Aditya Shukla | **23B2427**
Metallurgical Engineering and Materials Science | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 29/05/2005

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2027	8.69
Intermediate	CBSE	Alard Public School	2023	96.20%
Matriculation	ICSE	Blue Ridge Public School	2021	94.83%

Scholastic Achievements

- Secured a perfect **AA grade** in **8** courses with a peak **SPI of 9.42** and **9+** over the last **3** semesters
- Awarded the **Undergraduate Research Award (URA 01)** by IIT Bombay for exemplary research
- Secured **AIR 3935** in **JEE Advanced**, **99.01** percentile in **JEE Mains** and **99.74** in **MHT-CET**

Professional Experience

Pattern Technologies | **Software Engineering Intern** | *Data Acquisition, Data Engineering[May'26 - Jul'26]*

Shipped 19 production changes across 3 repos, owning 10 Airflow and Spark pipelines over 6 retail domains

- Restored **Amazon** demographics ASIN coverage from **3,000** to **11,000** a week by fixing cookie expiry
- Cleared a production **Spark** driver OOMKill with an explicit **JSON** schema in place of full inference
- Reconciled **Mirakl** orders across **6** sub stores, surfacing a **1,668** order gap open since February 2026
- Built an **Amazon Seller Central** deals collector on the promotion central API with account routing
- Migrated **Walmart** and **Amazon** PDP feeds to **gzip**, proving output parity on production data first
- Shipped a daily **Asana** portfolio to subtasks **Airflow** pipeline, replacing a rate limited **n8n** workflow
- Drove the **TikTok Shop** producer DAG on **Playwright** cookie logins, dropping a fragile DAG sensor
- Automated backfill config authoring into a reusable **Claude Code skill**, added to the team's library

Netradyne | **Software Development Intern** | *Project FRIDAY* *[May'25 - Jun'25]*

A React, FastAPI and MongoDB chat platform opening Model Context Protocol tools to non technical users

- Solved one accessibility gap where **MCP** server tools stayed locked behind developer IDE integrations
- Built a **React** and **TypeScript** frontend over a **FastAPI** backend with **MongoDB** chat persistence
- Integrated **Azure OpenAI** for tool discovery with parameter extraction out of plain English requests
- Containerised the platform using **Docker**, supporting several MCP servers through one chat interface

Key Projects

Real Time Eye Tracking System | Self Project | Python, TensorFlow, OpenCV [Jun'25]

Built an end to end computer vision pipeline detecting and tracking iris position in a real time webcam feed

- Automated data collection of **600+** images with **6x** augmentation per image using **Albumentations**
- Trained a **ResNet152V2** backbone on **3500+** augmented images over train, validation and test splits
- Achieved **82.75%** pixel accuracy at a **10px** tolerance with a mean squared error of **0.0028** in testing

Machine Learning and Game Theory | Summer of Code | Web and Coding Club, IIT Bombay [May'24 - Aug'24]

A summer programme covering classical machine learning methods alongside computational game theory

- Implemented the **simplex method**, inverse transform sampling, **PCA** and curve fitting from scratch
- Cleaned transformer current data sampled every **5** minutes over **288** days from a live solar power site
- Applied **backward induction** with **alpha beta pruning** to solve Tic Tac Toe and Notakto boards
- Computed dominant strategies, **Nash equilibria** and subgame perfect equilibria for sequential games

Sentiment Analysis on YouTube Comments | Course Project | Prof. Manjesh K Hanawal [Apr'25]

Comparative evaluation of classical machine learning models on a corpus of noisy real world user comments

- Developed a **TF-IDF** based pipeline reaching **75%** accuracy across three competing classifier families
- Benchmarked **Logistic Regression**, **Naive Bayes** with **KNN** on identical preprocessed feature sets
- Preprocessed **20,000+** comments, removing stopwords, emojis and spam from high dimensional inputs

AI Guard Agent | EE 782 Course Project | Advanced Topics in Machine Learning [Nov'25]

A multimodal room security agent combining voice activation, face recognition and escalating dialogue

- Enrolled trusted users through **Facenet512** face embeddings, verifying identity by **cosine similarity**
- Drove the **4** level spoken escalation dialogue from **Gemini**, with a rule based fallback on API failures
- Threaded capture, recognition and speech over **queues**, holding **30 FPS** video free of race conditions
- Reached a **88.1%** mean recognition confidence at a false positive rate under **5%** in good lighting runs

Unreal Engine 5 Game Prototyping | Self Project | Unreal Engine 5, C++ [May'25]

Developed five playable three dimensional game prototypes spanning shooter, platformer and puzzle genres

- Implemented player movement, combat mechanics and progression logic in the native **C++** framework
- Built modular health and damage systems integrating pickups, **HUD** elements and live state feedback
- Engineered enemy AI through **behaviour trees** plus blackboards, with reusable **Blueprint** modules

Image Steganography Application | Self Project | Python, Tkinter, PIL [Jun'25]

A desktop application encoding and recovering hidden text within images through pixel level bit manipulation

- Built a graphical tool encoding messages into **100+** images using the **least significant bit** technique
- Integrated real time preview, plus metadata extraction with support for `.png`, `.jpg` and `.bmp` formats

International Exposure

Grøn Dyst | Green Challenge | DTU Skylab | Technical University of Denmark [Jul'24]

An annual innovation conference where student teams present projects addressing environmental challenges

- Selected as **one of 21** international projects presented at the student conference in Lyngby, Denmark
- Engineered a protocol to repurpose discarded textiles into rigid boards using a **starch based binder**
- Presented alongside teams from **Cornell University** and the **University of Maryland** at the event
- Targeted **UN SDG 12** on responsible consumption, noted for **circular economy** potential by judges

Research Intern | Prof. Kazuki Nagashima | Hokkaido University, Japan [Dec'25 - Jan'26]

Independent research on building, instrumenting and characterising nanosheet based gas sensing test devices

- Deposited **In_2O_3** nanosheet films through a **liquid metal** route, tuning temperature via **Bi** alloying
- Built and instrumented **gas sensing devices** on **Cr/Pt** electrodes with automated resistance logging
- Analysed sensor resistance time series, isolating a **303% NO_2** response from a noise limited baseline

Positions of Responsibility

Department Academic Mentor | Student Mentorship Programme | IIT Bombay [Jun'25 - Present]

The official student body responsible for the academic and co curricular guidance of second year students

- **Heading the Academic subgroup**, curating content on internships, courses and higher study paths
- Mentoring **6** sophomores of the **MEMS** department on academics, co curriculars and career decisions
- Curating and maintaining the **MEMS D-AMP** blog serving **300** undergraduates in the department
- Retained for a second term after selection into a **27-member** team from **97** applicants by peer review

Institute Student Mentor | Institute Student Mentorship Programme | IIT Bombay [Jun'26 - Present]

The institute wide body responsible for orienting every incoming freshman into academic and campus life

- Mentoring **12** first year undergraduates through course selection plus the institute's academic culture
- Conducting one on one and group sessions easing the academic and social transition into the institute
- Escalating academic and personal concerns early by coordinating with department and hostel wardens

Technical Skills

Programming	Python, C++, TypeScript, SQL, HTML, MATLAB, LaTeX
Libraries & Frameworks	TensorFlow, Keras, Scikit-Learn, OpenCV, FastAPI, FastMCP, React, Pandas, NumPy, Matplotlib, Seaborn, BERT, RoBERTa, Albumentations
Tools & Platforms	Apache Airflow, Docker, MongoDB, Snowflake, Playwright, Git, GitHub, Model Context Protocol, Claude Code, Jupyter, VS Code, Unreal Engine 5

Key Courses Undertaken

Computer & Data Science	Computer Programming and Utilization, Artificial Intelligence and Data Science, Introduction to Machine Learning, Advanced Topics in Machine Learning, Computation Lab, Model Context Protocol Course by Anthropic, Design Thinking for Innovation
Mathematics	Linear Algebra, Differential Equations, Calculus, Numerical Methods for Materials Engineers
Core Engineering	Structure of Materials, Thermodynamics of Materials, Process Kinetics and Transport, Mechanical Behaviour of Materials

Extracurricular Activities

- Secured a **2nd Runner Up** position at the **Energy Case Competition 2025** against **100+** entries
- **Public Speaking**: presented to **3** judging panels of professors, institute heads and Danish politicians
- Awarded a certification for **power pitching** and a memorable presentation at **DTU** by MB Partners
- Selected among the **top 50** players for **NSO Basketball** and completed a full year of formal training
- Certified by the **Childline India Foundation** over **3** years of service supporting vulnerable children