

# Md. Farhan Rafiq

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## Education

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- Master of Science (Thesis) in Oceanography** Feb 2024 – Jan 2026  
Shahjalal University of Science and Technology (SUST), Sylhet, Bangladesh
- **CGPA:** 3.83/4.00
- Bachelor of Science (Honours) in Oceanography** Jan 2019 – Jan 2024  
Shahjalal University of Science and Technology (SUST), Sylhet, Bangladesh
- **CGPA:** 3.66/4.00

## Research Interests

Geographic Information System (GIS), Remote Sensing, Geospatial AI and Predictive Modeling, Environmental Data Science, Natural Hazards and Disaster Resilience, Climate Change and Environmental Monitoring

## Research Experience

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- Research Assistant** Dec 2025 – Present  
*Monitoring of Ecohydrological Variables in the Meghna River Estuary*  
Department of Oceanography, SUST
- Conducting ecohydrological monitoring and GIS based spatial analysis of estuarine variables.
  - Integrating in situ observations with time series and geospatial analysis for environmental assessment.
- Master's Thesis** Dec 2025  
*Integrated Modelling of Urban Flood Risk in Chattogram: Application of TOPSIS, Machine Learning, and Spatial Analysis Approaches*
- 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.
- Marine Research Intern** Mar 2025  
*Phytoplankton Study in the Bay of Bengal*  
Bangladesh Fisheries Research Institute (BFRI), Cox's Bazar, Bangladesh
- Implemented phytoplankton culture, growth monitoring, and microscopic identification.
  - Conducted field sampling, specimen preservation, and isolation planning.
- Undergraduate Research Project** Dec 2023  
*Spatial and Temporal Variability of PAR, Kd490, and SST in the Bangladesh EEZ (2016–2022)*
- Analyzed seven years of MODIS Aqua ocean color and SST data using SeaDAS and ArcGIS.
  - Evaluated spatial and temporal productivity patterns affecting marine ecosystems.
- Mini Project under "Remote Sensing" coursework** Jun 2023  
*Quantitative Analysis of Annual Chlorophyll-a and Sea Surface Temperature Fluctuations in the Bay of Bengal Using Remote Sensing Data*
- Applied satellite data to analyze seasonal trends in Chlorophyll-a and SST in the Bay of Bengal.
  - Created detailed geospatial visualizations using SNAP and ArcMap.

## Conference Publications

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Md. Farhan Rafiq, Abu Bokkar Siddique (2025).

*Spatial and Temporal Dynamics of PAR,  $K_d_{490}$ , 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

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### International Symposium on Marine Resource Management (ISMRRM)

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

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- **Geospatial Analysis and Remote Sensing:** ArcGIS, SeaDAS, SNAP, ODV, Delft3D, ERDAS Imagine, Google Earth Engine
- **Programming and Data Analysis:** Python (Pandas, NumPy, Matplotlib, Scikit-learn), R, MATLAB, and Microsoft Excel analytics.
- **Oceanographic and Field Instruments:** CTD, ADCP, multiparameter water probe, AlgaeTorch.
- **Digital and Research Tools:** Power BI, LaTeX, Mendeley, SPSS, Kobo Toolbox, Google Earth Pro, Canva Pro, Adobe Illustrator.

## Language

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

## Honors and Awards

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### 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

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

## References

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

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