

Sarah Tanveer

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EDUCATION

University of Wisconsin-Madison | Madison, WI

September 2024 – May 2029

PhD: Computer Science **GPA: 4.0/4.0**

Coursework (grade): *Mobile and Wireless Networking (A), Advanced Networks (A), Machine Learning (A), Computational Complexity (A)*

Lahore University of Management Sciences | Lahore, Pakistan

September 2019 – May 2023

Bachelor of Science: Computer Science **CGPA: 3.73/4.0**. Graduated with **Distinction**

Coursework: *Network-Centric Computing, Network Security, Distributed Systems, Operating Systems, Data Structures, Algorithms, Human-Computer Interaction, Software Engineering*

PUBLICATIONS

Frictionless Reproducibility in Spectrum Research: A Platform for Open Data, Shared Code, and Competitive Benchmarking

Sarah Tanveer, Gianna McLeod, Anant Sahai, Ali Abedi

[to appear in **DySpan 2026**]

Propagation Measurements in the 7GHz Band near the VLA Telescope

Sarah Tanveer, Ali Abedi

[\[NRSM 2026\]](#)

Vivisecting Starlink Throughput: Measurement and Prediction

Zikun Liu, Fan (Gabriella) Xue, Sarah Tanveer, Deepak Vasisht

[\[CoNEXT '25\]](#)

A Framework for Improving Web Affordability and Inclusiveness | *Co-first authors

Sarah Tanveer, Rumaisa Habib*, Aimen Iman, Haseeb Ahmed, Zafar Ayyub Qazi, Ihsan Ayyub Qazi, Zartash Afzal Uzmi, Ayesha Ali*

[\[SIGCOMM '23\]](#)

RESEARCH PROJECTS

Frictionless Reproducibility in Spectrum Research

University of Wisconsin - Madison | SpectrumX | Research Assistant

- Built an end-to-end platform to introduce frictionless reproducibility principles to spectrum-aware machine learning
- The platform integrates curated datasets, a standardized submission interface, automated and isolated execution, and public leaderboards for fair and transparent comparison of spectrum-related methods and systems
- The platform currently being used for SpectrumX Student Data Competitions

Propagation Measurements in the 7GHz Band near the VLA Telescope

University of Wisconsin - Madison | Research Assistant

- Analyzed novel signal measurements near the VLA telescope of an emulated signal operating in the 7 GHz band using **GNURadio** and signal processing pipelines.
- Results showed signals transmitted at a smartphone-level power from distances up to 15 km, with Signal-to-Noise Ratio values exceeding 30dB.

Identifying Radio Frequency Interference from LEO Satellites for Radio Astronomy (*submitted to SIGCOMM 2026*)

University of Wisconsin - Madison | Research Assistant

- Designed and implemented **TraceSat**, a system to attribute passively received satellite signals to LEO satellites using Doppler compensation without requiring knowledge of signal properties.
- Built an RF signal processing pipeline that enumerates candidate satellites from orbital ephemeris data, calculates their Doppler profiles, compensates predicted Doppler trajectories in IQ recordings, and outputs a predicted satellite using spectral concentration metrics.
- Developed and deployed an interactive satellite orbit visualization tool [\[Internet Visualization Exhibition, SIGCOMM 2025\]](#).
- Enabled scalable evaluation across hundreds of candidate satellites using CUDA acceleration and multiprocessing.
- Collected and curated **labeled datasets of 174 minutes of satellite signals** using radio telescopes and low-cost SDR monitoring platforms.
- Evaluated the system on real-world Starlink, NOAA, and CubeSat signals, achieving **up to 98% satellite attribution accuracy** under realistic observation conditions.

Starlink Throughput Measurement and Prediction

University of Illinois, Urbana-Champaign | Research Intern

- Automated data collection using **iPerf** and **Bash** to analyze and visualize the throughput pattern of **Starlink** using **matplotlib**, and **seaborn**.

- Utilized the Starlink user terminal APIs to infer orbits and connection patterns for satellites using obstruction maps.

Caching Schemes for Short-Form Video Content

University of Illinois, Urbana-Champaign | Research Intern

- Developed a system to evaluate caching schemes for short-form video content using **Python sockets** and **CloudLab**

A Framework for Improving Web Affordability and Inclusiveness

Lahore University of Management Sciences | Research Assistant

- Conducted a large-scale measurement study of around **72,000 webpages** to analyze the affordability of the Web.
- Proposed and implemented **AW4A**, a debloating framework to decrease average webpage sizes with minimal quality degradation in Python using **Selenium, OpenCV, PIL, WebDriver, multiprocessing, and Pandas**.
- Using AW4A, **50% of webpages** maintained a **quality greater than 0.98** with up to **50% page size reductions**.
- Authored the successful proposal for the **Students as Co-Researchers** grant.

An Analysis of Local Browsing Caching

Lahore University of Management Sciences | Research Assistant

- Led a team of **four students** on a project on local web browser caching and its effects on web affordability
- Designed measurement experiments to analyze the impact of local caching on web page sizes using **appium**
- Analyzed factors that impact local caching on low-end devices

WORK EXPERIENCE

University of Wisconsin - Madison | Madison, WI

August 2024 – May 2025

Teaching Assistant | Computer Science

- Teaching Assistant for CS 640: Introduction to Computer Networks for a class of **80+ students**.
- Improved online tool to generate practice questions relating to topics such as TCP and routing, using **FastAPI, uvicorn** and **Firestore**.
- Teaching Assistant for CS 407: Foundations of Mobile Systems and Applications for a class of **325+ students**.
- Developed **10+ Lab Assignments** focusing on **Android Development** in **Java** and **Kotlin**.

Lahore University of Management Sciences | Lahore, Pakistan

January 2022 – July 2024

Summer School Instructor

July 2024

- Designed a course on navigating LLMs and GenAI tools as an elementary and middle school student covering topics such as responsible use, plagiarism, and critical thinking for a class of 50+ students
- Delivered lectures, and designed assignments for the summer school course

Teaching Assistant

January 2022 – May 2023

- Topics in Internet Research (Spring 2023): Mentored **20+ students** with research projects, Graduate level course.
- Network-Centric Computing (Spring 2022): Managed **150+ students** and created evaluation material.
- Held regular office hours and tutorials
- Fundamentals of Computer Systems (Fall 2021): Managed **50+ students** and created evaluation material.
- Held regular office hours and created tutorials for assignments

Tajir (YC W20) | Lahore, Pakistan

June 2022 – July 2022

Software Engineering Intern

- Implemented internal **business analytics** tools with **JavaScript, Google Cloud Platform, BigQuery, and SQL**.
- Conducted market/user research and designed a new customer service UI using **Figma**, deployed to the app.

AWARDS AND HONORS

- Student Paper Competition Finalist | National Radio Science Meeting 2026
- First-Year Summer Department Fellowship | UW - Madison 2025
- Computer Science Departmental Scholarship | UW - Madison 2024
- Dean's Honor List | Lahore University of Management Sciences 2019 - 2023
- Students as Co-Researchers Grant | Lahore University of Management Sciences 2022

TECHNICAL SKILLS

Languages: Python, C/C++, JavaScript, Go, SQL, Kotlin

Systems & Infrastructure: Linux, Git, Docker, CloudLab

Networking & RF Tools: WebPageTest, iPerf, mitmproxy, GNU Radio, BladeRFs/USRPs

Other Tools: Firebase, Express, React, NodeJS (FERN stack), Figma, MongoDB, PostgreSQL, Selenium, Appium, MySQL, Postman, NumPy, Pandas, Matplotlib, Seaborn

LEADERSHIP ROLES

LUMS Women in Computing | Lahore, Pakistan

August 2021 - May 2023

General Secretary | Executive Council

September 2022 – May 2023

- Led Events and Outreach Departments for the student organization
- Coordinated events such as panel talks, information sessions, team-building sessions etc. to empower and uplift women in STEM and Computer Science
- Secured **60,000 PKR** in sponsorship from local tech companies
- Successfully conducted a bootcamp to teach high school girls Python Programming, serving as senior instructor and increasing participation from **30+ to 50+** students

Director | Events Department

August 2021 - September 2022

- Led the events department for the student organization
- Organized **5+ events** such as panel talks, information sessions, bootcamps etc. to empower and uplift women in STEM and Computer Science
- Served as Junior Instructor for a bootcamp to teach high school girls Python Programming with **30+ participants** from **over 5 high schools**
- Developed course plan, assignments, and programming labs for the bootcamp

(Last Updated: 9th March 2026)