Md. Farhan Rafiq

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Education

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

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, Kd_{490}, 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

Md. Farhan Rafiq, Abu Bokkar Siddique (2025).
Spatial and Temporal Dynamics of PAR, Kd_{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

International Symposium on Marine Resource Management (ISMRM) 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, 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

- **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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