

Md. Farhan Rafiq

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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 • Thesis: <i>Urban Flood Risk Modelling in Chattogram using TOPSIS, Machine Learning, and Spatial Analysis</i> • Award: National Science and Technology (NST) Fellowship, Bangladesh, 2025	

Bachelor of Science (Honours) 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, Monitoring of Ecohydrological Variables in the Meghna River Estuary Department of Oceanography, SUST	Dec 2025 – Present
• Conducting ecohydrological monitoring and GIS based spatial analysis of estuarine variables. • Integrating in situ observations with time series and geospatial analysis for environmental assessment.	
Marine Research Intern, Phytoplankton Study in the Bay of Bengal Bangladesh Fisheries Research Institute (BFRI), Cox's Bazar, Bangladesh	Mar 2025
• Implemented phytoplankton culture, growth monitoring, and microscopic identification. • Conducted field sampling, specimen preservation, and isolation planning.	
Research Assistant, Site Suitability Mapping for Seaweed Cultivation Department of Oceanography, SUST	Sep 2023 – Feb 2024
• Developed GIS based site suitability models using multi criteria spatial decision frameworks. • Performed spatial validation and statistical analysis for sustainable aquaculture planning.	

Research Projects

Integrated Modelling of Urban Flood Risk in Chattogram: Application of TOPSIS, Machine Learning, and Spatial Analysis Approaches Master's Thesis	Mar 2025 – Dec 2025
• Integrated machine learning algorithms with TOPSIS for urban flood risk modeling. • Produced GIS based flood hazard, vulnerability, and risk maps to identify high risk zones.	
Spatial and Temporal Variability of PAR, Kd₄₉₀, and SST in the Bangladesh EEZ (2016–2022) Undergraduate Research Project	Jul 2023 – Dec 2023
• Analyzed seven years of MODIS Aqua ocean color and SST data using SeaDAS and ArcGIS. • Evaluated spatial and temporal productivity patterns affecting marine ecosystems.	

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.

Academic Engagement

International Symposium on Marine Resource Management (ISM RM)

Mar 2023

Organized by Department of Oceanography, SUST

- Participated in technical sessions and discussions on marine resource management and coastal sustainability.
- Supported symposium logistics, session coordination, and participant facilitation during the event.

Technical Skills

Geospatial Analysis and Remote Sensing: ArcGIS, SeaDAS, SNAP, ERDAS Imagine, Google Earth Engine, ODV, Delft3D, cartographic design, time series analysis, satellite image preprocessing and classifications.

Programming and Data Analysis: Python (Pandas, NumPy, Matplotlib, Scikit-learn), R, MATLAB, and Microsoft Excel analytics.

Oceanographic and Field Instruments: CTD, ADCP, Niskin bottles, multiparameter water probe, AlgaeTorch.

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

Language

- **Bangla:** Native
- **English:** Proficient

Honors and Awards

National Science and Technology Fellowship

Granted by Ministry of Science and Technology, Government of Bangladesh

Apr 2025

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

Certifications

- **Going Places with Spatial Analysis**, ESRI Mar 2025
- **Databases and SQL for Data Science with Python**, IBM, Coursera Feb 2024
- **Spatial Analysis and Satellite Imagery in GIS**, University of Toronto Nov 2023
- **Data Analysis with Python**, IBM, Coursera Oct 2023
- **Preparing Data for Analysis with Microsoft Excel**, Microsoft, Coursera Oct 2023
- **Cartography**, ESRI Mar 2022

References

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

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Abu Bokkar Siddique, Assistant Professor, Department of Oceanography, SUST

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