

# Mohammad Azhar U Din Mir

+91-6006916442 | [d24102@students.iitmandi.ac.in](mailto:d24102@students.iitmandi.ac.in) |  Mir Azhar U DIn |

Kupwara, Jammu and Kashmir - 193224, India

## EXPERIENCE

### • Indian Institute of Technology Delhi [🌐]

*Junior Research Fellow*

*July 2022 - July 2023*

*Delhi, India*

- **Designed and fabricated a specialized test tank** to simulate the operational environment of a ship's hull, accommodating both air and water loading conditions.
- **Deployed a network of sensors** (e.g., PZT transducers) onto the testbed to generate and capture Lamb wave propagation data.
- **Analyzed Lamb wave signals** to investigate wave behavior and detect structural damages (e.g., cracks, corrosion) on the tank plates.
- **Contributed to a core project** on Structural Health Monitoring (SHM) for ship hulls, focusing on non-destructive evaluation (NDE) with guided waves.

### • Indian Institute of Technology Bombay [🌐]

*Junior Research Intern*

*April 2020 - June 2020*

*Remote*

- **Contributed to the FOSSEE project** by developing a new module for OSDag (Open Steel Design and Graphics).
- **Engineered and implemented a computational module** to automate the structural design of steel built-up members (e.g., I-sections, box-sections).
- **Developed algorithms** to process user inputs and perform design calculations based on structural engineering principles.

### • GMR Infrastructure Pvt. Ltd. [🌐]

*Graduate Engineer Trainee*

*August 2021 - April 2022*

*Hyderabad, India*

- **Oversaw daily site operations** for a major rail infrastructure project focused on track quadrupling (expansion from two to four lines).
- **Ensured construction activities** (e.g., earthwork, track laying) adhered to engineering drawings, quality standards, and safety protocols.
- **Coordinated with subcontractors** and work crews to maintain project schedules and resolve on-site technical challenges.
- **Contributed to the successful development** of two new rail lines, effectively doubling the track capacity for simultaneous train operations.

## EDUCATION

### • Indian Institute of Technology Mandi

*August 2023 - Present*

*Mandi, India*

*Direct PhD - Structural Engineering*

◦ **GPA:** 8.13/10

### • Vellore Institute of Technology Chennai

*2016-2021*

*Chennai, India*

*B-Tech - Civil Engineering*

◦ **GPA:** 8.65/10

## PROJECTS

### • Structural Health Monitoring (SHM) for Bridge Safety

*[B.Tech Second Year Project / 2019]*

- **Implemented a non-destructive damage detection strategy** to assess the structural integrity and safety of bridge components.
- **Developed and applied algorithms** to analyze sensor data (e.g., strain) for identifying structural anomalies.
- **Determined critical safety thresholds** and operational limits for bridges based on damage detection analysis.

- Developed an interactive design tool using Excel and VBA to automate the structural design of steel members.
- Engineered VBA macros to perform iterative calculations for both compression and tension members based on design code principles.
- Created a user-friendly interface in Excel to streamline the input of material properties and load parameters.
- Automated the generation of design results, significantly reducing manual calculation time and improving accuracy.

## PUBLICATIONS

---

- [S.1] Mohammad Azhar U Din Mir, Rajneesh Sharma. (2025). Microstructurally informed mechanical characterization of foam concrete using fabric tensor approach. Manuscript submitted for publication in *International Conference on Composite Materials and Structures (ICCMS) 2025, IIT Bhubaneswar*. (Under Review)

## SKILLS

---

- Programming Languages: Python, Matlab, Fortran, VBA,
- Simulation FEA: ABAQUS
- Data Analysis: NumPy, Pandas, SciPy, Matplotlib
- Technical Skills: Structural Health Monitoring (SHM), Finite Element Analysis (FEA), Structural Design, Non-Destructive Testing (NDT)
- Productivity Tools: MS Excel (Advanced), LaTeX, Git, AutoCAD