

# Abdullah Al Noman

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## Education

### Ph.D. in Computer Science

2025 – Present

University of Texas at Arlington, USA

Transformative Wireless Systems and Technology (TWiST) Lab

PhD Supervisor: **Dr. Debashri Roy**

**Research Focus:** Space-Air-Ground Integrated Networks, O-RAN (Open Radio Access Network), Next-Generation (NextG) Networks, NTN Communication

### Bachelor of Technology (B.Tech.) in Computer Science & Engineering

2020 – 2024

National Institute of Technology Tiruchirappalli, India

CGPA: 7.51 / 10.00 (75.1%)

## Publications

- **A. A. Noman**, T. T. Sari, S. Amatare, G. Secinti, and D. Roy. "Space-Air-Ground Network for Direct-to-Cell Communication," *IEEE Military Communications Conference (MILCOM)*, Los Angeles, USA, Oct. 2025. (Accepted) Available on SSRN
- M. Priyadarsini, **A. A. Noman**, V. Patel, and S. Prakash. "A Reliable and Secure Multicast Transport Protocol for Space-Ground Integrated Networks using RBAC," *15th International Conference on Computing, Communication and Networking Technologies (ICCCNT), IEEE*, 2024. DOI:10.1109/ICCCNT61001.2024.10725800

## Internships

### Indian Institute of Technology Ropar

May 2023 – July 2023

Machine Learning Intern

Punjab, India

- Developed and implemented machine learning algorithms for **image enhancement and green screen removal** tasks, optimizing real-time processing.
- **Result:** Achieved significant improvements in processing time and accuracy (**93%**) compared to existing models, leading to more efficient solutions.

### National Institute of Technology Tiruchirappalli

May 2022 – Aug 2022

Summer Research Intern

Tamil Nadu, India

- Led the development of an **Intrusion Detection System (IDS)** for smart homes using Raspberry Pi, leveraging IoT devices to monitor and detect unauthorized activities.
- Collected and analyzed data from a network of sensors, integrating with a central control unit to trigger alarms and send notifications in case of intrusion.

## Projects

### Development of an O-RAN System | Wireless Networks, RIC

- Actively contributing to the design and implementation of an O-RAN (Open Radio Access Network) system at TWiST lab to enhance network flexibility and interoperability.
- Developing and optimizing the RAN Intelligent Controller (RIC) for real-time decision-making in wireless communication.

### Spherical Interpolation for Real-Time Emitter Navigation | Software-Defined Radio, MATLAB

- Built a synchronized 4-node USRP B210 SDR system with OctoClock for real-time IQ capture and TDOA localization, implementing a mobility-robust Spherical Interpolation (SI) pipeline.
- Delivered a working prototype, indoor test results, and a validated IQ dataset showing uninterrupted localization performance under static and mobile conditions.

### Speech Emotion Analyzer | Python, Machine Learning, Deep Learning

- Developed a speech emotion analyzer using **machine learning** to classify emotions from spoken language.
- Extracted acoustic features from audio recordings and applied them to a **deep learning model** for precise emotion detection.

### Stock Price Prediction | Python, LSTM, Time Series Analysis

- Executed a stock price prediction model using **Long Short-Term Memory (LSTM)** for forecasting stock market trends.
- Performed data collection, preprocessing, and feature engineering to build a robust dataset for **time series prediction**.

### Crack Detection on a Wall | Python, Computer Vision, Image Segmentation

- Developed an image processing pipeline utilizing **edge detection** and texture analysis for accurate crack localization.
- Enhanced model accuracy to 98% using contour mapping, histogram equalization, and advanced segmentation techniques.

### Campus Energy Consumption Analysis | Python, Time Series Analysis, ARIMA, SARIMA

- Analyzed campus energy consumption data using time series models to identify usage patterns.
- Applied ARIMA and SARIMA models to forecast future energy consumption, achieving high reliability in long-term predictions.

## Technical Skills

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**Programming Languages:** C, C++, Python, Dart

**Web Technologies:** HTML, CSS, JavaScript

**Libraries & Frameworks:** NVIDIA Sionna, TensorFlow, PyTorch, OpenCV, Matplotlib, pandas, Keras

**Engineering Software:** MATLAB, Weka, Unity

**Tools:** Jupyter Notebook, Tinkercad, VS Code, Android Studio, Makefile, Git

## Reviewer Roles

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- IEEE Transactions on Mobile Computing (TMC)
- IEEE Global Communications Conference (GLOBECOM 2025)
- The 21st International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob 2025)
- The 18th International Workshop on Selected Topics in Wireless and Mobile Computing (STWiMob 2025)
- The 34th International Conference on Computer Communications and Networks (ICCCN 2025)
- EuCNC & 6G Summit (2025)

## Achievements

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- Awarded the prestigious Indian Council for Cultural Relations (ICCR) scholarship by the Government of India to pursue a B.Tech in Computer Science & Engineering in India.
- Honored with the Islami Bank Merit Scholarship for exceptional performance in the 10th standard board exams.
- Granted a government scholarship by the People's Republic of Bangladesh for achieving above 90% marks in both the 5th and 8th grades.

## Positions of Responsibilities

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**Head (2023-24):** Guest Lecture, Vortex: Departmental Annual Technical Symposium, NIT Trichy, Led a dynamic team in curating and orchestrating a highly acclaimed series of guest lectures.

**Manager (2022-24):** Social Council, Enforced some ideas and social welfare initiatives, playing a pivotal role in fostering a vibrant and inclusive campus environment at NIT Trichy.

**Department Coordinator (2023-24) :** Sportsfete'23 edition, Handled CSE department during this edition of inter-department sports competition

**Treasurer (2023-24):** Bengali Association of NIT Trichy, Overseeing expenditure related to cultural activities and organizing them, ranging from the crazy antics of organizing Bengali New Year to making sure that the proper budgets are drawn and resources allocated.