

TAIMOOR UL ISLAM

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Background and Interests

I am a Ph.D. candidate in Computer Engineering with more than a decade of experience in communication and networked systems, including six years of industry leadership on large scale deployments. My research works at the intersection of Open RAN, 6G technologies, massive MIMO, and hyper reliable low latency communication to enable practical 6G systems. Through reproducible system building and rigorous evaluation, I leverage deep expertise in large scale system architecture, advanced wireless technologies, and cross functional team coordination and leadership to translate theoretical advances into field ready, robust, high impact solutions.

Education

Iowa State University

Ph.D. in Computer Engineering (CGPA 3.76/4.00)

Jan 2021 – May 2026

Ames, Iowa, USA

National University of Sciences and Technology

MS in Electrical Engineering (CGPA 3.75/4.00)

Mar 2020

Islamabad, Pakistan

National University of Sciences and Technology

BE in Electrical Engineering (CGPA 3.32/4.00)

Jun 2014

Islamabad, Pakistan

Publications

- **Taimoor Ul Islam**, Joshua Ofori Boateng, Md Nadim, et al. “Design and Implementation of ARA Wireless Living Lab for Rural Broadband and Applications”, *Computer Networks*, 263 (2025) 111188.
- Guoying Zu, Joshua Ofori Boateng, Varun S. Advani, **Taimoor Ul Islam**, et al. “Real-World Integration and Evaluation of Open-Source 5G Core with Commercial RAN”. In *Proceedings of the 43rd IEEE Military Communications Conference (MILCOM)*, 2025.
- **[Best Paper Award]** Joshua Boateng, Tianyi Zhang, Guoying Zu, **Taimoor Ul Islam**, et al. “AraRACH: Enhancing NextG Random Access Reliability in Programmable Wireless Living Labs”. In *Proceedings of 11th IEEE International Conference on Network Softwarization (IEEE NetSoft 2025)*.
- **[Best Paper Award]** **Taimoor Ul Islam**, Tianyi Zhang, et al. 2023. “AraMIMO: Programmable TVWS mMIMO Living Lab for Rural Wireless”. In *Proceedings of the 17th ACM Workshop on Wireless Network Testbeds, Experimental evaluation & Characterization (WiNTECH)*, 2023.
- **[Best Demo Award]** **Taimoor Ul Islam**, Md, Nadim, Guoying Zu, et al. “ARA PAWR: Enabling Wireless Experiments with Programmable COTS RAN and X-Haul Platforms” presented at *Midscale Experimental Research Infrastructure Forum (MERIF) 2024*.
- **Taimoor Ul Islam**, Joshua Boateng, et al. “Demo: ARA PAWR Wireless Living Lab for Smart and Connected Rural Communities”. In *Proceedings of the 32nd IEEE International Conference on Network Protocols (ICNP) 2024*.
- Md Nadim, **Taimoor Ul Islam**, Salil Reddy et al. “AraSync: Precision Time Synchronization in Rural Wireless Living Lab”. In *Proceedings of the 30th Annual International Conference on Mobile Computing and Networking (MobiCom 2024)*.
- Tianyi Zhang, Joshua Boateng, **Taimoor Ul Islam**, et al. “ARA-O-RAN: End-to-End Programmable O-RAN Living Lab for Agriculture and Rural Communities”. In *Proceedings of Next-Generation Open and Programmable Radio Access Networks (NG-OPERA)*, *IEEE INFOCOM 2024*.
- Joshua Boateng, Tianyi Zhang, Guoying Zu, **Taimoor Ul Islam**, et al. “AraSDR: End-to-End, Fully-Programmable Living Lab for 5G and Beyond”. In *Proceedings of IEEE International Conference on Communications (ICC)*, 2024.
- Mukaram Shahid, Kunal Das, **Taimoor Ul Islam**, et al. “Wireless Spectrum in Rural Farmlands: Status, Challenges and Opportunities”. *arXiv preprint arXiv:2407.04561*. Under Submission to *IEEE Wireless Communication Magazine*, 2024.
- **Taimoor Ul Islam**, Joshua Boateng, et al. 2023. “ARA PAWR: Wireless Living Lab for Smart and Connected Rural Communities”. In *Proceedings of the 29th Annual International Conference on Mobile Computing and Networking (ACM MobiCom '23)*. Association for Computing Machinery, New York, NY, USA, Article 98, 1–3. <https://doi.org/10.1145/3570361.3614068>.
- **[Best Paper Honorable Mention Award]** Tianyi Zhang, Guoying Zu, **Taimoor Ul Islam**, et al. “Exploring Wireless Channels in Rural Areas: A Comprehensive Measurement Study” In *Proceedings of IEEE Future Networks World Forum (FNWF)*, 2023.

- Guoying Zu, Md Nadim, Salil Reddy, **Taimoor Ul Islam**, et al. “AraHaul: Multi-Modal Wireless X-Haul Living Lab for Long-Distance, High-Capacity Communications” In Proceedings of IEEE Future Networks World Forum (FNWF), 2023.
- **Taimoor Ul Islam**, and F. A. Khan, “Sorted Channel Based User Search for Initial Access in 5G and Beyond Cellular Networks”. In Proceedings of 2022 IEEE Symposium on Computers and Communications (ISCC), Rhodes, Greece, 2022, pp. 1-6, doi: 10.1109/ISCC55528.2022.9912894.
- Kate Keahey, Jason Anderson, Michael Sherman, Cody Hammock, Zhuo Zhen, Jenett Tillotson, Timothy Bargo, Lance Long, **Taimoor Ul Islam**, Sarath Babu, Hongwei Zhang, and François Halbach. 2022. “CHI-in-a-Box: Reducing Operational Costs of Research Testbeds”. In Practice and Experience in Advanced Research Computing (PEARC '22). Association for Computing Machinery, New York, NY, USA, Article 14, 1–8.
- Mukaram Shahid, Sarath Babu, Hongwei Zhang, Daji Qiao, Yong Guan, Joshua Ofori Boateng, **Taimoor Ul Islam**, Guoying Zu, Ahmed Kamal, and Mai Zheng. 2022. “Wireless guard for trustworthy spectrum management”. In Proceedings of the 16th ACM Workshop on Wireless Network Testbeds, Experimental evaluation & CHaracterization (WiNTECH '22). Association for Computing Machinery, New York, NY, USA, 32–39.

Projects

ARA Wireless Living Lab

June 2021 - Present

- Designed, implemented and deployed the \$16M ARA wireless living lab that is currently serving as a testbed for advanced wireless research and also as a living lab to serve rural applications and rural communities.

ACCoRD

Jan 2024 - Present

- Leading the integration and architecture of Open RAN O-CUDU, O-RU and core as part of the \$42M NTIA NOFO-1 funded Acceleration of Compatibility and Commercialization for Open RAN Deployments (ACCoRD) project at the ISU site.

ArMORED

Feb 2025 - Present

- Successfully secured NTIA NOFO-2 funding for \$10M Architecture for mMIMO Open RAN Energy-efficient Devices (ArMORED) project in collaboration with Skylark Wireless and Eridan Inc. Leading the Energy efficiency research study, developing test cases for the new O-RU prototype and deploying and integrating with O-DUCU in field for extensive field measurements.

Work Experience

Iowa State University, WiCI

Jan 2021 – Present

Research Assistant

Ames, Iowa

- Research assistant in Center for Wireless, Communities and Innovation (**WiCI**), leading wireless network subgroup in **ARA PAWR Project**, a **\$16M** wireless living lab funded by NSF for addressing the rural broadband challenges. Also lead member from WiCI, Iowa State University in the **\$42M** O-RAN Project **ACCORD**, establishing testing centers for wireless innovation and **\$10M** Architecture for mMIMO Open RAN Energy-efficient Devices (**ArMORED**) project in collaboration with Skylark Wireless and Eridan Inc.
- Designed a large-scale testbed to identify the right equipment and ensure multi-scale and multi-dimensional use cases on the testbed.
- Implemented the end-to-end testbed network including routers, switches, servers, radios, antennas, and cabling, actively contributing to the planning, installation, implementation and operation of the testbed.
- Actively engaged with vendors and contractors to ensure the planned roll-out of the networked equipment.
- Deployed Openstack-based software framework for testbed resource modeling and management, contributing to the software stack and documentation on the project Gitlab repo.
- Leading the Skylark Wireless mMIMO deployment on the testbed, and using it for research focused on URLLC, mMIMO and rural broadband.
- Created a publicly available GitLab repo (**AraMIMO**), and actively contributing new APIs to make the deployment publicly available for research use cases on mMIMO communication at PHY/MAC layers.

Skylark Wireless, LLC

May 2023 – Aug 2023

Wireless Engineering Intern

Houston, Texas

- Hands-on experience on mMIMO infrastructure of Skylark Wireless and gained knowledge on practical and theoretical aspects of mMIMO wireless communication.
- Worked on writing and refining the modding APIs to expose some of the internal functions for facilitating external collaboration and development of scheduling and grouping algorithms.
- Learned DevOps and CI/CD processes practiced in industry for routine development of software.

National Telecom Corporation

Jul 2015 – Dec 2020

Assistant Divisional Engineer

Islamabad, Pakistan

- Primary role in Planning, Development, Installation, Configuration, Optimization and Troubleshooting of DSLAMs, Switches, Routers, BRAS and other network equipment.
- Ensured seamless connectivity by troubleshooting and resolving IT and network-related issues of customers.

- Planned and forecast internet media of DSLAMs and MSAGs for internet customers based on usage and traffic trends.
- Managed inventory and store for network expansion and faults rectification.
- Supervised customer support staff and ensured 24/7 availability for customer satisfaction.
- Coordinated Wireless broadband (3G/4G) services with third-party operators for subscribers.
- Monitored billing application module for regional customers addressing key issues with application developers and IT department.

Communicators Globe (Pvt) Ltd

Application Support Engineer

Aug 2014 – Jul 2015

Islamabad, Pakistan

- Deployed Cisco Network routers/switches and planned Microwave communication links.
- Trained Customers on Company's products as well as on the technology used.
- Created reports of major milestone activities and documentation of product operation manuals for customers.

Technical Skills

- **Programming Languages:** Python, Matlab, C++
- **Certifications and Training:** CCNA (Route & Switch) 2015, CCNP (Route & Switch) MCSE 2012
- **Networking & Protocols:** TCP/IP, BGP, OSPF, MPLS, VLAN, QoS, SDN, VPN, DHCP, DNS, NAT, IPv4/IPv6
- **Wireless & RAN:** LTE, 5G NR, O-RAN, mMIMO, OpenAirInterface, srsRAN, Skylark Wireless
- **Tools & Platforms:** OpenStack, Docker, Kubernetes, VMware, Ansible, GitLab, CI/CD
- **Hardware & Vendors:** Juniper, Cisco, Huawei, Dell, NI Ettus, Skylark Wireless
- **Monitoring & Security:** PRTG, SolarWinds, Wireshark, SNMP, Firewall configuration, NMS

Recognition and Awards

- ISU Graduate College **Research Excellence Award** 2026.
- ISU Graduate and Professional Student Senate (GPSS) **Research Excellence Award** 2026.
- **Best Paper Award** in proceedings of the 11th IEEE NetSoft 2025.
- **Best Demo Award** at the Midscale Experimental Research Infrastructure Forum (MERIF) 2024.
- **Best Paper Award** in proceedings of the 17th ACM Workshop on Wireless Network Testbeds, Experimental evaluation & Characterization (ACM WiNTECH 2023).
- **Best Paper Honorable Mention Award** in proceedings of the IEEE Future Networks World Forum (IEEE FNWF 2023).
- Appreciation letters from higher management of NTC, Islamabad Pakistan for my extraordinary performance on several projects. (2015 - 2020)
- **Harris Spot Award (2014)** - 2 times for recognition of my hard work and diligence during my work at Communicator's globe (Pvt) Ltd. Islamabad, Pakistan
- **Gold Medal** for best-graduating student in overall academics and extracurricular activities during my Undergraduate studies at NUST, Pakistan.
- Roll of honor - Name plate on the high achievers board NUST Islamabad Pakistan (2014).

Professional and Leadership Engagements

- **Student Member Intitute of Electrical and Electronics Engineers (IEEE)** (2022 to present) and IEEE NUST student body (2011-2013).
- **Student Member IEEE Communications Society (IEEE ComSoc)** (2022 to present).
- **Student Member Association for Computing Machinery (ACM)** (2021 to present).
- **Joint President** Telecomm Society (2013 - 2014), NUST Pakistan.
- Prefect Sports and Extra Curricular Activities (2013 - 2014), NUST Pakistan.
- **Reviewer for Peer Reviewed Journals and Conferences**
 - IEEE Transactions for Wireless Communications.
 - International Journal of Computer and Telecommunications Networking.
 - IEEE Communications Magazine.
 - IEEE International Conference on Computer Communications (INFOCOM).
 - ACM International Symposium on Quality of Service (IWQOS).
 - SN Soft Computing Journal.
 - SN Computer Science Journal.