

Md. Tuhin Rana

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Academic Objective

Statistics graduate with a strong research background and publications in machine learning and applied statistics. Seeking a graduate-level (MS or PhD) position for Fall 2026 to deepen my theoretical understanding of advanced computational methods. My goal is to leverage this expertise to develop versatile, data-driven solutions for complex challenges and make a significant future contribution to the field.

Published Papers

1. **Beyond Linear Subtraction: A Multi-Layered Meta-Learning Architecture for Risk-Adjusted Customer Lifetime Value** *First Author
Published 2026*
Journal: SCIENTIFIC CULTURE, DOI: 10.5281/zenodo.18681149
2. **A Hybrid Machine Learning Framework for Fraud Detection in Mobile Banking Using Behavioral Biometrics and Transactional Patterns** *First Author
Published 2026*
Journal: SCIENTIFIC CULTURE, DOI: 10.5281/zenodo.18681515
3. **Intelligent Credit Sentinel: A Synergistic Multi-Layered Machine Learning Framework for Detecting Fraud and Billing Anomalies** *First Author
Published 2026*
Journal: SCIENTIFIC CULTURE, DOI: 10.5281/zenodo.18681376
4. **Robust Variable Selection in High-Dimensional Data: Mitigating Cellwise Contamination Through Comparative Analysis** *Published 2025*
Journal: Dhaka University Journal of Science, DOI: 10.3329/dujs.v73i2.82773
5. **Eco-Crypto Dynamics: Cointegration of Green and Non-Green Cryptocurrencies for Sustainable Investing** *Published 2025*
Journal: Advances in Consumer Research (Vol: 02, Issue: 03, ISSN: 3079-1766)
6. **Unveiling the hidden patterns in green cryptocurrencies: a time series clustering approach towards understanding the price dynamics.** *Published 2025*
Journal: Accountancy Business and the Public Interest (Vol: 41, Issue: 04, ISSN: 1745-7718)
7. **Predicting Cesarean Section Deliveries Using Hybrid Machine Learning Models: Evidence from the Bangladesh Demographic and Health Survey.** *Poster Accepted*
Journal: The International Conference on Applied Statistics and Data Science, Paper ID: 189, (ICASDS-2025)

Manuscripts Under Review

8. **Prevalence and Clinical Correlates of Metabolic Dysfunction Associated Fatty Liver Disease (MAFLD) in Patients with Inflammatory Bowel Disease (IBD): A Cross-Sectional Comparative Study in South Asia** *Springer Nature*
9. **Optimizing Micro-Insurance Operations: A Cost-Sensitive Straight-Through Processing Framework** *Under Review*
10. **MAD and Sharpe Portfolio Optimization Alchemy: Balancing Profitability and Sustainability in Indian Capital Market**
11. **An AI and Structural Equation Modeling analysis of Fintech Adoption in Bangladesh**
12. **Sharpe Portfolio Optimization in the Indian Capital Market in the Light of the ESG Framework**

13. Exploring the Fintech Adoption in India: An AI Based Study Focusing on Customer Experience and Loyalty

Education

- University of Dhaka**, Dhaka, Bangladesh 2025
Bachelor of Science in Statistics
- GPA: 2.95/4.00
- Police Lines School and College**, Rangpur, Bangladesh 2016
Higher Secondary Certificate
- GPA: 5.00/5.00
- Pirgachha JN Government Model High School**, Pirgachha, Bangladesh 2014
Secondary School Certificate
- GPA: 5.00/5.00

Test Scores

- TOEFL** Oct 15, 2025
- **Total: 102/120** (Reading: 23, Listening: 29, Speaking: 28, Writing: 22)

Technical Skills

Languages

- **Advanced:** R, Python, SQL, JavaScript
- **Proficient:** C, C++, Java, Bash
- **Beginner:** Rust, Julia
- **Hobby:** NodeJS, ReactJS, Flutter, DOTNET

Tools/Frameworks

- **R Packages:** dplyr, ggplot2, caret, tidyr, data.table, shiny, bslib, robustbase, golem, forecast, urca, vars, glmnet, mlr, testthat, shinytest2, Rcpp, rstan, brms, survival, keras, torch, sparklyr
- **Python Libraries:** NumPy, Pandas, Scikit-learn, TensorFlow, Keras, PyTorch, XGBoost, LightGBM, Statsmodels, Matplotlib, Seaborn, Plotly
- **BI Tools:** Power BI, Looker Studio, Tableau
- **Advanced Dashboards:** ShinyApps, Streamlit
- **Databases:** MySQL, BigQuery, MongoDB, DuckDB
- **Big Data & Distributed Computing:** Google Cloud, Azure, IBM Watson Studio, Apache Spark (PySpark/SparkR)
- **Reporting/Publishing:** L^AT_EX, Quarto, rmarkdown, Jupyter Notebook, Typst
- **Others:** SPSS, STATA, Tableau Prep, SAS (Base), Anaconda, UNIX/Linux shell scripting, Git, GitHub CI/CD, Docker, HTML, CSS

Projects

Breast Tumour Detection using CNNs

- Compared multiple CNN architectures (VGG16/19, InceptionV3, DenseNet169, Inception-ResNetV2) on ultrasound images to detect breast tumours.

False Data Injection Attack (FDIA) Detection

- Designed a hybrid deep learning model (AE, GNN, RNN, DBN, GAN) for anomaly detection in smart grid power systems.

Determinants of Malnutrition in Bangladesh

(4th Year Project)

- Performed logistic regression on Bangladesh Demographic and Health Survey (BDHS) data to find determinants of malnutrition, utilizing R and SPSS.

Interactive COVID-19 Dashboard

(Bangladesh, Archived)

- Developed an interactive dashboard to track and visualize COVID-19 cases in Bangladesh using R, Shiny, and the Leaflet mapping library.

Scalable AI Assistant Chat Application

Hobby Project

- Building a conversational AI chatbot with a Streamlit interface, leveraging the OpenRouter API to access and

experiment with various open-source large language models.

AI Powered Patient Diagnosis System

- Developed a web-based patient management dashboard using Python and Shiny, featuring full CRUD capabilities for medical records.
- Integrated Google's Gemini API to analyze patient symptoms and health metrics, generating AI-powered diagnostic and medication suggestions.
- Designed a responsive user interface with interactive data visualizations using Plotly to monitor vital signs like BMI and blood pressure.
- github.com/rana2hin/AI_Medical_Diagnosis [↗](#)

Courses & Certifications

- Data Science Toolkit - Coursera
- R Programming – Coursera (John Hopkins University)
- Python for Data Science – Coursera
- Interactive Data Apps with Leaflet and Shiny in R – DataCamp
- Foundations of Data Science with R and Python – DataCamp
- SQL Fundamentals - DataCamp
- IBM Data Science Specialization - Coursera (Ongoing)

Experience

Co-Founder & CTO

StatClinix Ltd

2023-present

Dhaka, Bangladesh

- Co-founded a hobby-turned data science start-up serving clients in the health, agriculture, and climate sectors.
- Delivered analytics, dashboards, and ML models using R, Python, and cloud tools to support research and decision-making.
- Guided clients by providing recommendations on the best technical solutions and data visualization strategies to meet their business goals.
- Acted as a primary technical consultant for clients, from initial requirements gathering and validation to project scoping and final delivery.

Extra-Curricular Activities

- **Volunteerism:** Regular blood donor (23 times to date).
- **Author:** Wrote a handbook on ggplot2 (Used Quarto, [Take a look! ↗](#)); Currently writing a Bangla book on R and Data Science (Used GitBook, [Take a look! ↗](#)).
- **Leadership:** Founding Member of the QMH Statistics Club; Organized multiple Statistics Fests.
- **Tech Contributor:** Helped develop The Papyrus, an online departmental magazine platform.
- **Blogging:** I love to write about tech, art, data science, fishing, basically whatever I find interesting! ([Under Maintenance ↗](#))
- **Personal Interests:** Creative writing (stories and poetry).

References

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