

# MD. FARHAN RAFIQ

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## EDUCATION

### Master of Science (Thesis) in Oceanography

Feb 2024 - Dec 2025 (expected)

*Shahjalal University of Science and Technology (SUST), Sylhet, Bangladesh*

- CGPA: 3.78/4.00 (40/52 credits completed)

### Bachelor of Science in Oceanography

Jan 2019 - Jan 2024

*Shahjalal University of Science and Technology (SUST), Sylhet, Bangladesh*

- CGPA: 3.66/4.00

## RESEARCH INTEREST

Geographic Information System (GIS), Remote sensing, Oceanographic data science, Geospatial AI and predictive modeling, Climate change and environmental monitoring

## RESEARCH EXPERIENCE

### Research Assistant – Site Suitability Mapping for Seaweed Cultivation

*Department of Oceanography, SUST*

Sep 2023 - Feb 2024

**Supervisor:** Dr. Subrata Sarker, Associate Professor and Head

- Worked on the paper “*Site Suitability Mapping for Different Seaweed Cultivation Systems along the Coastal and Marine Waters of Bangladesh: A Generalized Additive Modelling Approach for Prediction*”
- Conducted GIS-based mapping and statistical analysis using R and ArcGIS.

### Research Assistant – Marine Biodiversity Habitat Mapping for Saint Martin Island

*Department of Oceanography, SUST*

Mar 2022 - Aug 2022

**Supervisor:** Muhammad Mizanur Rahman, Assistant Professor

- Contributed to the study “*Marine Biodiversity Habitat Mapping for Saint Martin Island through integration of community knowledge and science*”
- Performed data collection, participatory mapping, and validation of habitat distribution.

## RESEARCH PROJECTS

### Integrated Modelling of Urban Flood Risk in Chattogram: Application of TOPSIS, Machine Learning and Spatial Analysis Approaches

*Masters' Thesis (Defense scheduled for 18 Dec 2025)*

Jun 2025 - Dec 2025 (expected)

- Developing a hybrid model integrating TOPSIS and machine learning for flood risk assessment.
- Leveraging ArcMap, Python, and Google Earth Engine to analyze spatial and socioeconomic data.

### Spatial and Temporal Variability of PAR, Kd\_490 and SST in the Bangladesh Exclusive Economic Zone (2016-2022)

*Undergraduate Research Project*

Dec 2023

- Analyzed 7-year ocean color and thermal data using SeaDAS and ArcGIS to evaluate productivity patterns.
- Investigated spatial and temporal trends influencing marine ecosystem productivity.

### Quantitative Analysis of Annual Chlorophyll-a and Sea Surface Temperature Fluctuations in the Bay of Bengal Using Remote Sensing Data

*Mini Project under “Remote Sensing and Satellite Oceanography” coursework*

Jun 2023

- Examined seasonal patterns of Chlorophyll-a and SST using MODIS-Aqua datasets.
- Developed geospatial visualizations using SNAP and ArcMap.

## SKILLS

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### Geospatial Analysis and Remote Sensing:

- **ArcGIS:** Spatial analysis, geoprocessing, cartographic design for environmental mapping
- **SeaDAS/SNAP, ODV:** Ocean color data preprocessing, image classification, radiometric correction
- **Google Earth Engine:** Cloud-based satellite data processing and time-series analysis
- **ERDAS Imagine:** Raster analysis and image classification

### Programming and Data Analysis:

- **Python:** Data analysis and visualization (Pandas, NumPy, Matplotlib, Scikit-learn)
- **R:** Spatial data analysis, statistical modelling, and map-based visualization
- **Microsoft Excel:** Advanced data management, dashboards, and PivotTable analytics

### Oceanographic and Field Instruments:

Water sample collection from Niskin bottles and CTD devices, ADCP Doppler Technology, Multi-parameter Water Probe, AlgaeTorch

### Digital Skills:

Microsoft Office Suite (Word, Excel, PowerPoint), Google Workspace (Docs, Sheets, Slides, Drive, Forms), SQL (basic), Power BI, LaTeX, Mendeley, SPSS, Kobo Toolbox, Google Earth Pro, Canva Pro, Adobe Illustrator

## LANGUAGES

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- Bengali (Native)
- English (Professional work proficiency)

## INTERNSHIP

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### Marine Phytoplankton Study in the Bay of Bengal

Mar 2025

*Bangladesh Fisheries Research Institute (BFRI), Cox's Bazar, Bangladesh*

- Conducted phytoplankton culture, growth monitoring, and microscopic identification.
- Performed field sampling, specimen preservation, and isolation techniques.

## HONOURS AND AWARDS

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### National Science and Technology (NST) Fellowship

Apr 2025

*Ministry of Science and Technology, Government of Bangladesh*

- A prestigious research grant, awarded to support my masters' thesis

## CERTIFICATIONS

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- "Going Places with Spatial Analysis" – *ESRI (Online)* Mar 2025
- "Spatial Analysis and Satellite Imagery in GIS" – *University of Toronto – Coursera* Nov 2023
- "Volunteer" – *International Symposium on Marine Resource Management, SUST* Mar 2023
- "Cartography" – *ESRI (Online)* Mar 2022

## REFERENCES

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### • Dr. Subrata Sarker

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### • Abu Bokkar Siddique

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