

# Mobashshir Zainuddin

Indian Institute of Technology, Kharagpur

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## EDUCATION

Degree	Year	Institute	CGPA/Percentage
Integrated Dual Degree in Mining Engineering + Petroleum Engineering	2023-2028	Indian Institute of Technology, Kharagpur	7.34/10
Class XII, BSEB	2021-2023	Purnea College, Purnea	87.6%
Class X, CBSE	2020-2021	Millia Convent English School, Kasba Purnea	81.6%

## INTERN / PROJECTS

**UG Researcher | CNeRG | IIT Kharagpur | Python, PyTorch, Pandas, VLMs** Dec 2024 – Present

- Automated a large-scale multimodal data pipeline to scrape and preprocess over 350K+ data points from social media platforms, ensuring compliance with privacy standards.
- Leveraged Vision-Language Models to decode semantic relationships in hateful memes, contributing to automated AI-driven content moderation research.

**Slope Stability Analysis** Python, scikit-learn, Pandas Sep 2025

- Applied ML models (RF, SVM, DT, KNN, LR, GNB) with SMOTE-based balancing and feature importance analysis to predict slope stability in opencast coal mines with 98% accuracy.

**Web Developer | CoriumExim** HTML, CSS, JavaScript Jul 2025 – Aug 2025

- Built the pipeline of emailing system, decreased the latency of website by 20% fixed the phone browser-specific zoom behaviour caused by viewport misconfiguration.

**Research Paper Summarizer Chatbot** Python, Streamlit, LangChain, LLMs Jul 2025

- Designed an LLM-powered chatbot capable of generating concise, multi-style summaries for 100+ research papers.

**Geospatial Mineral Mapping** Python, Flask, Pandas, Matplotlib Apr 2025

- Developed an interactive Flask web app for hyperspectral mineral exploration, processing more than 240 EnMAP spectral bands to delineate kaolinite-rich zones.
- Integrated spectral calibration, preprocessing, and mineral classification pipelines using Python-based geospatial analytics, enabling visualization of 1000+ pixel-level signatures across datasets.

**Weather Dashboard Web App** JavaScript, Node.js, Express.js, API Apr 2025

- Constructed a real-time weather monitoring system tracking 6 environmental parameters with auto-updating visuals for accessibility among non-literate users.

**Facial Recognition System** Python, TensorFlow, OpenCV, Keras Jul 2024

- Fine-tuned a FaceNet-based recognition model utilizing triplet loss to attain 87% accuracy under diverse conditions.

**Object Detection System** Python, PyTorch, YOLOv8 Jun 2024

- Optimized YOLOv8 with IoU refinement, non-max suppression, and data augmentation to achieve 82% precision.

## COMPETITIONS

**Smart India Hackathon 2025 | IIT Kharagpur** TypeScript, CSS, Python, HuggingFace Sep 2025

- Achieved **3rd rank** in Internal hackathon at IIT Kharagpur.
- Built a farmer-assistive web platform integrating market analytics, AI-based crop recommendations and pest detection (**97% accuracy**).

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## ACHIEVEMENTS

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- Ranked in the top 11 percentile among 180K+ candidates in JEE Advanced 2023.
- Secured an All India Rank (AIR) in the top 2.9 percentile among 1.1M+ candidates in JEE Main 2023.
- 2nd rank in NMTSE 2019 at the district level.

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## TECHNICAL SKILLS

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- **Core Areas:** Full-Stack Development, REST APIs, Cloud Deployment, Machine Learning, Deep Learning, NLP, Generative AI, Data Structures & Algorithms, Competitive Programming.
- **Programming Languages:** Python, C, C++, HTML, CSS, JavaScript, TypeScript.
- **Frameworks & Databases:** ReactJS, Node.js, Express.js, Flask, LangChain, PostgreSQL, MySQL, MongoDB.
- **Tools & Platforms:** Git, GitHub, GitLab, Docker, Render, Netlify, Google Cloud, AWS, Jupyter, Hugging Face.

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## COURSEWORK

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- **Mathematics:** Advanced Calculus, Linear Algebra, Numerical and Complex Analysis, Probability and Statistics.
- **CS + AI/ML:** Advanced Machine Learning, Deep Learning, Programming and Data Structures.
- **Mining & Petroleum:** Rock Mechanics, Solid Mechanics, Development of Mineral Deposits, Geology For Engineers, Mine Surveying and Geoinformatics, Rock and Tool Interaction, Mining Machinery & Automation, Underground Metal Mining, Underground Coal Mining, Ventilation & Climate Control, Material Handling & Mineral Processing.

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## POSITION OF RESPONSIBILITY

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- Class Representative | Mining Engineering | IIT Kharagpur** **Jan 2025 – Apr 2025**
- Assigned 23 academic projects, arranged departmental seminars on Geoinformatics and Data Analytics, and streamlined faculty–student coordination.