



KETUL SAGAR | 22CY10045

Indian Institute of Technology Kharagpur

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## EDUCATION

Year	Degree/Exam	Institute	CGPA/Percentage
2026	B.S, Chemistry	Indian Institute of Technology Kharagpur	7.94
2022	Class XII, HSC	Matoshri Junior College, Nashik	86.5%
2020	Class X, CBSE	Symbiosis School, Nashik	93.4%

## INTERNSHIPS AND PROJECTS

<b>Credit card fraud detector</b>	October 2024 - November 2024
<ul style="list-style-type: none"><li>Engineered a robust credit fraud detection model by addressing imbalanced datasets with SMOTE, detecting fraud cases with an 98% accuracy.</li><li>Implemented PCA transformation and robust scaling to enhance feature extraction and reduce dimensionality, achieving ROC-AUC score of 0.97.</li><li>Conducted anomaly detection and clustering using t-SNE to identify patterns and outliers.</li><li>Evaluated and compared F1-scores of logistic regression and neural network models, selecting the most effective algorithm.</li></ul>	
<b>AI-Powered Research Paper Summarizer Chatbot</b>	January 2025 - February 2025
<ul style="list-style-type: none"><li>Developed a chatbot that summarizes research papers and answers queries using LLM + RAG.</li><li>Implemented document embeddings &amp; retrieval using LlamaIndex &amp; FAISS.</li><li>Deployed on AWS Bedrock with a scalable backend using FastAPI &amp; AWS Lambda.</li><li>Optimized model inference for low-latency responses, improving research accessibility.</li></ul>	
<b>Walmart M5 Time Series Forecasting</b>	August 2024 - September 2024
<ul style="list-style-type: none"><li>Merged multiple data frames into a unified dataset, optimizing efficiency and data integrity.</li><li>Conducted down-casting and melted data frames, ensuring compatibility and streamlined analysis.</li><li>Employed label/mean encoding, introduced lags, and calculated rolling/expanding window statistics.</li><li>Developed a LightGBM regressor model to forecast daily sales for the next 28 days.</li></ul>	
<b>Pneumonia Detection using CNN</b>	December 2024 - January 2025
<ul style="list-style-type: none"><li>Used data augmentation to triple the number of training examples resulting in a robust model.</li><li>Utilized batch normalization, Conv2D, MaxPooling2D, dropout layers, and output flattening to build an effective CNN.</li><li>Achieved 92.6% accuracy, 0.96 recall score and implemented learning rate reduction techniques on performance plateaus.</li></ul>	

## SKILLS AND EXPERTISE

- Programming Languages:** Python | C    **Familiar:** JavaScript | HTML | CSS | C++
- Libraries and Frameworks:** Numpy | Pandas | Matplotlib | Seaborn | Plotly | Sci-Kit Learn | TensorFlow | Keras | BeautifulSoup | MySQL | LlamaIndex | FastAPI | AWS Lambda
- Software:** Google Colab | Jupyter Notebook | Visual Studio Code | Git | Github | Blender | Unity

## COURSEWORK INFORMATION

- Probability and Statistics (MA20202)
- Quantum Mechanics (PH21212)
- Programming and Data structures (CS10003)
- Transform Calculus (MA20101)
- Linear Algebra and Numerical Analysis (MA11003)
- Quantum Chemistry and Spectroscopy (CY41009)

## POSITIONS OF RESPONSIBILITY

<b>Web Sub-Head   Shaurya</b>	August-2023 to March-2024
<ul style="list-style-type: none"><li>Revived Shaurya after 12 years, developing and launching the fest website using ReactJS and Tailwind CSS.</li><li>Conducted freshers' selection and managed 1,000 students over three days for efficient fest operations.</li></ul>	
<b>Sub-Head   Finance and Economics Club</b>	November-2023 to April-2024
<ul style="list-style-type: none"><li>Went through rigorous selection procedure to stand out in the top 10% of students to get selected in the club.</li><li>Was part of the Inter-Club Equity Research Competition and did a Financial analysis of Public Sector Banks.</li></ul>	

## AWARDS AND ACHIEVEMENTS

- Secured All India Rank in Top 10% in JEE Advanced 2022(out of 1,72,000 candidates).
- Secured All India Rank in Top 2% in JEE Mains 2022(out of 12,00,000 candidates).

## EXTRA CURRICULAR ACTIVITIES

- Part of General Championship Badminton Team
- Part of National Service Scheme, helping in education of impoverished students.