

# ARYAN RAJ

3<sup>rd</sup> Year Undergraduate, Department of Mechanical Engineering

Indian Institute of Technology Kanpur

☎ +91-9508139213 ✉ aryanr20@iitk.ac.in 🌐 aryanraj4049 🌐 Website

## EDUCATION

Year	Degree	Institute	CPI/%
2020 - 2024	B.Tech in Mechanical Engineering	Indian Institute of Technology Kanpur	/10
2020	Class 12 <sup>th</sup> - CBSE	RPS public School, Muzaffarpur	%
2018	Class 10 <sup>th</sup> - CBSE	DAV public School, Muzaffarpur	

## SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank** in Joint Entrance Examination Advanced 2020 among **0.25 million** shortlisted candidates
- Secured in Joint Entrance Examination Main Paper - 1 2020 among **1.2 million** appearing candidates

## PROJECTS

**Electric Vehicle Thermal Management** 🛠️ *IITK motorsports team, IIT Kanpur* Jul'21 - Sept'21

- Familiarized with research reports available and found a way to calculate the **heat load** of an Electric vehicle
- Created **MATLAB program** to calculate the heat load of electric vehicle that includes heat from different components
- Created one more program to find the dimensions of the radiator, and by iterating the code multiple times got its dimensions
- Designed multiple cooling circuits and did **simulation** and analysis to select the best among them (**link**)

**Selecting Motors for Electric Car** 🛠️ *IITK motorsports team, IIT Kanpur* Nov'21 - Jan'22

- Learnt about electric motors, and their parameters that were important for selection like power, torque, cost, and availability
- Created **MATLAB program** to calculate the desired value of the parameters like torque, power and efficiency
- Proposed and implemented an idea to assign a **weightage** for each parameter so that we can find the **score** of each motor
- Created a general way to give a score to electric motors based on the parameters, I chose Emrax188 for our car

**Deep Dive into Web3.0, Blockchain Development** 🛠️ *Programming Club, IIT Kanpur* June'22 - Ongoing

- Created a **decentralized** loaning system using **Object Oriented Programming** paradigm in C++ programming language
- Conceptualized **Blockchain, consensus mechanisms** and its different types, different cryptocurrency and their use
- Learnt basics of **cryptography**, Hash functions and different types of securities and attacks on them
- Used **crypto library** of python to use a hashing function for a given input to calculate the **nonce** value for a given target
- Got familiarized with **Solidity**, created **smart contracts** by using solidity in Remix IDE and learned how to deploy it
- Currently learning about the development part with **React.js**, then will move on to dApps, NFTs and Defi

**Portfolio Website using React.js** 🛠️ *Programming Club, IIT Kanpur* May'22 - Jun'22

- Created an interactive portfolio website from scratch using **create react app, CSS3, Bootstrap, JSX**
- Used features like useState **Hook**, useContext Hook, **IconScout**, Framer Motion, react smooth scroll and Email JS

## TECHNICAL SKILLS

**Programming skills:** C, C++, Solidity, OOPs, DSA **Development skills:** - HTML5, CSS3, JS, Bootstrap, NPM, React.js

**Software:** MATLAB, Simulink, Solidworks, Micro-Cap 12, Autodesk fusion360, Ansys, Word, PPT

## RELEVANT COURSES

Fundamentals of Computing | Engineering Design and graphics | Thermodynamics | Fluids Mechanics | Manufacturing Process  
Mechanics of Solids | Nature and properties of materials | Dynamics | Introduction to Electrical Engineering

## POSITION OF RESPONSIBILITY

**Coordinator, Aeromodelling Club, Science and Technology Council IIT Kanpur** Apr'22 - Present

- **Leading** a team of two other mentors and coordinators to guide **50+ students** in three different technical projects
- **Proposed and passed** a budget of **INR 1,10,000** with other coordinators for the club. An increase of **175%** from last year
- Mentoring a diverse team of **20+** students each on a project pertaining to Fusion360, MATLAB, Simulink, Ansys

**Secretary, Aeromodelling club, Science and Technology Council IIT Kanpur** Aug'21 - Mar'22

- Wrote **blogs** on topics related to aeromodelling (i.e., Effect of number of rotors on an object having rotating blades)
- **Proposed** ideas for projects that the club should offer to freshman undergraduates (i.e., **Summer of Software**)

**Student Guide, Counselling services, IIT Kanpur** Nov'21 - Present

- **Responsible** for the guidance and mentorship at a personal level of 6 freshman undergraduates
- **Assisted** Core Team in smooth conduction of various events in the Orientation Session for the incoming Batch of Y21

## EXTRA CURRICULAR

- Former **Technical Team member** of **IITK Motorsports**, where we built Electric Vehicle and participate in Formula Student events
- Traded in NSE/BSE listed stock using **technical analysis, swing trading** and **intraday trading** and news updates