Asheesh Tripathi

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Professional Summary

- Graduate Research Assistant at Commonwealth Cyber Initiative xG wireless testbed at Virginia Tech Arlington Research Center. (**Jan 2023 to present**): Conducting spectrum-sharing experiments with OpenSAS, an in-house open-source Spectrum Access System. Work on CBRS testbed design deployment for end-to-end indoor/outdoor wireless environments using software-defined radios, commercial O-RUs, and O-RAN-compatible open-source 5G NR cellular stacks and core networks.
- Senior Engineer-System Integration and Test at Verana Networks, Massachusetts (**July 2022-Dec 2022**): Worked on IAB-based 5G mm-wave base station development, conducted cross-polarization (H and V channel) and self-interference measurements for IAB nodes with reconfigurable active array antennas, and managed end-to-end multi-hop IAB system test bench deployments and link performance testing.
- Lead Engineer Access QA at Parallel Wireless, Nashua, New Hampshire. (**Nov 2020- July 2022**). Built testbeds for all-G cellular networks, protocol validation, and OTA performance testing of single-RAT and multi-RAT (2G-4G, 2G-3G on the same radio) software solutions. Emulated field scenarios and conducted lab testing using Azimuth, XCAL, and spectrum analyzers.
- Graduate Research Assistant at the University of North Carolina, Charlotte. (**January 2019 -May 2020**). Served as Teaching Assistant for Basic Electrical Engineering for three semesters. As a Research Assistant in the Wireless Communication Lab, I focused on RF energy harvesting for wireless sensor networks and implemented MIMO on software-defined radios (USRP).
- Graduate Engineer Trainee at Idea Cellular Limited, Maharashtra & Goa Circle, India. Served as Cluster (three districts) Lead for 2G-3G project deployment, Understanding and hands-on experience in all verticals, such as RF planning, Projects, VAS (packet core network), MSC, BSC, Transmission (wired and wireless), etc. Cluster in charge of 2G/3G implementation (13 Months).

Education

DOCTOR OF PHILOSOPHY (ELECTRICAL &COMPUTER ENGINEERING) | VIRGINIA TECH (JANUARY 2023 – PRESENT): GPA-4

Related coursework: Cellular Communication Systems, Software Radios, 5G-Advanced, O-RAN, and 6G, Network Architecture and Protocols I and II.

MASTER OF SCIENCE (ELECTRICAL &COMPUTER ENGINEERING) | UNC CHARLOTTE (AUGUST 2018 – AUGUST 2020): GPA-3.71

- Related coursework: Data Communication and Networking, Embedded Operating Systems, Advanced Embedded Systems, Advanced Theory of Communication, Fundaments of Wireless Communications and Protocols, Wireless Network Security, Wireless Communications and Networks.
- **Master's Thesis**: Information-based smart RF energy Harvesting in wireless sensor networks.

BACHELOR OF TECHNOLOGY | BHARATI VIDYAPEETH UNIVERSITY COLLEGE OF ENGINEERING, INDIA (MAY 2013): FIRST CLASS WITH DISTINCTION

- Major: Electronics & Telecommunication Engineering
- Related coursework: Cellular Mobile Communication, Signals and Systems, fiber optics and Satellite communication, Digital Signal Processing, Analog and Digital Communications, Microcontrollers and Microprocessors, Network Theory.

Skills & Abilities

5G | 4G-LTE | 3G | GSM | Linux | System Integration and Testing | Scripting and Automation | Communication Protocols | Project Management | Cellular Communications | Software-Defined Radios | Electronics Manufacturing | Embedded system Design | MATLAB | Data Communication | Wireless Sensor Networks | Embedded C | Network Security | Open-Source platforms.

Publications, Certifications, and Projects

- A. Da Silva, M. R. Chowdhury, A. Sathish, A. Tripathi, S. F. Midkiff and L. A. Da Silva, "CCI xG Testbed: An O-RAN Based Platform for Future Wireless Network Experimentation," in *IEEE Communications Magazine*, vol. 63, no. 2, pp. 62-68, February 2025, doi: 10.1109/MCOM.001.2400322.
- A. Tripathi, F. Bashar, M. R. Chowdhury, A. Da Silva, and S. F. Midkiff, “Benchmarking Software Defined Radio Based 5G Deployments With srsRAN: Lessons Learned,” Accepted: IEEE Wireless Communication and Networking Conference (WCNC), March 24-27, 2025, Milan, Italy.
- Oren and Asheesh et al. 2023. Enabling AI/ML-based Incumbent Detection in a CBRS Experimental Network Through OpenSAS. In Proceedings of the 17th ACM Workshop on Wireless Network Testbeds, Experimental evaluation & Characterization (WiNTECH '23). Association for Computing Machinery, New York, NY, USA, 25–32. https://doi.org/10.1145/3615453.3616513
- A. Tripathi *et al*., "End-to-End O-RAN Control-Loop for Radio Resource Allocation in SDR-Based 5G Network," *MILCOM 2023 - 2023 IEEE Military Communications Conference (MILCOM)*, Boston, MA, USA, 2023, pp. 253-254, doi: 10.1109/MILCOM58377.2023.10356316. **Best Demo Paper Award**
- M. H. Rahman, M. R. Chowdhury, A. Sultana, A. Tripathi and A. P. D. Silva, "Deep Learning Based Uplink Power Allocation in Multi-Radio Dual Connectivity Heterogeneous Wireless Networks," 2024 IEEE 35th International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Valencia, Spain, 2024, pp. 1-6, doi: 10.1109/PIMRC59610.2024.10817336.
- A. Tripathi and A. Nasipuri, "Information Based Smart RF Energy Harvesting in Wireless Sensor Networks," 2019 IEEE 16th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (HONET-ICT), Charlotte, NC, USA, 2019, pp. 197-198, doi: 10.1109/HONET.2019.8908049.
- Certifications in 5G-Rohde & Schwarz, MATLAB, Electronic switching and Manufacturing, mobile communication, and broadband technologies (Indian Telephone Industries Limited).
- Graduate project on ‘Full duplex wireless using ORBIT lab resources’ and implemented ‘The dark side of operational WIFI calling services' using T-mobile Network and WiFi Access Point.
- Graduate project on ‘Enabling SAS-SAS communication between two OpenSAS instances.
- Graduate project on ‘Optimal receiver for binary pulse signal using matched filter’ and ’16 QAM communication system design’ in MATLAB.