

Kalpesh Khare Aerospace Engineering **Indian Institute of Technology Bombay**  22B0069 B.Tech.

Gender: Male DOB: 26/02/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	
Intermediate	Maharashtra State Board	S.B.E.S. College of Science	2021	96.00%
Matriculation	Maharashtra State Board	S.B.O.A. Public School	2019	94.80%

Pursuing a Minor Degree from Computer Science and Engineering department, IIT Bombay

# SCHOLASTIC ACHIEVEMENTS

- Secured a percentile ranking of 97.04 in the JEE Advanced amongst 0.15+ million candidates (2022)
- Secured a percentile ranking of 99.16 in the JEE Mains exam amongst 1.03+ million candidates (2022)
- Secured a percentile ranking of 99.06 in the MHT-CET exam amongst 0.23+ million candidates (2022)
- Received an AA grade with a perfect 100% lab exam score in Computer Programming & Utilization
- (2022)Eligible for the Inspire SHE scholarship, received only to the top 1% of their Class XII examination (2022)
- Received a Scholarship in 8th standard from M.S.C.E. Pune for the Pre-Secondary Scholarship exam (2017)

# KEY PROJECTS

### Yearbook Portal | Institute Sports Council

(Jun'24 - Jul'24)

- Institute Sports Technical Head | IIT Bombay
- Developed the Sports Yearbook Portal using ReactJS, ExpressJS, & MongoDB to collect responses, photos, & videos
- Achieved a whopping 100+ unique sign-ups within 3 days of launch from IIT Bombay students & alumni community
- Deployed the portal using Amazon Web Services, utilising S3 for storage and static website hosting, Route 53 for efficient routing, CloudFront for content delivery, SSL certificates for secure hosting with a custom domain

# Inter IIT Sports App | 56th Inter IIT Sports Meet

(Aug'23 - Dec'23)

Inter IIT Sports Council | IIT Bombay

- Achieved 2500+ downloads for Inter IIT SportsApp using Flutter & Dart, working in a team of 8 members
- Implemented real-time score updates and integrated YouTube streaming for live matches, achieving 100k+ views
- Maintained the app by updating live scores, schedules, and resolving issues, ensuring a seamless live viewing experience

#### Gesture Controlled Virtual Mouse | Seasons of Code

Web and Coding Club | IIT Bombay

- Developed using MediaPipe and OpenCV for mouse control, volume adjustment, and brightness management
- Implemented 30+ Hand gestures in Python for Scrolling, Clicking, and Volume Control at High Frame Rates
- Designed Multi-Hand detection and UI interactions with PyAutoGUI, enhancing user experience and performance

#### SportsApp | Institute Sports Council

(May'23 - Apr'24)

Institute Sports Web Convener | IIT Bombay

- Rebuilt SportsApp entirely, employing Angular, HTML, CSS, JavaScript and MongoDB for development
- Implemented **Progressive Web Application** to converted the SportsApp website into a mobile APK application
- Ideated General Championship and Inter IIT components to display live score of matches and current standing

#### Analysis on the Indian Census of 2011 | Course Project

(Apr'24 - May'24)

Guide: Prof. Prabhu Ramachandran | AE 248 AI and Data Science

- Analysed in a team of 6 the 2011 Indian Census dataset using Pandas, Matplotlib, NumPy, Seaborn, & Scipy
- Achieved a prediction accuracy of 99.01% in Regression models to estimate the 2021 census Indian population
- Conducted data analysis, hypothesis testing, and correlation analysis to derive insights from the census data

#### Website Security | Course Project

(Apr'24 - May'24)

Guide: Prof Virendra Singh | CS745 - Principles of Data and System Security

- Simulated XSS and CSRF attacks on a Flask website to discover security vulnerabilities in a web application
- Deployed security measures including input validation and output encoding to address XSS & CSRF vulnerabilities

#### De-eX | Web3 Decentralized Exchange | Self Project

(Apr'24 - Jul'24)

A Web3 Decentralized Exchange platform enabling ERC20 token swaps

- Developed a React-based De-eX with Moralis & 1inch API for seamless crypto swaps and real-time price fetching
- Integrated MetaMask and Wagmi for secure, user-friendly, efficient, & reliable Ethereum blockchain interactions
- Built an Express server with Moralis API to provide accurate token price data, enhancing the token swap process

# Mentorship |

### Amazon Clone | Mentor | Seasons of Code

(Jun'24 - present)

Web and Coding Club | IIT Bombav

- Mentoring 12+ mentees to develop Amazon app, including authentication, products, & payment integrations
- Utilised Flutter for frontend, Node.js for backend, and MongoDB for data management for full-stack development

### OTHER PROJECTS.

### Competitive Programming | Seasons of Code

(Jun'23 - Jul'23)

Web and Coding Club | IIT Bombay

- Gained expertise in graph theory, greedy algorithms, dynamic programming, and time-space complexity
- Mastered BFS & DFS algorithms, solving complex problems on LeetCode, CSES, achieving 1200+ rating on Codeforces

### Data Structures and Algorithm | Summer of Science

(Jun'24 - present)

Maths and Physics Clubs | IIT Bombay

- Learning detailed Data Structures and Algorithms in C++ through an 8-week extensive mentor-guided program
- Mastering key advanced DSA including trees, heaps, graphs, and hashing by solving problems on LeetCode
- Applying advanced techniques such as greedy algorithms, dynamic programming, and graph algorithms

### Smart India Hackathon | Government of India

(Sep'23 - Nov'23)

Guide: Prof. Dhwanil Shukla | IIT Bombay

- Designed an AI-based drone system for human detection using image processing, thermal, & radar technologies
- Selected in the top 30 for SIH representing IIT-B, developing a solution for 'Revolutionizing disaster response in challenging terrains & waters using drones,' by the Ministry of Defence, competing against 95+ teams across India

# Positions of Responsibility

# Institute Sports Technical Head | Institute Sports Council

(Apr'24 - Present)

Selected in a 22-member student council, leading 3 web conveners and managing tech support for 13k+ student community • Responsible for technical aid to 20+ sports activities, which involved deploying web portals and mobile application

- Ideating & deploying IIT Bombay Sports Website & mobile SportsApp which caters 13k+ student community
- Led a team of 3 web conveners to launch the Sports Yearbook Portal for graduating alumni across 14+ sports

### Web Convener | Institute Sports Council

Among the 36 out of 300+ applicants selected on the basis of a meticulous process of SoPs, assignments and interviews

- Oversaw the sports website serving 13k+ students, managing all aspects of the site's functionality and user experience
- Developed the SportsApp Website, utilizing Angular, NodeJS, and MongoDB to provide updates for Sports General Championship, Inter-IIT, and other IIT Bombay sports events with live hostel standing and match results

### Inter IIT Coordinator | 56th Inter IIT Sports Meet, IIT Bombay

India's largest inter-collegiate Sports Meet between IITs held at IIT Bombay after 9 years with 2000+ athletes

- Collaborated with web team at Eshway to design & launch the Inter IIT SportsApp, contributing to app maintenance
- Conceptualized and executed a series of 6 sports events, including the opening & closing ceremonies and gala dinner
- Efficiently managed the contingent arrivals and accommodations, and oversaw the execution of Table Tennis events

### D-AMP Mentor | Department Academic Mentorship Program

(Jun'24 - Present)

- Among the 29-member Aerospace D-AMP team, selected on the basis of assessment, SoP, peer reviews, & interview • Mentoring 6 sophomores with their academics and co-curricular and responsible for upliftment of the department
- Assisting in D-AMP Handbook development & managing D-AMP Blog updates for 500+ member community

### TECHNICAL SKILLS

Programming	C++, Python, HTML, CSS, Typescript, JavaScript, Dart, SQL
Softwares and Tools	Amazon Web Services (AWS), MangoDB, MATLAB, LATEX, Git, GitHub
Frameworks	ReactJS, Angular, NodeJS, ExpressJS, Flutter, NumPy, Scipy, Pandas

### Courses Undertaken \_

Computer Science	Computer Programming & Utilisation, Logics in Computer Science, Discrete Structures, AI & DS, Principles of Data & System Security
Mathematics	Differential Equations, Linear Algebra, Calculus-I, Calculus-II

# Extracurricular Activities \_

- Completed over 50+ hours of rigorous N.C.C. training, involving firearm and rifle shooting
- Completed MS-CIT Maharashtra State Certificate in Information Technology with 99/100 (2019)
- Passed Elementary and Intermediate Drawing Grade Examinations by DoA, Maharashtra (2018)
- Participated in SuryaKumbh, a Guinness World Records and Limca Book of Records event, the world's largest solar cooking festival with 6021 participants at Ch. Sambhaji Nagar

(2016)

(2023)