G Applications*. International Journal of Electronics.
7. **Rasool, U.** et al. (2017). *Wavelet Based Image Compression Techniques: Comparative Analysis and Performance Evaluation*. International Journal of Emerging Technologies in Engineering Research (IJETER).
8. **Rasool, U.** et al. (2017). *Absorber Using Magnetic Medium and Metamaterial*. Proceedings of IEEE Applied Electromagnetics Conference (AEMC).
9. **Javeed, S.**, **Rasool, U.**, Sheikh, J.A., Ara, A. & Ali, B. (2022). *Metamaterial Inspired Antenna for Biomedical Applications*. 5th International Conference on Multimedia, Signal Processing and Communication Technologies (IMPACT), Aligarh, India.
10. **Ali, B.**, **Rasool, U.**, Sheikh, J.A., Ara, A. & Javeed, S. (2022). *A New Circular Slot Based Dual Frequency Band Reconfigurable Antenna for 5G and Wi-Fi Applications*. 5th International Conference on Multimedia, Signal Processing and Communication Technologies (IMPACT), Aligarh, India.
11. **Ara, A.**, Sheikh, J.A., **Rasool, U.**, Ali, B., Javeed, S. (2022). *Fractal Antenna Design with Slotted Partial Ground for Breast Tumor Detection*. 5th International Conference on Multimedia, Signal Processing and Communication Technologies (IMPACT), Aligarh, India.
12. **Hameed, J.**, Sheikh, J.A., **Rasool, U.** (2023). *Design of a Semi-Circular Finger-Shaped Antenna with Metamaterial Loaded Ground for Brain Tumor Detection and Localization*. 2023 IEEE Microwave Antenna and Propagation Conference (MAPCON), India.
13. **Shah, M.**, Sheikh, J.A., **Rasool, U.** (2023). *A Meandered T-Shaped Patch Antenna for Microwave Thorax Monitoring*. 2023 IEEE Microwave Antenna and Propagation Conference (MAPCON), India.
14. **Jan, R.**, Sheikh, J.A., Khan, A.A., Lone, J.H., **Rasool, U.** (2024). *An Improved RF Sensor for Detection of Variation in Different Body Fluids*. 2024 IEEE Applied Sensing Conference (APSCON), Goa, India.
15. **Mantasha**, Sheikh, J.A., **Rasool, U.** (2023). *Bandwidth Enhanced Duplex SIW Filtenna*. INDICON 2023 (Accepted).
16. **Dar, M.Z.**, Sheikh, J.A., Lone, J.H., **Rasool, U.**, Balkhi, A.A. (2023). *Design and Optimization of a Multiband Reconfigurable Microstrip Patch Antenna for Sub 10-GHz Applications*. 2023 10th IEEE Uttar Pradesh Section

International Conference on Electrical, Electronics and Computer Engineering (UPCON), Gautam Buddha Nagar, India.

17. **Nazir, N.**, Sheikh, J.A., **Rasool, U.** (2023). *Interdigitated Wearable Antenna for Brain-Stroke Detection*. 2023 10th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON), Gautam Buddha Nagar, India.
18. **Hameed, J., Khan, U.R.**, Noor, S. et al. (2023). *SARS-COV-2 (COVID-19) Detection Application via Machine Learning: Comparative Analysis and Performance Evaluation*. Research in Biomedical Engineering, Vol. 39, pp. 925–935.
19. **Rasool, U.**, Sheikh, J.A., Junaid, A., et al.(2025) *A Machine Learning Driven Computationally Efficient Horse Shoe Shaped Antenna Design for Wearable Internet of Medical Things*. PLOS ONE.
20. **Rasool, U.**, Sheikh, J.A., Ashraf, S., Ahmed, S. (2024). *On the Study of Contemporary Wideband On-body Antenna-Based Sensor Designs for Biomedical Applications*. In: Sheikh, J.A., Khan, T., Kanaujia, B.K. (eds.) Intelligent Signal Processing and RF Energy Harvesting for State of the Art 5G and B5G Networks. Energy Systems in Electrical Engineering. Springer, Singapore.
21. **Ashraf, S.**, Sheikh, J.A., Ashraf, A., **Rasool, U.** (2024). *5G Millimeter Wave Technology: An Overview*. In: Sheikh, J.A., Khan, T., Kanaujia, B.K. (eds.) Intelligent Signal Processing and RF Energy Harvesting for State of the Art 5G and B5G Networks. Energy Systems in Electrical Engineering. Springer, Singapore.

PATENTS

1. **Twist Ease Clean Tank (Set)**
Application Number: 403388-001 | Filed: 29/12/2023 | Granted
A tank cleaning system designed for ease of use with industrial applications.
2. **Mount Flex Portable Sanitizer Dispenser with FlexStand**
Application Number: 407901-001 | Filed: 17/02/2024 | Granted
An innovative portable sanitizer dispenser with a flexible stand, aimed at improving public health accessibility.
3. **A Pillow System**
Application Number: 202311034675 | Filed: 25/08/2023 | Under Examination
A novel ergonomic pillow system designed for comfort and enhanced sleep quality, pending examination.
4. **Semi - Circular Brain Tumor Detection antenna | Granted**
Application Number: 6387668 Dated: 30/10/2024

CORE SKILLS AND EXPERTISE

Technical Skills

- Antenna Design and Simulation: **CST Microwave Studio Suite, HFSS, CADFEKO**
- Circuit Design and Signal Processing: **Multisim, ADS**
- Communication Protocols: **QualNet Simulator, Cisco Packet Tracer**

Programming and Software Skills

- Programming Languages: **MATLAB, Python**
- General Software: **MS Office Suite** (Word, Excel, PowerPoint)

Research and Analytical Skills

- Research Design: Developing and executing experiments for antenna design meant for biomedical applications.
- Data Analysis: Statistical and performance analysis of antenna simulations and signal processing systems.

REFERENCES

1. **Dr. Javaid Ahmad Sheikh**, Associate Professor, PG Department of Electronics & IT, University of Kashmir, Email: sheikhjavaid@uok.edu.in, Phone: +91 8825008944

