MIHIR RAJ

MECHANICAL ENGG.
MINOR in COMPUTER SCIENCE & ENGG.
MICRO SPL. in ARTIFICIAL INTELLIGENCE AND APPLICATIONS

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2024	B.TECH	IIT Kharagpur	8.87 / 10
2020	All India Senior School Certificate Examination	Surendranath Centenary School, Ranchi	94.80%
2018	Indian School Certificate Examination	Mount Carmel School, Ranchi	94.20%

INTERNSHIPS

Software Engineer Intern | Honeywell Technology Solutions Lab Pvt. Ltd | Bengaluru   **May'23 - Jul'23**
Overview: To enhance the UX and efficiency of the Tracking Portal, a SaaS-based solution used by 1000+ European tobacco distributors
- Developed a custom user interface in **React** with **8 pages** to improve data visibility and user experience by introducing new functionalities
- Elevated supply chain **dashboard** by presenting product compliance status over time using **10+ metrics** through dynamic graphs & charts
- Optimized transaction and transloading by incorporating **5 filtering** options with **7 product attributes**, improving information retrieval
- Integrated **Localytics**, enabling **tracking** and **analysis** of user behaviour during **A/B testing** across teams to assess website performance

PROJECTS

HotelEase | Hotel Reservation Website   **Jun'23 - Aug'23**
Objective: To develop a website providing details about hotels in the designated region, along with the ability to book rooms for specific dates
- Designed the frontend in **ReactJS** with global state management via Context API, creating an intuitive reservation system for **100+ hotels**
- Created **Mongoose** schema, integrated with **ExpressJS** for REST APIs, streamlining CRUD tasks with **5+ filters** rooted in ratings and costs
- Implemented a **JWT** role-based authorization and integrated **middleware** for effective error handling, enhancing its security and stability

Intelligent Patient Face Recognition | Bachelor Thesis Project | IIT Kharagpur   **May'23 - Present**
Supervisor: Prof. Dilip Kumar Pratihar (Faculty of Mechanical Engineering Department, IIT Kharagpur)
- Designed a Face Recognition solution using a **Genetic Adversarial Network (GAN)**, with fuzzy based logic and image recognition parameters
- Executed **backpropagation algorithm** within the neural framework, optimizing image parameters to generate images for specific input ages

SearchX: Dynamic Range Queries and Updates | Course Project | IIT Kharagpur   **Jan'22 - Mar'22**
Supervisor: Prof. Partha Pratim Chakrabarti and Prof. Palash Dey (Faculty of Computer Science Engineering Department, IIT Kharagpur)
- Devised an algorithm for **Range Searching**, enabling users to query data ranges with an average time of **0.02 seconds** on **1000+** datasets
- Built a **Segment Tree** for fast range minimum queries and point updates, delivering **O(log n)** time complexity for efficient computations
- Validated **accuracy** and **robustness** via testing, which included complexity analysis, correctness comparison, and interactive validation

Sorting Visualiser | Algorithmic Understanding through Visual Exploration   **Nov'21 - Dec'21**
Objective: To create an educational tool aimed at captivating students' attention while enriching their comprehension of sorting algorithms
- Created the frontend using **JavaScript**, integrating functionalities for adjusting **sorting speed** and variations across arrays of diverse sizes
- Incorporated **5+** key **sorting algorithms**, utilizing their characteristics to demonstrate their performance across diverse values and lengths

AWARDS AND ACHIEVEMENTS

- Received the **Karuturi Ramamurty Endowment Award** for academic excellence, the **sole awardee** among **500+** departmental students
- Bagged an **International Rank of 104** and a **Zonal Rank of 5** among **3.4 million+** students in the SOF International Mathematics Olympiad
- Achieved a **Worldwide Position of 69** and secured a **Zonal Rank of 5** among **1.2 million+** candidates in the SOF **National Cyber Olympiad**
- Awarded the prestigious **Ritesh Ranjan Memorial Scholarship**, given to the department's **top 3** academics, including an **INR 2 lakh** prize
- Accomplished **Department change** to Mechanical Engineering, ranking among the **top 5%** of **1800+** students after completion of 1st year
- Attained a **Global rank of 73** in June Lunchtime 2022 and ranked **603** globally out of **3.5k+** contestants in Starters 43 (Div. 3) on CodeChef

SKILLS AND EXPERTISE

- **Programming Languages:** C, C++, JavaScript, TypeScript, Python, HTML, CSS
- **Libraries:** ReactJS, Redux, Material UI, NumPy, Pandas, Matplotlib, C++ STL
- **Frameworks:** Bootstrap, NodeJS, ExpressJS
- **Tools:** Bitbucket, Git, GitHub, LT Spice, Solidworks

COURSEWORK INFORMATION

Programming and Data Structures | Algorithm -1 | Object Oriented Programming | Soft Computing | Linear Algebra | Operations Research |
Numerical and Complex Analysis | Partial Differential Equation | Transform Calculus | Advanced Calculus | Entrepreneurship Essentials

POSITIONS OF RESPONSIBILITY

Mentor | AlgoZenith | Nagpur, Maharashtra   **Aug'22 - Present**
AlgoZenith is an Ed-Tech Platform striving to revolutionize the way programming is taught at school and college levels in India and abroad
- Guided **500+ students** on the platform as they embarked on their learning journey in Data Structures and Algorithms via **chats** and **calls**
- Facilitated guest sessions for **200+** students, providing valuable guidance and support in preparing for technical rounds and interviews
- Tested and verified solutions for **100+ questions**, accounting for all edge cases, on the mock test platform during its beta testing phase

Associate Member | Samudramanthan | IIT Kharagpur   **Dec'20 - Jun'21**
Samudramanthan is the national level inter college's annual technical meet for Ocean Engineering and Naval Architecture at IIT Kharagpur
- Planned and executed the first hybrid Samudramanthan, increasing participation by **25% YoY** by developing comprehensive publicity plan
- Coordinated with **23 Associates**, managing a budget of **INR 1.3 lakh** for logistics across **8+ events** and arrangements for guest speakers

EXTRA CURRICULAR ACTIVITIES

- **Socult:** Member of **Gold-winning Choreography** team of Rajendra Prasad Hall in the General Championship, competing among **20+ halls**
- **Sport:** Participated in the Intra-Hall Event of **Cricket Tournament** in Rajendra Prasad Hall of Residence, competing alongside **16 teams**
- **Volunteering:** Served as an **NCC** cadet in the **3 Bengal Tech Air Sqn** for **2 years**, promoting COVID-19 precautions and safety awareness

!Self declared by the student, CDC could not verify the relevant documents