

# RIFAT AHMED

[Email](#) [Website](#) [LinkedIn](#) [GitHub](#)

Narayanganj 1400, Bangladesh

## Education

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### B.Sc. in Mechatronics and Industrial Engineering

Chittagong University of Engineering & Technology (CUET)  
*junior/senior CGPA: 3.57/4.00*

*Feb 2019 – Jun 2024*

CGPA: 3.26/4.00

*Undergraduate Thesis:* Optimum Location Selection for Mobile Manufacturing Facilities in Bangladesh: A Fuzzy AHP and BWM Approach.

- Integrated Fuzzy AHP and BWM to identify Bagerhat as the optimal site for mobile manufacturing.
- Facilitated efficient resource allocation and fostered industry growth.

## Research Experience & Publications

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- [1] R. Ahmed, J. I. Haider, M. Hasan, A. K. Debnath, W. Ahmed, and S. Uddin, "Portable Network-Connected Monitoring Device for EV Induction Motors Using ESP32 and Raspberry Pi with Multi-Sensor Data," 2025. doi: [10.1109/EICT68394.2025.11355550](https://doi.org/10.1109/EICT68394.2025.11355550).
- [2] M. Hasan, R. Ahmed, and S. Uddin, "Development of a ROS 2-Based Anomaly Detection Framework for Industrial Robots Using IMU Sensor Data in Gazebo Simulation," *Under review at the International Conference on Electrical, Computer and Telecommunication Engineering (ICECTE)*, 2026.

## Research Interests

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<b>Robotics &amp; Automation</b>	ROS 2; Gazebo; anomaly detection; perception-driven robotics
<b>AI &amp; Computer Vision</b>	CNN-based vision; medical/industrial image classification
<b>Smart Manufacturing &amp; IoT</b>	Condition monitoring; connected sensing; predictive maintenance
<b>OR &amp; Decision Analytics</b>	Facility location; MCDM (Fuzzy AHP, BWM); decision-support systems
<b>Supply Chain &amp; Inventory</b>	Forecasting; stockout-risk modeling; EOQ/ROP; replenishment planning

## Notable Projects

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- **Image Processing Based Object Sorting Robot:** Raspberry Pi + OpenCV shape detection for automated pick-and-sort, featuring real-time camera vision and servo-based gripping with DC-motor turning. [GitHub](#)
- **Data-Driven Retail Inventory Management:** End-to-end forecasting and stockout-risk pipeline with EOQ/ROP replenishment recommendations via a dashboard UI. [GitHub](#)
- **Skin Disease Classification Web App:** CNN-based skin lesion classification (HAM10000) deployed as a real-time web app with Flask API and React frontend. [GitHub](#)

## Standardized Test Scores

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<b>IELTS Academic</b>	Overall: 6.5 ( <i>No band &lt; 6</i> ) R: 7.5 — L: 7.0 — S: 6.0 — W: 6.0
<b>GRE General</b>	Q: 161 — V: 141

## Technical Skills

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**Programming:** Python, C, MATLAB, SQL

**Data Science & ML:** NumPy, Pandas, scikit-learn, TensorFlow/Keras, OpenCV

**Analytics & Forecasting:** feature engineering, time-series forecasting, model evaluation (MAE/RMSE/AUC), Matplotlib

**Optimization & OR:** EOQ/ROP, linear/integer programming, SciPy (optimize), MCDM (AHP, Fuzzy AHP, BWM)

**Robotics & Simulation:** ROS/ROS 2, Gazebo, IMU/sensor data processing

**IoT & Embedded:** ESP32, Raspberry Pi, multi-sensor acquisition, RPi.GPIO, Picamera2

**Web/Apps:** Flask, Streamlit, React (UI)

**Databases:** MySQL

**Tools & Platforms:** Git, Jupyter Notebook, LaTeX, Linux, Windows, Proteus

## Leadership Experience

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**Vice President, Robo Mechatronics Association (RMA)** May 2023 – Jun 2024

- Oversaw the planning and execution of seminars, workshops, and competitions to enhance student engagement in mechatronics and robotics.
- Led a dynamic team of over 150 members, promoting collaboration, technical growth, and community involvement.

**Publication Secretary, IEOM CUET Student Chapter** May 2023 – Jun 2024

- Assisted in arranging Inter-University Scientific Poster Presentation Competition.
- Awarded “IEOM Outstanding Student Chapter Award - GOLD” during tenure.

**Vice President (Admin), CUET Sports Club** May 2023 – Jun 2024

- Created a network for sports enthusiasts and organized tournaments (online/offline).

## Mentoring Experience

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- Organized and conducted a five-day Arduino and electronics workshop for incoming freshmen (2022).
- Trainer for Line-Follower and Obstacle Avoider Robot Workshop at Cantonment Public Collegiate School (2021).

## Achievements & Credentials

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- **Technical Scholarship:** Awarded in 2019 and 2021 (Top 15 students in department).
- **2nd Runners Up:** Inter-University Robo Soccer, IUT (2019).
- **Champion:** Intra-University Table Tennis, CUET (2024).

## References

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