

MD. FARHAN RAFIQ

Geospatial Analyst | GIS & Remote Sensing | Urban and Coastal Risk Modeling

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EDUCATION

Master of Science (Thesis) in Oceanography

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

Feb 2024 – Jan 2026 | CGPA: 3.83/4.00

Bachelor of Science in Oceanography

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

Jan 2019 – Jan 2024 | CGPA: 3.66/4.00

RESEARCH INTERESTS

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

Sep 2023 – Feb 2024 | Department of Oceanography, SUST

- Conducted GIS-based site suitability analysis using multi-criteria spatial modeling techniques.
- Performed spatial validation and statistical analysis to support sustainable aquaculture planning.

Research Assistant – Marine Biodiversity Habitat Mapping, Saint Martin Island

Mar 2022 – Aug 2022 | Department of Oceanography, SUST

- Supported marine habitat mapping through GIS analysis and participatory field surveys.
- Integrated community knowledge with scientific datasets for spatial validation and mapping accuracy.

RESEARCH PROJECTS

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

Master's Thesis

- Integrated machine learning and TOPSIS to model urban flood risk.
- Generated GIS-based flood hazard, vulnerability, and risk maps to identify hotspots.

Spatial and Temporal Variability of PAR, Kd490, and SST in the Bangladesh EEZ (2016–2022)

Undergraduate Research Project

- Analyzed 7 years of MODIS-Aqua ocean color and SST data using SeaDAS and ArcGIS.
- Evaluated spatial and temporal productivity patterns influencing marine ecosystem dynamics.

CONFERENCE PUBLICATIONS

Md. Farhan Rafiq, Abu Bokkar Siddique. (2025) “*Spatial and Temporal Dynamics of PAR, Kd490, and SST in the Bangladesh EEZ (2016–2022)*” In Proceedings of the 18th International Conference on Engineering and Natural Sciences (ICENS 2025), pp. 708–722. Liberty Academic Publishing House, New York, USA. ISBN: 979-8-89695-279-4. Proceedings DOI: <https://doi.org/10.5281/zenodo.18009064>

TECHNICAL SKILLS

- **Geospatial Analysis and Remote Sensing:**

ArcGIS, ERDAS Imagine, Google Earth Engine, SeaDAS, SNAP, ODV, spatial analysis, geoprocessing, cartographic design, satellite image preprocessing and classification, time-series analysis.

- **Programming and Data Analysis:**

Python (Pandas, NumPy, Matplotlib, Scikit-learn), R, advanced Excel analytics, and dashboards.

- **Oceanographic and Field Instruments:**

CTD, ADCP, Niskin bottles, multi-parameter water probe, and AlgaeTorch.

- **Digital and Research Tools:**

Power BI, LaTeX, Mendeley, SPSS, Kobo Toolbox, Google Earth Pro, Canva Pro, and Adobe Illustrator.

LANGUAGE

- Bangla (Native)
- English (Fluent)

INTERNSHIP

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 planning.

HONORS & AWARDS

National Science and Technology (NST) Fellowship

Apr 2025 | Ministry of Science and Technology, Government of Bangladesh

- Competitive national research funding awarded for thesis-based master's in environmental risk analysis.

CERTIFICATIONS

- **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

Dr. Subrata Sarker, Associate Professor and Head, Department of Oceanography, SUST

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