Md Ashraf

23mc0049@iitism.ac.in +91- 8434587197
ashraf-iit-ism Ashraf8434 ashraf-portfolio

Education

Indian Institute of Technology (ISM), Dhanbad 2023-2026
MSc(Tech), Applied GeoPhysics (GPA: 8.06 / 10.00) *Dhanbad, Jharkhand*

Patna Science College (Patna University) 2019-2022
BSc Physics (Hons) (74.38%) *Patna,Bihar*

+2 Islamia High School, Simri Bakhtiyarpur 2015-2019
Matriculation (Class 10) (86.6%) & Intermediate (Class 12) (84.8%) *Saharsa, Bihar*

Experience

Indian Institute of Technology(ISM),Dhanbad December 2023
Geological Field Training *Tetulmari,Basudebpur*

- Map orientation,Front and Back bearing, Analysis of rock types and mineralogy, Assessment of rock strength with related tests, and measurement of dip and strike of geological structures.

Indian Institute of Technology(ISM),Dhanbad December 2024
Winter Geophysical Field Training *Baliapur, A part of chhotanagpur belt*

- Conducted Magnetic and susceptibility surveys using a proton magnetometer and susceptibility meter.
- Acquired seismic Reflection and Refraction data using a 21-channel Geometrics Geode and performed HVSR measurements with a GEObit Seismometer.
- Acquired active and passive seismic data, including refraction and ambient noise, for subsurface characterization.
- Conducted DC Resistivity survey with IGIS resitivity meter and Electrical Resistivity Tomography (ERT) with 48- and 96-channel IRIS systems, alongside Induced Polarization (IP) Dipole-Dipole survey using an IRIS ELREC instrument.
- Collected gravity data using CG5 and CG6 Autogravimeters.
- Captured Ground Penetrating Radar (GPR) data with a GSSI system.

Projects

Oil and Natural Gas Corporation Ltd. (ONGC), Chennai June 2025 – July 2025
Summer Intern *Chennai, Tamil Nadu*

* Studied seismic data acquisition geometry, survey design, and QC techniques in both land and marine environments
* Practiced time and depth domain seismic processing including velocity analysis, stacking, deconvolution, and migration.
* Conducted seismic interpretation for structural and stratigraphic mapping, horizon picking, and attribute extraction (RMS amplitude, phase, coherence)
* Applied post-stack and pre-stack inversion for reservoir characterization, lithology prediction, and hydrocarbon prospect de-risking.

Machine Learning Based Facies Prediction March 2025 – April 2025
Case Study at IIT (ISM) Dhanbad *Supervisor: Dr. Partha Pratim Mandal*

* Analyzed well log data using histograms to study distribution and detect outliers.
* Generated missing PE logs to support facies type identification in wells lacking that information.

* Prepared additional input features for both supervised and unsupervised rock classification approaches.
* Implemented supervised and unsupervised machine learning algorithms to classify electrofacies.
* Validated predicted facies by comparing with known lithofacies and nearby well data.

Product Development: GUI of Basic Petrophysics Code September 2024 – November 2024

Case Study at IIT (ISM) Dhanbad — PyQt, Numpy, Matplotlib, Lasio, Seaborn, Qt Designer, Plotly

Supervisor: Dr. Partha Pratim Mandal

* Developed a user-friendly desktop application for petrophysical data processing and interpretation.
* Enabled data import/export for various petrophysical file formats (LAS, CSV, XLSX) with graphical sliders for parameter adjustments.
* Implemented key petrophysical calculations, including Archie's equation, shale volume, effective porosity, NTG (Net to Gross ratio), and reservoir flag.
* Designed an interactive GUI with log visualization, including triple combo plots, histograms, box plots, and cross-plots.

Indian Institute of Science (IISc), Bangalore May 2024 – July 2024

To Estimate the Co-Seismic Surface Deformation using GPS Measurements *Summer Research Internship*

Supervisor: Dr. Attreyee Ghosh

* Investigated the 2015 Gorkha earthquake's impact on crustal deformation and GPS site velocities using GAMIT/GLOBK. Processed GPS data from 26 GNSS and 12 IGS stations over the period 2010–2016.
* Generated earthquake-related time-series plots and evaluated earthquake-induced surface movements and deformation.
* Converted CNX format data to RNX and performed data processing to ensure accuracy and completeness in the analysis.

GORGONICHTHYS-1: Well Logging Analysis March 2024 – April 2024

Case Study at IIT (ISM) Dhanbad *Python, Pandas, Numpy, Matplotlib, Lasio, Seaborn*

* Conducted a comprehensive petrophysical case study of the Gorgonichthys-1 well, including sonic tool design, wireline log quality control, outlier detection, porosity estimation, velocity analysis, shale volume and water saturation estimation, and advanced reservoir characterization.

Skills

Programming Languages: Python, Matlab, LaTeX

Software Skills: Tesseral Pro, Seismic-Unix(SU), MS Word, MS PowerPoint, MS Excel

Operating System: Linux, Windows

Geospatial Geodetic Tools: GAMIT / GLOBK, GMT (Generic mapping tools)

Soft Skills: Innovative Thinking, Communication, Teamwork, Time management, Problem-solving, Adaptability

Languages:Hindi, English,Urdu

Achievements

DST-Inspire Scholar

ONGC Scholarship Holder

District Second Topper in Class 10

AIR-11 in JMI MSc (Physics) Entrance Test

Positions of Responsibility

EAGE IIT ISM Student Chapter **-Content Writer**

SEG Student Chapter IIT ISM Dhanbad **-Content Writer**

Chegg (EdTech) **-Subject Matter Expert (Advanced Physics)**

Social Engagements

Reading Novels, Teaching