M A U (Mahin) Shariff

Ph.D. Student in Computer Science, University of Nebraska–Lincoln | ML Systems, Forecasting, Federated Learning

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SUMMARY

Ph.D. student building end-to-end ML systems (out-of-core pipelines over billions of records, deep forecasting, privacy-preserving federated learning) on real backbone telemetry, moving toward LLM agents for network operations. Best Paper, IEEE SVCC 2026. Seeking a Summer 2027 ML Engineer internship.

EDUCATION

Ph.D., Computer Science | University of Nebraska–Lincoln (GPA 3.92) Aug 2023 to Jul 2028 (expected)
M.S., Computer Science | University of Nebraska–Lincoln (GPA 4.00; Master's Thesis Award) Aug 2023 to Aug 2025
B.Sc., Computer Science and Engineering | Port City Intl. University (CGPA 3.99; Gold Medal) Jan 2017 to Mar 2021

EXPERIENCE

Graduate Research Assistant | Network Research Group, University of Nebraska–Lincoln Jun 2024 to present

NSF- and DOE-funded ML for research and education networks (Internet2, CESNET)

- Built an out-of-core **Dask** ETL pipeline that turns 314M NetFlow records (13.7B packets, 10 backbone routers) into model-ready time series within a 60 GB memory limit on commodity hardware.
- Led a **960-configuration benchmark** of six forecasting families (SARIMA to TiDE and PatchTST); TiDE cut error by 30 to 42% over statistical baselines and set a 6-hour operating horizon. **Best Paper, IEEE SVCC 2026.**
- Designed a 5-phase deployment architecture (ingestion, out-of-core ETL, per-router models trained in under 6 seconds, forecasts exposed to SDN controllers, weekly retraining against drift); published at IEEE LANMAN 2026.
- Built a **federated learning** system across 20 clients on two national networks (PyTorch, FedAvg, FedProx); matched centralized accuracy without sharing raw data and shipped a reproducible, DOI-archived release (INDIS at SC26).
- Derived a training-free score that predicts, from an operator's own traffic, whether joining a federation will help; validated in pre-registered studies over 200 operators (submitted to IEEE ICC 2027).

ML Research Collaborator | Batelaan Lab, Department of Physics, University of Nebraska–Lincoln May 2025 to present

- Lead the ML analysis for an NSF-funded quantum physics experiment: built the data pipeline and classifiers that separate a quantum Pauli-blockade signal from classical Coulomb repulsion in simulated detector data.

Graduate Teaching Assistant | School of Computing, UNL Aug 2023 to Aug 2024; Aug 2026 to present

- Design and lead weekly labs for a graduate cybersecurity course; led Data Structures recitations for 240+ students.

Assistant Programmer | Arena Web Security, Dhaka, Bangladesh Apr 2021 to Jun 2023

- Ran the software lifecycle: requirements, technical specifications, implementation, testing and monitoring.

SELECTED PROJECTS

- **who-benefits-federation**: eight-stage federated learning pipeline with diagnostics and every metric table; GitHub release archived on Zenodo (CC BY 4.0).
- **REN forecasting benchmark**: Dask ETL over 314M flow records plus a benchmark of deep forecasters with anomaly awareness (Isolation Forest, LOF).
- **Generative AI for medical imaging**: fine-tuned a VAE on 35,000 retinal images and used Stable Diffusion 3.5 with LoRA inpainting to create synthetic training data that improved segmentation generalization.

TECHNICAL SKILLS

- **Languages and methods:** Python, C, Java, JavaScript, Bash; statistical testing (TOST, Mann-Whitney U, Spearman)
- **ML:** PyTorch, PyTorch Lightning, TensorFlow/Keras, scikit-learn, XGBoost, NeuralForecast; Transformers (TiDE, PatchTST), LSTM/GRU, N-BEATS, N-HiTS; federated learning; anomaly detection; VAE, Stable Diffusion, LoRA; SHAP
- **Data and systems:** Dask, Parquet, PyArrow, pandas, NumPy, SciPy; GPU computing on HPC clusters (NVIDIA A40, H200); Linux, Docker, Git; reproducible releases (GitHub, Zenodo)

PUBLICATIONS, AWARDS AND SERVICE

- **Publications:** 7 peer-reviewed conference and workshop papers (5 first-author), including IEEE SVCC, IEEE LANMAN, IEEE ICC Workshops and INDIS at SC26; 2 under review (IEEE TNSM, IEEE ICC 2027); 91 Google Scholar citations.
- **Awards:** Best Paper Award, IEEE SVCC 2026; IEEE Computational Intelligence Society Graduate Research Grant ($4,000); Dohrmann and Mohr Fellowships, UNL; $6,950 in NSF, IEEE and UNL travel grants.
- **Service and leadership:** reviewer for IEEE INFOCOM, ISCC, WCNC, VTC and ACM journals (11 manuscripts); President, Bangladesh Student Association at UNL (2026), hosting events of up to 250 attendees.