

# Kaustav Dasgupta

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## EDUCATIONAL QUALIFICATIONS

Year	Qualification	Institute	Performance
Aug 2021- May2025	B.Tech - Mechanical Engineering   Minor – Eng Literature	Indian Institute of Technology Kanpur	<b>8.0/10.0</b>
Apr 2021	Class XII, Maharashtra State Board	Pace Junior Science College, Nerul	<b>95.2%</b>
Apr 2019	Class X, CBSE Board	D.A.V Public School, Nerul	<b>94.0%</b>

## SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 2666** in JEE Advanced 2021 and **All India Rank 5044** in JEE Mains 2021 amongst **9.2 lakh candidates** 2021
- Secured **All India Rank 102** in All India Open Mathematics Scholarship Examination by IPM among **50K+ candidates** 2020
- Received the **Academic Excellence Award** for exceptional academic performance in the **2020-21** academic session 2021

## WORK EXPERIENCE

### Product Development Internship | Medantrik (MedTech Start-Up) Jun'24-Aug'24

Received Pre-Placement Offer (PPO) for exceptional performance

Objective	Develop algorithm for <b>portable lung health device</b> , a cost-effective personalized appliance for managing respiratory diseases
Execution	<ul style="list-style-type: none"><li>Calibrated device to map RPM to breath flow rate using prototype at <b>National Wind Tunnel IITK</b>; leveraged <b>5+ research papers</b></li><li>Boosted algorithm accuracy by <b>12%</b> by building hospital prototype and interface, collecting <b>10+ datapoints</b> from <b>200+ patients</b></li><li>Integrated hospital data (<b>SQL Server</b>) with GLI metrics, applying <b>Random Forest</b> to predict ideal lung health parameters</li></ul>
Impact	<ul style="list-style-type: none"><li>Co-invented patent-pending device; projected sales of <b>₹30cr revenue (50K units)</b> by Apr, launch expected by <b>Sept</b> (Delhi-NCR)</li><li>Generated lung report (<b>19 parameters+4 graphs</b>) via proprietary algo, classifying lung health into <b>4 categories (96% accuracy)</b></li></ul>

### Product Management Internship | Foruppo (Autonomous Start-Up Ecosystem) May'24-Jun'24

Product 1: <b>Wizoona (Co-creator)</b>	<ul style="list-style-type: none"><li>Pioneered India's <b>1<sup>st</sup> community-led holistic education startup</b> to empower young adults with comprehensive life education</li><li>Crafted <b>value proposition, customer segmentation, GTM strategy</b> of 'Wizoona' ensuring customer acquisition and retention</li></ul>
Product 2: <b>Urrban Tailor</b>	<ul style="list-style-type: none"><li>Spearheaded <b>8-member team</b> to develop Urrban Tailor, a personalized outfit selector, from concept to <b>Product Hunt launch</b></li><li>Developed a dynamic selection framework across <b>5 dimensions</b> on <b>WordPress</b>, enhancing user interaction and personalization</li></ul>

## RELEVANT PROJECTS

### Yoga Pose Prediction and Feedback Generation | Dr. Tushar Sandhan | EE, IIT Kanpur 🏠 Jan'24-May'24

Objective	Enhance self-guided yoga practice with a <b>deep learning model</b> , classifying yoga asanas and providing <b>real-time feedback</b>
Strategy	<ul style="list-style-type: none"><li>Engineered hybrid <b>CNN-LSTM model</b> capturing spatial and temporal features, trained on <b>88 videos</b> from diverse datasets</li><li>Utilized <b>OpenCV</b> for video processing, <b>MediaPipe</b> for pose landmark extraction, <b>Keras with TensorFlow</b> for model training</li><li>Conducted <b>angular vector analyses</b> to compare user poses with ideal poses, and implemented a feedback mechanism</li></ul>
Outcome	Reached <b>99.05%</b> accuracy, boosted to <b>99.66%</b> with polling, classifying videos into <b>6 asanas</b> and providing <b>effective feedback</b>

### Forecasting using time-series Analysis | Stamatics, IIT Kanpur 🏠 May'23-Jul'23

Objective	Develop and compare predictive models for <b>air quality and stock prices</b> using time-series analysis to optimize accuracy
Strategy	<ul style="list-style-type: none"><li>Applied <b>ADF, ACF test, Box-Cox transformation</b> for the stationarity, normality, homoscedasticity on <b>7+time series</b> datasets</li><li>Decomposed time-series into <b>trend, seasonality, cyclicity</b> using <b>HP filter</b>; analyzed <b>AR/MA orders</b> using <b>PACF, normality tests</b></li></ul>
Outcome	<ul style="list-style-type: none"><li>Achieved a MAPE of 0.0153 and <b>98.5% accuracy</b> in predicting <b>Apple INC. stock prices</b> using <b>Auto ARIMA</b> on <b>1405 observations</b></li><li>Reduces prediction errors with <b>ARIMA, SARIMAX models</b>, achieving <b>97.1% accuracy</b> in <b>Beijing air quality forecasting</b></li></ul>

### Introduction to Machine Learning | Dr. Purushottam Kar | CSE, IIT Kanpur | Course Project 🏠 Jan'24 – May'24

<b>XORRO</b>	<ul style="list-style-type: none"><li>Derived a linear mathematical simplification modeling a XORRO PUF with <b>8 multiplexers</b>, using Khatri-Rao product</li><li>Developed a linear ensemble model built from <b>SVC and logistic regression</b> methods, achieving highest <b>accuracy of 99.33%</b></li></ul>
<b>Hangman</b>	<ul style="list-style-type: none"><li>Implemented information-theoretic algorithms <b>greedily</b> maximizing the number of nodes, resulting in <b>entropy reduction</b></li><li>Trained a <b>100% accurate decision tree</b> model on a dictionary with <b>6K+ data points</b>, effectively simulating Hangman gameplay</li></ul>
<b>Sensor</b>	<ul style="list-style-type: none"><li>Developed a <b>ridge linear model</b> calibrating the voltages recorded by the ozone and nitrogen dioxide sensors accurately</li><li>Reduced the MAE by using <b>Kernel Ridge non-linear model</b> with an adaptive learning rate &amp; <math>\epsilon</math>-insensitive loss function</li></ul>

### Chat With Multiple-PDFs | Self Project 🏠 Aug'24

Objective	Develop <b>contextually responsive chatbot</b> to answer user queries, extracting and processing text from <b>multiple PDFs</b>
Strategy	<ul style="list-style-type: none"><li>Leveraged <b>PyPDF2, LangChain, FAISS</b> for text extraction, embedding, and retrieval, with <b>OpenAI and Hugging Face models</b></li><li>Designed an <b>interface with Streamlit</b> to support file uploads, handle user queries, and responses generated by the chatbot</li></ul>
Outcome	Achieved a <b>90% accuracy</b> rate in query responses across PDF document types, processing up to <b>200 pages per document</b>

## LEADERSHIP EXPERIENCE

### Coordinator, Dance Club (KOS) | IIT Kanpur May'23 – May'24

Felicitated with Certificate of Appreciation by the **Director, IIT-K** for recognition as Coordinator, Dance Club, IIT Kanpur

Leadership	<ul style="list-style-type: none"><li>Directed a <b>3-tier team of 50+</b> in <b>4 national-level competitions</b> and coordinated <b>7 campus events</b> with <b>2K+ average footfall</b></li><li>Managed club finances of <b>INR 1.2L</b> and generated over <b>INR 30K</b> in additional revenue by organizing diverse workshops</li></ul>
Initiatives	<ul style="list-style-type: none"><li>Organized a <b>7-day Summer Workshop</b> series by tier-1 artist separately in two shifts for <b>50+ beginners</b> and <b>30+ team members</b></li><li>Crafted a dynamic <b>10-minute showcase</b> at the PG Orientation that successfully drew <b>1.8x more</b> PG students in the club</li></ul>
Impact	<ul style="list-style-type: none"><li>Achieved a <b>historic milestone</b> by becoming the <b>1<sup>st</sup> dance team</b> from any IIT to qualify for <b>Indian HipHop Championship finals</b></li><li>Garnered over <b>12 million+ views</b> and amassed an impressive <b>40K+ subscriber</b> base on the official Dance Club, IITK YT channel</li></ul>

## TECHNICAL SKILLS

- Programming Languages:** C++, Python, HTML, CSS, LaTeX, SQL
- Software & Utilities:** Illustrator, Photoshop, LightRoom, Excel, Canva
- Data Science & ML:** TensorFlow, Keras, NumPy, Pandas, Matplotlib, Scikit-learn, Statsmodels, OpenCV, LangChain, Streamlit

## EXTRA-CURRICULAR ACTIVITIES

Performing Arts	Inter-IIT Cult Meet 5.0	<ul style="list-style-type: none"><li>• <b>3<sup>rd</sup> position</b> in group dance category and <b>3<sup>rd</sup> position</b> in dance battle among <b>20+ teams</b></li></ul>	2023
	Antaragni, IITK	<ul style="list-style-type: none"><li>• <b>1<sup>st</sup> position</b> in group dance category and <b>1<sup>st</sup> position</b> in dance battle among <b>30+ teams</b></li></ul>	2023
Social Work	<ul style="list-style-type: none"><li>• Tutored <b>20 underprivileged children</b> in Math and English of class 5th and 6th through <b>Prayas, IITK</b></li></ul>		2022
	<ul style="list-style-type: none"><li>• Mobilized funds to support children's education at <b>Muskurahat Foundation (NGO)</b> earning a <b>merit certificate</b></li></ul>		

