

Detailed Bio-data

I am currently working as an Assistant Professor in the Department of Electronics and Communication Engineering at Maulana Azad National Institute of Technology (MANIT), Bhopal, India. Prior to joining MANIT, I worked as a Lead Engineer in the Next Generation Wireless Communications Group at Samsung R&D Institute India-Bangalore (SRI-B), from May 2025 to July 2026, where I was involved in research and development activities related to next-generation wireless communication systems.

I received my Ph.D. degree from the Indian Institute of Technology (IIT) Roorkee, Uttarakhand, India, in 2025, and my M.Tech. degree in Communication and Signal Processing from the Indian Institute of Technology (IIT) Ropar, Punjab, India, in 2020. I received the Best Poster Award at the Research Scholar Day 2024 organized by IIT Roorkee and was also awarded International Travel Support by the Anusandhan National Research Foundation (ANRF), Government of India.

My research focuses on advanced physical-layer technologies for 5G-Advanced and 6G wireless communication systems, with an emphasis on AI/ML-enabled wireless communications, standardization-oriented research, and practical PHY-layer solutions for future wireless networks. My research interests include PHY-layer techniques for 3GPP wireless systems, AI/ML for wireless communications, massive MIMO, cell-free massive MIMO, device-to-device (D2D) communications, integrated sensing and communication (ISAC), intelligent reflecting surfaces (IRS), virtual full-duplex communications, sub-band full-duplex (SBFD) communications, waveform design for 6G wireless systems, FR3 communications, uplink MIMO transmission techniques, and resource allocation for next-generation wireless networks.

I have filed multiple patents and published research articles in reputed international journals and leading conferences. I also serve as a reviewer for several leading IEEE journals, including *IEEE Transactions on Communications* and *IEEE Communications Letters*, as well as for several premier IEEE international conferences.

My research activities aim to bridge advanced wireless communication theory with practical PHY-layer design, system-level evaluation, and standardization for future wireless networks. I have also developed a 5G NR-compliant cell-free massive MIMO network simulator and have worked extensively on link-level and system-level simulators for evaluating and designing algorithms for next-generation wireless communication systems.

Research Interest:

Wireless Communications, 5G/6G Systems, Massive MIMO, Cell-Free Massive MIMO, mmWave and THz Communications, Device-to-Device (D2D) Communications, Integrated Sensing and Communication (ISAC), Intelligent Reflecting Surfaces (IRS), Sub-Band Full-Duplex (SBFD) Communications, and Applications of AI/ML in Wireless Systems.

