




Mohammad Azhar U Din Mir

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Kupwara, Jammu and Kashmir - 193224, India

EXPERIENCE

- **Indian Institute of Technology Delhi**  July 2022 - July 2023
Junior Research Fellow 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**  April 2020 - June 2020
Junior Research Intern 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.**  August 2021 - April 2022
Graduate Engineer Trainee 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
Direct PhD - Structural Engineering Mandi, India
 - GPA: 8.13/10
- **Vellore Institute of Technology Chennai** 2016-2021
B-Tech - Civil Engineering Chennai, India
 - 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