



Avasthi Jain  
Mechanical Engineering  
Indian Institute of Technology Bombay

23B2227  
B.Tech.  
Gender: Female  
DOB: 30/07/2004

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2027	7.18
Intermediate	Central Board Of Secondary Education	Guru Nanak Public School	2022	93.40%
Matriculation	Central Board Of Secondary Education	Guru Nanak Public School	2020	97.00%

## SCHOLASTIC ACHIEVEMENTS

- Secured a position in the **top 1.7 percentile** in the **JEE Advanced** amongst **0.15** million candidates ('23)
- Attained a nationwide **99.13 percentile** in the **JEE Mains** which was appeared by **1 million** candidates ('23)
- Achieved **A+** grades across all **4 levels** of **Vedic Mathematics**, mastering in mathematical techniques ('18)

## KEY PROJECTS

### Passive Captcha detection using ML | Smart India hackathon (Sep'24)

- Selected among **top 50 teams** out of **150+** in **IIT Bombay Internal Hackathon**, showcasing innovation skill
- Proposed bot detection framework using **honeypot traps** and **behavioural analytics** to revamp CAPTCHA
- Planned the deployment of **advanced AI** and adaptive behavioral tracking to achieve bot detection accuracy

### 3D print failure detection | Institute Summer Technical Project, IIT Bombay (May'24-Aug'24)

- Secured a position in **top 10 teams** out of **30 teams**, in a highly competitive institute-level technical competition
- Designed a model for early detection of failure in Additive Manufacturing, using **ML** and **Computer Vision**
- Trained a powerful computer vision model of **10,000+** image dataset of commonly occurring 3D print failures
- Implemented a cost-effective 3D print monitoring system using **Raspberry Pi 4** and **OpenCV** for failure detection
- Integrated **Messaging APIs** to automate print termination, significantly minimizing resource and time wastage

### General Astronomy | Summer of Science | Maths and Physics Club, IIT Bombay (Jun'24-Jul'24)

- Gained knowledge of **cosmological phenomena** such as galaxies, and dark matter through research and analysis
- Enhanced understanding of the **universe's structure** and **dynamics** by interpreting scientific papers on astrophysics
- Studied key theories like **Relativity** and **Time dilation**, careful through analysis of renowned **scientific journals**
- Demonstrated extensive command of the subject matter and articulating key concepts and insights with precision

### Mental Health Awareness | ConsultX | Consult Club, UGAC, IIT Bombay (Sep'24)

- Analyzing** the **Mental Health Crisis** at IIT Bombay and designing strategic interventions to raise awareness
- Developing **scalable strategies** to improve access and mental health resources through **digital platforms**
- Developing proposals for peer support networks, campus-wide campaigns, and **technology solutions**

## OTHER PROJECTS

### Remote Controlled Bot | XLR8 (Sep'24)

Electronics and Robotic Club, IIT Bombay

- Engineered a remote-controlled rough terrain bot using an **ESP32 controller**, **L298N motor driver** and sensors
- Iterated the circuit using an **L293D motor driver** by **soldering** it to a perforated board with a heat sink
- Incorporated **steering mechanisms** to complete the track within time, while comparing motor driver efficiencies

### Radio Controlled Plane (Oct'23)

Aeromodelling Club, IIT Bombay

- Constructed a Flying Wing Radio-controlled plane using **ESC** controlled by a transmitter via 4 channels
- Incorporated a powerful front thruster with approx full load **RPM 25,000** along with two additional **BLDC motors** installed in wings for **increased maneuvering** capability and **smooth take-offs and landing**

Samsung Leadership Analysis | Course Project

(Jan'24)

SOM101 Intorduction to Management, Guide- Prof.Mayank Pareek

- Analyzed Samsung’s Leadership under the mentorship of Mayank Pareek, **former CEO of Tata Motors**
  - Conducted **in-depth research on Samsung’s** leadership across Marketing, R&D, Supply Chain, and HR.
  - Evaluated Samsung’s leadership strengths and weaknesses, gaining insights into **decision-making and innovation**
  - Presented a presentation summarizing insights, communicatin key takeaways on **Corporate Leadership**
- Impact Testing Machine| Course Project
- (Nov'23)

ME218 Solid Mechanics Lab | Guide-Prof. V Karthik

- Designed and constructed a fully functional **Izod testing machine** from initial concept to final implementation
  - Contributed to **mechanical design, material selection** and **system assembly** for optimized performance
  - Gained in-depth expertise in impact testing principles,advanced technical skills and **team management**
- Universal Testing Machine| Course Project
- (Nov'23)

MS101, Makerspace | Guide: Prof Krishna N.Jonnalagadda

- Designed and constructed a mini- Universal testing Machine to generate a **stress vs strain curve** of given sample
- Performed **CAD Modelling** for precise designs,working with **Arduino**-based electronics to enhance functionality
- Collaborated with teammates to troubleshoot challenges and conduct testing, analyzing results to meet

POSITIONS OF RESPONSIBILITY

Events Team Member | Student Alumni Relations Cell | IIT Bombay

(Jun'24-Present)

- 3 tier team of **70+ members**, fostering relations between **65K+ alumni& 12K+students** | Budget:INR2.5M+
- Executed UPSC Talks by featuring **IAS & IPS** officer to make it an informative session for over **400+** students
  - Successfully conducted Trailblazers, empowering **200+ individuals** with entrepreneurship insights and strategies
  - Led a **25-day competition** SARCathon spanning **15+ IITs** showcasing **200+** teams in a high-stakes showdown
  - Forging **Workshops** in **Consult, Finance ,Quant** and **AI/ML** field benefiting **800+** students in placements

Corporate Relation Coordinator | The Entrepreneurship Cell, IIT Bombay

(Jun'24-Present)

- Asia's largest student run Entrepreneurship promoting body as recognised by **CNN**| Patronage from **UNESCO**
- Assisted in onboarding **150+** mentors for mentorship in Eureka!Asia's Largest Business Model Competition
  - Approached **100+** VCs and onboarded **35+** firms as venture partners for Eureka!, providing funding to startups
  - Successfully handled **on-ground execution** for **200+ delegates** in Entre-MUN as organizer for E-Submit 2024

TECHNICAL SKILLS

Software Tools

Canva, VS Code, Microsoft Office, AutoDesk Fusion 360

Programming Languages

C++, Python, L<sup>A</sup>T<sub>E</sub>X, HTML, CSS

COURSES UNDERTAKEN

Computer Science	Computer Programming and Utilisation, Applied Data Science and Machine Learning*
Maths & Physics	Linear Algebra and Differential Equations, Calculus, Introduction to classical Physics*
Entrepreneurship	Introduction to Entrepreneurship*, Managing Technological Innovation*
Miscellaneous	Introduction to Management, Economics, Biology, Makerspace, Introduction to Design, Craft Hybridization, Engineering Mechanics, Solid Mechanics and Strength of Materials, Structural Materials, Thermodynamics, Fluid Mechanics*, Design Thinking for Innovation*, Mechanical Processing of Materials*, Analysis and Design of Mechanical Systems*

EXTRACURRICULARS

(\*to be completed in Apr'25)

Cultures	Secured <b>2nd place</b> in the regional-level <b>Bharat Ko Jano</b> competition, by Bharat Vikas Parishad Secured <b>1st position</b> in Group Dance Competition at Frieshiezza, the <b>Freshers Cultural Championship</b> Designed innovative board games and assisted for VISION: flagship event of Design Club, IIT Bombay
Training	Part of <b>60-member team won</b> in <b>Media and Training</b> General Championship in National Cadet Corps Currently undergoing <b>B cert</b> training under National Cadet Corps, following 1 year of army-like training
Miscellaneous	Secured <b>2nd place</b> in <b>ConsultQuest</b> , a <b>PAN-IIT</b> competition with <b>200+ teams</b> , organized by SARC Facilitated comprehensive <b>interviews</b> with IAS officers ranked <b>11, 14, and 21</b> during UPSC Talks Led a group of <b>100+ students</b> as the <b>Captain</b> , cultivating strong leadership and team coordination