Mst Sanjida Alam
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Professional Experience

Graduate Research Assistant *August 2026 to Present*
Louisiana State University Health Sciences Center New Orleans, LA 70112, USA
- Assesses environmental and climatic factors influencing human health outcomes.

Research Assistant *August 2025 to January 2026*
Center for Geospatial Analytics, Clark University, Worcester, MA, USA
- Focused on environmental change detection, land-use and land-cover change analysis through spatial data preparation, GIS analysis, mapping, and database management.

Campus Ambassador *May 2025 - August 2025*
Clark University, Worcester, MA, USA
- Promoted academic programs and supported outreach by clearly communicating with students and stakeholders, strengthening engagement and coordination skills.

Research & Training Advisor (Non-Executive) (Active Management: July 2024 – August 2024)
GREENS, Bangladesh
- Led the project to maintain environmental sustainability through GIS, remote sensing, and database management.
- Contributed to research and training programs while supporting strategic planning, organizational development, applied environmental research, and technical content development.

Principal *November 2022 to August 2024*
Mymensingh International School *(Major, Bangladesh Army- Education Corps)*
- Managed academic operations, faculty development, resource allocation, and community relations also ensuring compliance with educational authorities.

Education Officer June 2017 to November 2022
Artillery Centre & School *(Major, Bangladesh Army- Education Corps)*
- Led geography, environmental, map-reading, and spatial-awareness training while preparing instructional materials, coordinating data-driven exercises, and supporting reporting and institutional operations.

Academic Instructor *December 2014 - June 2017*
Bangladesh Military Academy *(Captain, Bangladesh Army- Education Corps)*
- Taught Geography, Environmental Studies, and Geopolitics while training cadets in map reading, GIS-supported spatial interpretation, and technical concepts.
- Developed course materials and learning resources while supporting curriculum development and academic quality.

General Staff Officer *December 2012 to December 2014*
Cumilla Cantonment *(Lieutenant, Bangladesh Army- Education Corps)*
- Managed soldier academic training, map-reading courses, administrative records, and interagency coordination activities.
- Streamlined training administration and developed specialized modules for structured learning and operational preparedness.

EDUCATION

Doctor of Philosophy (PhD) in Community Health Sciences & Policy (CHSP) *August 2026*
Graduate Research Assistant
Louisiana State University Health Sciences Center New Orleans, LA 70112, USA

Master of Science in Geographic Information Science (GIS) *August 2024 – May 2026*
Clark University, Worcester, MA, USA
CGPA: 3.89
Awarded Merit-Based Scholarship
Thesis: Machine Learning–Based Assessment of Insect Outbreak Impacts on Fuel Treatments and Wildfire Risk: Implications for Community Resilience

Master of Science in Geography and Environmental Studies *January 2010 – February 2012*
University of Chittagong, Chattogram, Bangladesh
GPA: 3.73 (4th Rank)
Thesis: Vulnerability assessment of women and children associated with cyclonic hazards in the coastal belt of Bangladesh: A case study on Anwara Upazila, Chittagong, Bangladesh

Bachelor of Science in Geography and Environmental Studies *January 2005 – February 2010*
University of Chittagong, Chattogram, Bangladesh
CGPA: 3.64

CORE SKILLS

- **GIS & Spatial Analysis:** ArcGIS Pro, WebMap, QGIS, GeoDa, TerrSet, geoprocessing, spatial autocorrelation, cluster analysis, hotspot analysis, and network analysis.
- **Remote Sensing:** Google Earth Engine, Google Colab, land-use change detection, habitat suitability, biodiversity assessment, and environmental trend analysis.
- **Data Analysis & Modelling:** Python, R, SPSS, NVivo, regression, ANOVA, PCA, GWR, and machine learning.
- **Field & Survey Methods:** GPS tracking, Field surveys, Mobile data collection, Big-data analysis, and database management and Quantitative and Qualitative research.
- **Regulatory Support:** Environmental monitoring, Environmental risk assessment, Impact mapping, Hotspot identification, and Regulatory reporting support.

RESEARCH WORKS

- **Alam, M. S** (2026). Geospatial analysis of urban heat Islands and heat vulnerability in Chattogram, Bangladesh: implications for public health risks. Air Qual Atmos Health 19, 22. https://doi.org/10.1007/s11869-026-01920-x
- **Alam, M. S., (2026).** Modeling and Performance Evaluation of Machine Learning for Historical and Future Land Use and Land Cover Dynamics in Chattogram District, Bangladesh. *Frontiers in Environmental Science*, *14*, 1923661. https://doi.org/10.3389/fenvs.2026.1923661
- **Alam, M. S.,** Rahman, M., Sharmin, N., Molla, M. N., Al Mahbub, H., Muniruzzaman, M., & Alam, E. (2026). Evaluating Spatiotemporal Changes and Predicting Land-Use Dynamics Using an Artificial Neural Network in Worcester City, Massachusetts. Earth Systems and Environment, 1-20. https://doi.org/10.1007/s41748-026-01099-2
- Ahsan, M. S., **Alam, M. S.**, Ahmed, S. S., Islam, M. T., Shoaib, H. A., Mridha, M. F., & Hossen, M. J. (2026). Attention-Based Geo–Textual Fusion Network for Disaster Risk Prediction. IEEE Open Journal of the Computer Society. https://doi.org/10.1109/OJCS.2026.3697754
- Rahman, M., Mahbub, H. A., **Alam, M. S.,** Alam, J., Sharmin, N., & Molla, M. N. (2026). Assessing future drought scenarios in Rangpur, Bangladesh using CMIP6 climate projections and drought indices. *Discover Geoscience*, 4, Article 199. https://doi.org/10.1007/s44288-026-00566-7
- Mahbub, H. A., **Alam, M. S.,** Muhibbullah, M., Sarwar, M. I., Bakkar, M. A., Hassan, A., & Rahman, M. (2026). Geo-spatial exploration of climate change vulnerability: Impacts on agriculture and livelihoods in Kapasia Upazila of Gazipur District, Bangladesh. In S. Mandal, M. M. A. Dogar, & B. U. Choudhury (Eds.), *Climate change vulnerability* (pp. 43–64). Springer. https://doi.org/10.1007/978-3-032-16783-5_3

- **Alam, M. S.**, Sharmin, N., Rahman, M., Molla, M. N., & Hossain, M. F. (2025). GIS and Multi Criteria Decision Analysis in Bangladesh: A Systematic Review of Applications. Journal of Geography, Environment and Earth Science International, 29(7), 29–48. https://doi.org/10.9734/jgeesi/2025/v29i7916
- Islam, M. A., Vabna, S. S., Biswas, B., **Alam, M. S.,** & Rahman, M. R. (2026). Health implications of airborne pollutants from inefficient urban waste management systems. *American Journal of Medical Science and Innovation, 5*(1), 29–39. https://doi.org/10.54536/ajmsi.v5i1.5870

PROJECTS

- **Machine Learning-Based LULC Classification and Prediction, Chattogram, Bangladesh**
  Clark University | Advisor: Dr. Florencia Sangermano
  Evaluated machine learning algorithms for land-use and land-cover classification and projected changes to 2035 using Google Earth Engine, TerrSet, and ArcGIS Pro.
- **Machine Learning-Based Flood Risk Mapping for Bangladesh**
  Clark University | Advisor: Dr. Hamed Alemohammad
  Developed national flood typology and five-level risk maps using the Random Forest algorithm.
- **Land-Cover Change in DCR State Forests, Worcester County, Massachusetts (2024)**
  Department of Conservation and Recreation | Advisor: Dr. John Rogan
  Analyzed spatial and temporal forest-cover changes to support ecosystem monitoring and management.
- **Forest-Cover Change and Hot Spot Analysis, Quabbin Reservoir Watershed, MA (2025)**
  Clark University | Advisor: Dr. Yelena Ogneva-Himmelberger
  Applied spatial autocorrelation and Emerging Hot Spot Analysis in ArcGIS Pro to identify forest-change patterns.
- **Wildfire Patterns and Vulnerability Assessment, San Martín, Peru**
  Clark University | Advisor: Dr. Lyndon Estes
  Analyzed long-term wildfire patterns and assessed the vulnerability of communities and ecosystems.

AWARDS AND PROFESSIONAL DEVELOPMENT

- APCG Harry and Shirley Bailey Award (2025) for Outstanding Paper in Physical Geography.
- MSGIS Student Travel Award (2025), Graduate School of Geography, Clark University.
- AAG Graduate Student Affinity Group Travel Award (2026).
- Graduate Student Council, Clark University, Research and Support Award (2026).
- Professional training: Standard & Advanced Map Reading Course; Junior Command and Staff Course; UN Peacekeeping Pre-deployment Training.

PROFESSIONAL SERVICE

- Sustainable Cities and Society, Elsevier – Reviewed 2 manuscript research on heatwave vulnerability assessment using GIS and AHP in Gorakhpur, India.
- Earth Systems and Environment, Springer Nature - Reviewed 18 manuscripts on GIS, remote sensing, machine learning, drought, hydrology, groundwater, and environmental modelling.
- Discover Sustainability, Springer Nature - Reviewed 3 manuscript on maize production and poverty alleviation in Bangladesh.
- Theoretical and Applied Climatology, Springer Nature - Reviewed 2 manuscript on climate sensitivity and rice production; CMIP6 model performance in reproducing rainfall and temperature across Bangladesh.
- Discover Environment, Springer Nature - Reviewed research on drought-induced livelihood vulnerability in Bangladesh using the LVI–IPCC framework.
- Revue Internationale de Géomatique (International Journal of Geomatics) – Reviewed a manuscript on future LULC change modeling using the MOLUSCE simulation framework in the Garhwal Himalaya, India.