Meherab Hossain Shafin
01703617341
Linkdin-
https://www.linkedin.com/in/meherab-hossain-3b3416403/
Facebook-
https://www.facebook.com/mrcube.16
Github-
https://github.com/MeherabHS

EDUCATION

BSc in Software Engineering
Daffodil International University (DIU), Bangladesh
Current undergraduate student | Data Science focus

CURRENT INTERNSHIP

Junior Data and Research Associate (Intern) at Research and Management Consultants LTD-2026 January to Present.
Current internship role focused on data preparation, research support, analytical documentation, and evidence-oriented project work.

CORE POSITIONING

- Time-series forecasting and model validation
- Data engineering, SQL analytics, and ETL pipelines
- Applied public health, energy, and environmental analytics
- Full-stack systems for decision-support workflows

TECHNICAL STACK

Programming
Python, SQL, JavaScript, PHP
Data Science / ML
Forecasting, regression, SARIMA/SARIMAX, Random Forest, Gradient Boosting, DeepAR, model validation
Data Engineering
PostgreSQL, SQLite, ETL, API ingestion, query optimization, schema design
Web / Backend
Next.js, React, REST APIs, Prisma ORM, CMS workflows, PHP systems
Tools / Deployment
Git, GitHub Actions, Linux server environment, Playwright, environment configuration

RESEARCH INTERESTS

- Forecasting and statistical learning
- Epidemiological and public health analytics
- Environmental and climate analytics
- Interpretable ML and validation design
- Computational decision-support systems

ACHIEVEMENTS & LEADERSHIP

- DIU Department of Research Poster Presentation 2026 - recognition / certificate of achievement for electricity load forecasting work.
- Campus Ambassador, Green Genesis 2026, BRAC University - youth-led climate literacy and sustainability event organized by Youth for a Green Earth and BRAC University Outreach Team.
- Supported outreach and student engagement around climate literacy, environmental innovation, and youth-led sustainability participation.

METHODS USED

- Walk-forward and rolling-origin validation
- Lagged covariates and leakage-aware feature engineering
- ETL, schema design, and SQL indexing
- API ingestion, data validation, and reproducible pipelines
- Security-aware web implementation and E2E testing

PROFILE

Undergraduate Software Engineering student at Daffodil International University focused on time-series forecasting, data engineering, and applied analytics. Currently doing an internship as a Junior Data and Research Associate Intern. Independently developed research-style forecasting workflows and full-stack software systems using real-world datasets, with emphasis on reproducible validation, leakage-aware modeling, SQL-based data pipelines, and practical decision-support applications. Seeking MSc opportunities in data science, public health analytics, forecasting, applied AI, and computational decision-support research.

RESEARCH & PREPRINTS

Preprints on Research Square | preprint status; not peer-reviewed

- Do climate covariates improve national-scale dengue forecasting beyond autoregressive and seasonal structure? A 15-year time-series analysis from Bangladesh.
- Statistically Validated Multi-Horizon Electricity Load Forecasting with Weather-Augmented Machine Learning under Walk-Forward Evaluation.
- Received recognition / certificate of achievement at DIU Department of Research Poster Presentation 2026 for the electricity load forecasting paper.

FLAGSHIP RESEARCH & ANALYTICS PROJECTS

Bangladesh Dengue Forecasting: Climate Covariates vs Autoregressive Structure | *Sole research project | Public health analytics*

- Built a reproducible 15-year national dengue forecasting workflow using surveillance data and lagged climate variables.
- Compared naive persistence, autoregressive regression, SARIMA, and Random Forest under strict walk-forward validation to reduce leakage risk.
- Found that autoregressive and seasonal structure dominated national monthly forecasting performance, supporting realistic early-warning design.
- Proof anchor: 15-year dataset, multiple forecasting baselines, leakage-aware validation, public health decision-support framing.

Statistically Validated Multi-Horizon Electricity Load Forecasting for Ireland | *Sole research project | Energy forecasting*

- Developed a multi-horizon forecasting pipeline using ENTSO-E hourly electricity demand and NASA POWER weather data.
- Benchmarked Seasonal Naive, SARIMAX, Quantile Gradient Boosting, weather-augmented Gradient Boosting, and DeepAR models.
- Applied rolling-origin validation across t+1, t+24, and t+168 horizons to preserve temporal validity.
- Found weather-augmented Gradient Boosting delivered the strongest overall forecasting performance for this dataset.

DengueOps AI: Weekly Dengue Preparedness Decision Support | *Simulation-based DSS | Public health analytics*

- Designed a weekly forecast-to-preparedness prototype translating dengue pressure signals into facility readiness alerts, bed pressure estimates, supply depletion timelines, and zone-level action priorities.
- Built dashboard-ready outputs for forecast uncertainty, scenario simulation, GIS-style heatmap preview, and human-in-the-loop operational directives.
- Positioned the project as a controlled demonstration of decision-support logic with optional future pathways for real-data validation.

APPLIED DEVELOPMENT & FULL-STACK SYSTEMS

RMCL Official Platform | *Sole Developer | End-to-end full-stack implementation*

- Architected CMS-managed About, Insights, and Team modules using Next.js 16, Prisma 7, PostgreSQL, and admin CRUD workflows.
- Implemented dynamic routing, image upload handling, database-backed content delivery, and route revalidation to reduce stale content issues.
- Built security controls including scrypt password hashing, HMAC sessions, CSRF checks, Zod validation, XSS sanitization, and file upload verification.
- Integrated GitHub Actions workflows, Playwright E2E coverage, ISR, and database-layer caching to support production-oriented delivery.

Unified Procurement & Consultant Repository, RMCL | *Sole Developer | Internal operations system*

- Designed a procurement lifecycle system tracking EOI, RFP, and award stages with centralized consultant and CV repository functions.
- Architected a normalized database schema to reduce duplicate consultant records and improve retrieval efficiency.
- Implemented role-based access, controlled file validation, multi-format CV storage, and an operational tracking dashboard.

Logical Triangle Ltd - Enterprise Procurement & IT Solutions | *Independent Developer | Frontend architecture*

- Reduced frontend runtime overhead by replacing heavy animation dependencies with server-component-first rendering and CSS transitions.
- Modernized asset delivery using Next.js Image optimization, WebP/SVG handling, and a centralized /lib/site-data content layer.
- Prepared infrastructure documentation covering deployment considerations, asset compression guardrails, and future API integration.

DATA ENGINEERING, ANALYTICS & DECISION-SUPPORT SYSTEMS

NYC Taxi Data Engineering and SQL Analytics | *Sole data engineering project*

• Engineered an ETL and analytics pipeline for 40M+ NYC yellow taxi trip records using staged PostgreSQL loading and schema design.
• Created indexing strategies that reduced time-filtered query latency from about 1.2 seconds to 0.05 seconds.
• Extracted spatial, temporal, passenger, and revenue insights through optimized SQL-based analysis.

HealthViz DSS / Clinical Trajectory Dashboard | *Decision-support architecture*

• Designed a modular clinical trajectory dashboard architecture separating configuration, ETL, analytics, dashboard engines, state management, and visualization layers.
• Structured the system for reproducible data processing, interpretable analytics, and dashboard-ready outputs for health decision-support use cases.
• Positioned the architecture for applied health analytics where validation logic, state handling, and readable visual outputs are required.

ADDITIONAL SELECTED PROJECTS

Automated Dataset Reliability Inspector | *Data quality and modeling readiness utility*

• Built a rule-based audit approach for schema integrity, missingness, duplicates, outliers, leakage signals, and modeling readiness scoring.
• Designed the utility to support early-stage data review before forecasting or machine learning workflows.

Bangladesh Air Quality Forecasting | *Environmental forecasting utility*

• Prepared a PM2.5 forecasting pipeline across eight cities using API ingestion, SQLite, ARIMA/SARIMA, and rolling-origin validation.
• Positioned the project as applied environmental analytics using reproducible time-series validation.

Selected Web and Data Utilities | *Supporting portfolio work*

• Developed smaller utilities covering data validation, dashboard formatting, reusable components, and deployment-oriented project documentation.
• These projects support the broader portfolio evidence across analytics, web systems, and reproducible workflows.