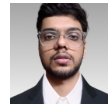




# MRIDUL TIWARI



## ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Engineering and Computational Mechanics	Indian Institute of Technology Delhi	9.04
2020	CBSE	Khel Gaon Public School	93.4
2018	CBSE	Central Academy	92.8

## SCHOLASTIC ACHIEVEMENTS

- **IITD Semester Merit Award:** Awarded the Merit Prize for performing in **top 7%** of the institute in **3rd** and **4th** semester. (2023)
- **Department Rank 1st:** Ranked **1st** out of 40 students of the Applied Mechanics department by the end of 5th semester (2023)
- **Letter of Recommendation:** Conferred by **Prof. V. K. Chalamalla**, commending **exemplary motivation** and **quick learning aptitude** (2023)
- **NTSE:** Awarded a **National scholarship** by Government of India every year to **1000** students among **1.0 million** applicants (2018)
- **Indian Intelligence Test (by Dainik Jagran):** Secured **AIR 1** from a pool of **50000+** students (2018)
- **INJSO & INAO:** Cleared the first stage (**NSEJS**) by performing in the **top 1%** of the region (2017)

## INTERNSHIPS

- **Design of Robotic Manipulator for Underwater Applications:** *Department of Applied Mechanics, IIT Delhi* (April, 2023 - July,2023)
  - Developed a **prototype robotic arm** with a versatile gripper for efficient manipulation under **Prof. Vamsi K. Chalamalla**
  - Conducted an extensive literature review and examined **20+ industrial** and **underwater** robotic arm variations
  - **Designed** and continually **refined** a robotic arm model using **Solidworks** through iterative **kinematic and dynamic analyses**

## PROJECTS

- **Bike Design using Generative AI (Prof. Sitikantha Roy)|**Machine Learning, Mechanics (Sept, 2023- Sept, 2023)
  - Analysed and Visualised the dataset taken from **BIKED research paper** using state of art techniques like, **T-SNE** and **PCA**
  - Classified the dataset using a deep learning neural network, implemented from scratch , getting a **96%** accuracy on test dataset
  - Created and Trained a **VAE (Variational Auto Encoder)** based ML model on BIKED dataset that can generate **novel & viable** bike designs
- **Ankle-specific exosuit (Prof. Sitikantha Roy)|**Machine Learning, Mechanics (Sept, 2023 - Dec, 2023)
  - Designed a **wearable exosuit** that provides **optimal torque** to the ankle joint at right time based on the person's **gait** cycle
  - Deployed an ML Algorithm in **Raspberry Pi** which can detect **user's intention** and map it to control the actuators accordingly
- **Othello Game (Prof. Keerti Choudhary)|**Java, Data Structures (March, 2023 - April, 2023)
  - Developed an intelligent game-playing agent utilizing **k-step look-ahead** and **MiniMax algorithm** for optimal move selection
  - Utilized various data structures such as **linked lists, graphs, and DFS trees** to implement the strategic components
  - Implemented a game simulation function to determine the **winner** based on the initial board state
- **Stock Analysis toolkit: Independent Project |**Python, Machine Learning (May, 2023)
  - Stock screener: Identified undervalued stocks using the **finviz**, based on metrics like **P/E, debt-to-equity & price-to-book** ratio
  - Sentiment analysis: Analyzed **news articles** to gauge **market sentiment** towards potential investments, using **FinBERT**
  - Stock price prediction: Utilized an advanced ML model, **GRU**, to predict stock prices by treating stock data as **time series**
- **Retention Prediction Model (Coursera Challenge Labs) |**Python, Machine Learning (Dec, 2022)
  - Developed & trained a ML model to address a real-world **consumer retention challenge**, including **dataset encoding and cleaning**
  - Employed the **Scikit-Learn** library to model and trained the dataset using the **Random Forest algorithm**
  - Attained a **68% accuracy level**, successfully completing the challenge and acquiring a **certificate**
- **Encryption of Database with IP-Based Security: Independent Project |**PHP,MySQL (Dec, 2024- Jan, 2024)
  - Crafted an **API** enabling **encryption** and **insertion** of data into a protected database, ensuring strict security standards
  - Engineered another **API** facilitating the **fetching, decryption and modification** of data, enhancing the database's flexibility and utility

## TECHNICAL SKILLS

- **Programming Languages:** Python, C, C++, Java, HTML/CSS, PHP, MySQL, Verilog HDL
- **Softwares & Tools:** Git, Autodesk Inventor, Solidworks, MATLAB, Pandas, TensorFlow, PyTorch, SciPy, MLOps, AutoML

## POSITIONS OF RESPONSIBILITY

- **Student Representative, Literary Club IITD:***selected out of 100+ students* (June, 2022- March, 2023)
  - **Fostered** a vibrant literary culture within the institute by **organizing 20+ events** and **workshops**
  - **Incentivized** participation, **guided 100+** freshmen and **managed** the club's library by employing a **library management software**

## EXTRA CURRICULAR ACTIVITIES

- **Best Representative:** Awarded the title by BRCA for **exceptional contributions** among **16 club representatives** (2022-23)
- **Technical Executive:** Created an **interactive crossword webpage** | **Tabbing Executive:** Employed a **Perl-based** software (2023)
- **Dare to Dream, DRDO:** **Developed** and **presented** innovative concept for personalized **digital twins of human organs** (March, 2023)



# MRIDUL TIWARI



## IIT COURSE

### Degree

### Institute

### CGPA

B.Tech in Engineering and Computational Mechanics

Indian Institute of Technology Delhi

9.04

## QUALIFYING EXAM

- **Joint Entrance Examination (JEE) Advanced Rank:** 1397 (GE)

## COURSES DONE

Engg. Visualization & Comm., Engineering Mechanics, Introduction To Chemistry, Calculus, Language & Writing Skill, Introduction To Materials Science And Engineering, Solid Mechanics, Applied Mathematics For Engineers, Fluid Mechanics, Intro. To Biology For Engineer, Numerical Method S& Computation, Experimental Methods, Data Structures And Algorithms, Digital Electronics, Engineering Thermodynamics, Indian Fiction In English, Environmental Science

## POSITIONS OF RESPONSIBILITY

- Hostel Representative, Literary, BRCA (May, 2022 - June, 2023)
- BRCA Rep - Literary, Girnar, BHM (May, 2022 - June, 2023)

## EXTRA CURRICULAR ACTIVITIES

- Best Representative, BRCA Awards (July, 2021 - May, 2022)
- Technical Executive, The Cinephile's Crossword (June, 2022 - May, 2023)
- Tabbing Executive, Rendezvous'23: IITD Scrabble Open (June, 2022 - May, 2023)