Kaustav Dasgupta

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EDUCATIONAL QUALIFICATIONS

Year	Qualification	Institute	Performance
2021-2025	B.Tech - Mechanical Engineering | Minor – English Literature	Indian Institute of Technology Kanpur	**8.0/10.0**
2021	Class XII, Maharashtra State Board	Pace Junior Science College, Nerul	**95.2%**
2019	Class X, CBSE Board	D.A.V Public School, Nerul	**94.0%**

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 **portable lung health device**, a cost-effective personalized appliance for managing respiratory diseases
Execution	• Calibrated device to map RPM to breath flow rate using prototype at **National Wind Tunnel IITK**; leveraged **5+ research papers** • Boosted algorithm accuracy by **12%** by building hospital prototype and interface, collecting **10+ datapoints** from **200+ patients** • Integrated hospital data **(SQL Server)** with GLI metrics, applying **Random Forest** to predict ideal lung health parameters
Impact	• Co-invented patent-pending device; projected sales of **₹30cr revenue (50K units)** by Apr, launch expected by **Sept** (Delhi-NCR) • Generated lung report **(19 parameters+4 graphs)** via proprietary algo, classifying lung health into **4 categories (96% accuracy)**

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

Product 1: **Wizoona (Co-creator)**	• Pioneered **India's 1st community-led holistic education startup** to empower young adults with comprehensive life education • Crafted **value proposition, customer segmentation, GTM strategy** of 'Wizoona' ensuring customer acquisition and retention
Product 2: **Urrban Tailor**	• Spearheaded **8-member team** to develop Urrban Tailor, a personalized outfit selector, from concept to **Product Hunt launch** • Developed a dynamic selection framework across **5 dimensions** on **WordPress**, enhancing user interaction and personalization

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 **deep learning model**, classifying yoga asanas and providing **real-time feedback**
Strategy	• Engineered hybrid **CNN-LSTM model** capturing spatial and temporal features, trained on **88 videos** from diverse datasets • Utilized **OpenCV** for video processing, **MediaPipe** for pose landmark extraction, **Keras with TensorFlow** for model training • Conducted **angular vector analyses** to compare user poses with ideal poses, and implemented a feedback mechanism
Outcome	• Reached **99.05%** accuracy, boosted to **99.66%** with polling, classifying videos into **6 asanas** and providing **effective feedback**

Forecasting using time-series Analysis | *Stamatics, IIT Kanpur* 🎮 — *May'23-Jul'23*

Objective	• Develop and compare predictive models for **air quality and stock prices** using time-series analysis to optimize accuracy
Strategy	• Applied **ADF, ACF test, Box-Cox transformation** for the stationarity, normality, homoscedasticity on **7+time series** datasets • Decomposed time-series into **trend, seasonality, cyclicity** using **HP filter**; analyzed **AR/MA orders** using **PACF, normality tests**
Outcome	• Achieved a MAPE of 0.0153 and **98.5% accuracy** in predicting **Apple INC. stock prices** using **Auto ARIMA** on **1405 observations** • Reduces prediction errors with **ARIMA, SARIMAX models**, achieving **97.1% accuracy** in **Beijing air quality forecasting**

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

XORRO	• Derived a linear mathematical simplification modeling a XORRO PUF with **8 multiplexers**, using Khatri-Rao product • Developed a linear ensemble model built from **SVC and logistic regression** methods, achieving highest **accuracy of 99.33%**
Hangman	• Implemented information-theoretic algorithms **greedily** maximizing the number of nodes, resulting in **entropy reduction** • Trained a **100% accurate decision tree** model on a dictionary with **6K+ data points**, effectively simulating Hangman gameplay
Sensor	• Developed a **ridge linear model** calibrating the voltages recorded by the ozone and nitrogen dioxide sensors accurately • Reduced the MAE by using **Kernel Ridge non-linear model** with an adaptive learning rate & ε -insensitive loss function

Starbucks Customer Segmentation with RFM Analysis | *Self Project* 🎮 — *Nov'23 – Dec'23*

Objective	• Segment Starbucks customers based on **recency, frequency, monetary (RFM)** value to develop targeted marketing strategies
Strategy	• Optimized **300K+ datasets**, applied **PCA** to reduce dimensionality, & explored attributes through statistics and visualizations • Implemented **K-means clustering** on **17K+ customers**, determining optimal clusters using **silhouette score** and **elbow method**
Outcome	• Uncovered customer preferences across **6 clusters**, informing targeted marketing strategies effectively, boosting engagement

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	• Directed a **3-tier team of 50+** in **4 national-level competitions** and coordinated **7 campus events** with **2K+ average footfall** • Managed club finances of **INR 1.2L** and generated over **INR 30K** in additional revenue by organizing diverse workshops
Initiatives	• Organized a **7-day Summer Workshop** series by tier-1 artist separately in two shifts for **50+ beginners** and **30+ team members** • Crafted a dynamic **10-minute showcase** at the PG Orientation that successfully drew **1.8x more** PG students in the club
Impact	• Achieved a **historic milestone** by becoming the **1st dance team** from any IIT to qualify for **Indian HipHop Championship finals** • Garnered over **12 million+ views** and amassed an impressive **40K+ subscriber** base on the official Dance Club, IITK **YT channel**

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	• **3rd position** in group dance category and **3rd position** in dance battle among **20+ teams**	2023
	Antaragni, IITK	• **1st position** in group dance category and **1st position** in dance battle among **30+ teams**	2023
Social Work		• Tutored **20 underprivileged children** in Math and English of class 5th and 6th through **Prayas, IITK** • Mobilized funds to support children's education at **Muskurahat Foundation (NGO)** earning a **merit certificate**	2022