Aindrila Talukder

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Professional Summary

Geoinformatics professional with expertise in GIS, remote sensing, drone data processing, and geospatial analytics. Skilled in RTK/PPK workflows, photogrammetry, LiDAR processing, and machine learning for high-precision mapping and predictive modeling. Experienced in delivering geospatial insights for infrastructure, environment, and resource management. Recognized for problem-solving, teamwork, and applying advanced geospatial technologies to real-world challenges.

Key Skills

- GIS & Remote Sensing: ArcGIS Pro, QGIS, Erdas Imagine, Global Mapper, Agisoft Metashape, iTwin Capture, QT Modeler
- Programming & Analysis: Python (NumPy, Pandas, Arcpy), R, SQL, Google Earth Engine, Machine Learning (ConvLSTM, Random Forest, AHP)
- Survey & Hardware: Emlid RTK/PPK, Drone Operations, LiDAR Data Processing
- Professional: Team Management, Communication, Time Management, Problem Solving

Professional Experience

Technical Executive – Drone Data Processing & Aerial Triangulation

Matrix Geo Solutions Ltd | May 2025 – Present

• Planned and integrated Ground Control Points (GCP) for centimeter-level accuracy in mapping.
• Processed RTK/PPK datasets to generate orthomosaics, DTMs, DSMs, and 3D models.
• Conducted volumetric assessments of coal-yard stockpiles and industrial sites for operational planning.
• Delivered geospatial insights for infrastructure and environmental projects using advanced GIS and photogrammetry.
• Ensured data integrity and timely delivery in collaboration with multidisciplinary teams.

Tools: Google Earth Pro, Agisoft Metashape, iTwin Capture, Global Mapper, Emlid, QT Modeler.

GIS Intern

Cybertech Systems & Software Ltd | Jun 2024 – Aug 2024

• Assisted in spatial data management and map production using ArcGIS products.
• Gained hands-on experience with enterprise GIS workflows.

Education

- M.Sc. Geoinformatics | Symbiosis Institute of Geoinformatics | 2023–2025 | CGPA: 7.79/10
- B.Sc. (Hons.) Geography | Shri Shikshayatan College | 2020–2023 | 74.10%
- Higher Secondary (XII) | St. Paul's Boarding & Day School, Kolkata | 2020 | 74%
- Secondary (X) | St. Paul's Boarding & Day School, Kolkata | 2018 | 74.6%

Academic & Research Projects

Agricultural Drought Prediction (ConvLSTM + Climatic Indices, Latur, Maharashtra)

- Developed a PCA–ConvLSTM framework integrating CHIRPS and MODIS datasets (2014–2024) to predict pre-monsoon agricultural drought.
- Achieved 92% predictive accuracy (R^2 = 0.90), supporting climate-resilient agricultural planning and water resource management.

  Tools: Python, ArcGIS Pro, Google Earth Engine, Machine Learning

Flood Susceptibility Mapping (Fuzzy AHP vs Random Forest, Pashchim Champaran, Bihar)

- Modelled flood-prone zones using multi-criteria decision-making (Fuzzy AHP) and machine learning (Random Forest) approaches.
- Enhanced precision of risk assessment for disaster preparedness and hydrological planning.

  Tools: ArcGIS Pro, Erdas Imagine, Python, Google Earth Engine

Smart Mobility Solutions for India's Urban Giants: Transforming Transport in Delhi, Mumbai, Pune, and Bengaluru

- Developed GIS-based Smart Mobility solutions using ArcGIS Online and ArcGIS Pro to analyze transportation networks across Delhi, Mumbai, Pune, and Bengaluru.
- Examined electric vehicle infrastructure, traffic congestion, public transit integration, and shared mobility systems to address inefficiencies in urban transport.

- Proposed sustainable, data-driven strategies to improve mobility efficiency, reduce congestion, and promote environmentally responsible transport planning.

  Tools: ArcGIS Online, ArcGIS Pro

3D Building & Canopy Height Extraction (LiDAR Data)

- Processed high-resolution LiDAR point clouds to generate 3D building footprints and canopy height models.
- Outcomes support urban infrastructure planning, green cover estimation, and smart city development.

  Tools: LiDAR, ArcGIS Pro

Wildfire Risk Zonation (Machine Learning, Gadchiroli, Maharashtra)

- Applied ML algorithms to map wildfire intensity and risk-prone areas using climatic and vegetation data.
- Results assist environmental management, risk mitigation, and disaster resilience planning.

  Tools: ArcGIS Pro, Python

Vegetative Cover Forecasting (CA–Markov Model, Wayanad, Kerala)

- Predicted land use/land cover change for 2042 by integrating historical land use patterns and spatial data.
- Supports environmental planning, watershed management, and climate change adaptation strategies.

  Tools: ArcGIS Pro, QGIS, Python

Landslide Susceptibility Mapping (AHP Model, Rudraprayag, Uttarakhand)

- Identified high-risk landslide zones using terrain, rainfall, geology, and vegetation datasets.
- Provides actionable insights for infrastructure development, transportation corridor safety, and hazard mitigation.

  Tools: ArcGIS Pro, Erdas Imagine

Certifications & Training

- Applied GIS from Basic to Implementation (ArcGIS & GEE)
- ESRI MOOC – Cartography & Spatial Analysis
- ESRI MOOC – Spatial Analysis
- National Symposium on Geospatial Ecosystems, Trends & Innovation (ISG, ISRS, 2023)
- Capacity Building Programme for River Ganga Stakeholders (SAIARD, 2023)

Additional Information

- Languages: English, Hindi, Bengali
- Date of Birth: 23-10-2002
- Interests: Volunteering, Drawing