

Nikunj Jain

4th Year Undergraduate
Dept of Mechanical Engineering

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in Nikunj Jain | 🌐 nikunjain397

Academic Qualifications

| Year | Degree | Institute | CPI/% |
|-------------|-------------------|--|--------|
| 2018 - 2022 | B.Tech | Indian Institute of Technology, Kanpur | 8.5/10 |
| 2018 | Class XII (MPBSE) | CMC School, Jabalpur | 83% |
| 2016 | Class X (CBSE) | St Aloysius Sr Sec School, Rimjha | 9/10 |

Scholastic Achievements

- Cleared all rounds of **Indian Statistical Institute Entrance Exam 2018** and ranked **49 across country**
- Secured **All India Rank 1623** among **1.2 million applicants** in **Joint Entrance Exam-Main 2018**
- Achieved **All India Rank 1448** in **Joint Entrance Exam-Advanced 2018** among 1.5 Lakh candidates

Key Projects and Internship

- **Home Loan Mortgage Risk** | 🌐 *Self Project | (Jun'21-Jul'21)*

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|-----------|--|
| Objective | – Predict Loan Repayment : whether a loan will be Paid off or Defaulted |
| Approach | – Analysed attributes, studied inter-dependency using PPS score and eliminated redundant features – Applied Principal Component Analysis to reduce dimensions and minimize information loss – Implemented ANN, SVC, Decision Tree Classification models on Original and PCA features – Used Grid Search CV and K-fold cross-validation for hyperparameter tuning |
| Result | – Support Vector Machine classifier produced the best AUC value on original features: 0.874 – Artificial Neural Networks classifier produced the best AUC value on the PCA features: 0.881 |
- **Football Analysis: xG Model** | 🌐 *Self Project | (May'21)*
 - Created an **Expected Goals model**: Predict whether or not a shot will be converted into goal
 - **Scraped** events data and created attributes in cylindrical coordinate system for **open goal classification**
 - Applied **Logistic Regression** to find **probability** based on **goal angle** at shot location and **shot distance**
 - Visualised and presented the calculated **xG value** on football field for validation and further observatory analysis
 - **Prospects**: Set-piece specific classification, detailed real-time attributes, players' expertism for further improvement
- **Wing Configuration** | *Aeromodelling Club IIT Kanpur (May'19 - Jul'19)*
 - Designed and developed **five aircrafts**- a trainer, a biplane, a closed wing, a canard plane, and a viper jet model
 - Simulated models on **XFLR5** using vortex lattice method and analysed different **aerofoils** for optimum design
 - **Fabricated** all five models on styrofoam using **hot wire cutting technique** and **flight-tested** them
- **Internship at EndureAir** | *Dr Abhishek, Dept of Aerospace Engineering, IIT Kanpur (Sept'19 - Nov'19)*
 - Collaborated in team to **design and fabricate a QuadPlane - Quadrotor Airplane Hybrid VTOL**
 - Fabricated two prototypes for fixed-wing model, one styrofoam model and another a **composite model**
 - Produced parts of second prototype with **advance composites** using **vacuum bagging** and **fibre moulding**
 - Incorporated novel mechanisms like **wing joiners, custom made motor mounts and detachable wings**

Technical Skills

- **Programming**: C, C++, Python **Data Science**: Keras, scikit-learn, Pandas, Numpy, Matplotlib, Seaborn
- **Familiar Tools**: Web Scraping, Gephi **Utilities**: MATLAB, L^AT_EX, MS-Excel, XFLR5, Autodesk Inventor

Relevant Coursework

(*) Ongoing Course, (**) Achieved highest possible grade point out of 10

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|---|-------------------------|-----------------------------|
| Data Structures and Algorithms** | Social Media Analytics* | Fundamentals of Computing |
| Linear algebra and Differential Equations | Real & Complex analysis | Macroeconomics* |
| Supply Chain Management* | Advanced CFD* | Introduction to Economics** |

Position Of Responsibility

- **STUDENT GUIDE, Counselling Service IIT Kanpur** *(July'19 - Present)*
 - Coordinated with the Counselling Service and helped in smooth conduction of **Orientation Programme 2019**
 - Cooperated with other student guides for **registration** of more than **1000** newly admitted students
 - Provided emotional and academic counselling to a group of 6 freshmen and helped them settle throughout first year
- **SECRETARY, Aeromodelling Club IIT Kanpur** *(Apr'19 - Mar'20)*
 - Secured **1st position** in Cruise Control, Takneek'19 by preparing maximum endurance design report **within 24hrs**
 - Participated in **BOEING National Aeromodelling Competition** held at IIT Bombay, **Ranked** among **top 30 teams**
 - Co-managed several UG and PG teams in Aeromodelling workshops and conducted introductory lectures for freshmen

Extra-Curriculars

- **Co-Led** the **winning team of Aeromodelling events in Takneek'19**: Interhall SnT Competition
- Secretary, Synchronicity: Managed and organised International Rock Band Competition in Antaragini'19
- Secured 1st position in Hockey event during Intramurals'18 Physical Education Section at IIT Kanpur
- Coached a team of 3 freshmen for Badminton tournament at Aagaz'19: Interhall Sports Competition