Shravya Suresh | **210260046**
Engineering Physics | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Female**
DOB: 27/02/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2025	
Intermediate	ISC	Hiranandani Foundation School, Powai	2021	99.20%
Matriculation	ICSE	Hiranandani Foundation School, Powai	2019	98.17%

Pursuing a **Minor** Degree in **Artificial Intelligence and Data Science**, C-MInDS, IIT Bombay

Scholastic Achievements

- Secured **All India Rank 64** in the **JEE Main 2021** examination out of **7.3 lakh** candidates nationwide *('21)*
- Awarded the **KVPY Fellowship** by the Government of India for ranking in the **top 1%** of candidates *('21)*
- **Two-time** recipient of the **Scholar's Badge**, presented in recognition of all-rounded excellence *('19, '20)*
- Conferred the **Governor's Gold Medal** for scoring **90+** on 100 in **all subjects** in the ICSE board exam *('19)*
- Won **Certificate of Merit** for placing in **top 5%** in **SOF-Kshitij-IIT Kharagpur "Teenage Prodigy"** *('18)*
- Honoured with a **High Commendation** for **exceptional** academic performance throughout school *('08 - '21)*

Key Projects

Course Development | *Virtual Labs, IIT Bombay | Ministry of Education, Govt. of India* *(May '23 - Present)*

Numerical Methods and Statistics

An initiative under the aegis of National Mission on Education through Information and Communication Technology to design web-enabled laboratory experiments for remote operation by high-school and undergraduate students across India

- Ideated and developed **15+** experiments on statistical topics like **Regression** and **Univariate Hypothesis Testing**
- Created **Storyboards** for each experiment detailing functionality to be implemented on the student and server side
- Generating **code blocks** of various functions using **GNU Octave** for calculations to be performed at the backend
- Designing front-end **User Interface** for each experiment suggesting diverse input methods to enhance user experience

The Humanoid Project | *Institute Technical Council, IIT Bombay* *(Mar '22 - Present)*

Artificial Intelligence and Perception Subsystem

An all-student technical group designing a social humanoid robot to be deployed in the Library/Lecture Halls of IITB

- Sourced **10k+** training images of common objects from camera/web crawling and annotated them with **labelling**
- Trained **YOLOv5** architecture to detect cups and other objects from bot's camera feed with **>75% confidence**
- Utilised **RASA** framework to develop a **conversational wrapper** to invoke custom actions for spoken commands
- Employed **PyAudio**, **Mozilla DeepSpeech** to issue voice commands to locate supported objects in the bot's view

CNN Segmentation using U-Net | *Course Project - Introduction to Machine Learning* *(Feb '23 - Mar '23)*

Guide - Prof. Biplab Banerjee, Centre for Machine Intelligence and Data Science

- Researched upon the architecture of the **U-Net Model** proposed by **Ronneberger**, **Fischer** and **Brox**
- Improved the U-Net model by including **Batch Normalisation** and **resizing** of images instead of **centre-crop**
- Trained the enhanced U-Net model on the **Carvana** dataset with an accuracy score of **98.22%** and loss of **0.122**

Solar Activity Analysis | *Course Project - Programming for Data Science* *(Oct '22 - Nov '22)*

Guide - Prof. Amit Sethi & Prof. Manjesh K. Hanawal, Centre for Machine Intelligence and Data Science

- Explored the underlying physics governing **Solar Flares** and **Solar activity**, and gathered **sources** for datasets
- Procured data of **100k+** entries from **NASA's RHESSI Mission** and Ioffe Institute's **Konus-Wind** datasets
- Trained **Long Short Term Memory** and **Autoregression** models to compare the data's predictive accuracy

Natural Language Processing | *Summer of Science | MnP Club, IIT Bombay* *(May '22 - Jul '22)*

- Explored Word Vectors, **N-Gram language models**, Naive Bayes Classification and **Sentiment Analysis**
- Researched **Deep Learning** architectures like **Recurrent Neural Networks** for Sequence Processing
- Analyzed implementation of NLP in **Question-Answering**, Chatbot and **Automatic Speech Recognition**
- Examined functionality, training strategies and advantages of **Pretrained Model BERT** by **Google**

Bubble Trouble | *Course Project - Computer Programming and Utilisation* *(Jan '22 - Feb '22)*

Guide - Prof. Parag Kumar Chaudhuri, Department of Computer Science and Engineering

- Added several **enhanced and interactive features** to a basic game template using **500+** lines of C++ code
- Implemented multiple concepts of **Object Oriented Programming** to improve and optimise user accessibility
- Increased complexity of the code by utilising **Classes** and **Structures** to enforce **Encapsulation** and **Abstraction**

Hands-on Reinforcement Learning | *Winter in Data Science* | *Analytics Club, UGAC* *(Dec '22 - Jan '23)*

- Researched upon **Bandits**, **Policies** involved in Exploration and Exploitation, and **Markov Decision Processes**
- Implemented **ϵ-greedy**, **Upper Confidence Bound** and **Thomas Sampling** policies and plotted **regret curves**
- Explored **Linear Programming**, prediction and control methods and the **Monte Carlo** control methods

Morse Pulse Detector | *Course Project - Digital Electronics* *(Mar '23 - Apr '23)*

Guide - Prof. Pradeep Sarin, Department of Physics

- Developed a **Finite State Machine** architecture to generate corresponding outputs for short and long digital pulses
- Encoded the architecture with an **FPGA** operating on a **1Hz** clock signal using **100+** lines of **VHDL** code
- Constructed an external **circuit** to represent 'dots' and 'dashes' of Morse code through timed blinking of an **LED**

Technical Skills

Languages - Java, C/C++, Python, SQL, R, HTML, MATLAB, GNU Octave, VHDL, LaTeX, Markdown
Softwares - MS Excel, Tableau, Quartus, Adobe Photoshop, Adobe Illustrator, Adobe Premiere Pro, Canva

Positions of Responsibility

Institute Secretary, Academic Affairs | *Undergraduate Academic Council* *(Apr '23 - Present)*

*Highest nominated Student Officer | Addressing the academic grievances and queries of **5000+** undergraduates*

- Coordinating among **20+** bodies across the institute to improve academic **policies** at the institute level
- Spearheading team of **4** coordinators to create awareness among **5000+** undergraduates about academic opportunities
- Informed **1200+** students about new curriculum through **Course Information** session, **ResoBin** and outreach
- Organised department-wise **Branch Induction** sessions for **1200+ students** from **10+ academic units**

Institute Academic Coordinator | *Student Support Services, UGAC* *(May '22 - Apr '23)*

*Selected among 12 out of 200+ applicants | Resolving the academic queries of **5000+** undergraduates*

- Scheduled **TSC help sessions** to aid students in **10+** courses, witnessing a year-on-year growth of **150%**
- Executed development of **Resobin**, a resources and reviews platform for **2000+** courses, along with DevCom

Teaching Assistant | *Departments of Computer Science and Physics, IIT Bombay* *(Mar '23 - Jun '23)*

- Oversaw **10+** laboratory sessions of and evaluated exams for **500+** students in **CS101 (C/C++ Programming)**
- Conducted weekly **problem-solving** sessions and graded exams of **40+** students in **PH112 (Quantum Physics)**

Department Academic Mentor | *Department of Physics, IIT Bombay* *(May '23 - Present)*

Selected among 21 mentors out of 40 applicants, to assist sophomore undergraduates of the department

- Guiding **6** students, organising departmental **information sessions** and contributing to academic **counselling**
- Serving the student community in supporting sophomores in their overall **development** and **academic progress**

Summer of Science Mentor | *Maths and Physics Club, ITC* *(May '23 - Present)*

- Supervising **6** students across **2** reading projects on **Machine Learning** and **Natural Language Processing**

Project Mentor | *Winter in Data Science* | *Analytics Club, UGAC* *(Dec '22 - Jan '23)*

- Mentored **6** students to develop a **Conversational Chatbot** language model using **Natural Language Processing**

Key Courses

Programming	Introduction to Machine Learning, Programming for Data Science, Computer Programming and Utilization
Physics	Quantum Mechanics, Data Analysis and Interpretation
Mathematics	Numerical Analysis, Complex Analysis, Ordinary and Partial Differential Equations, Linear Algebra, Vector Calculus
Miscellaneous	Decision Analysis and Game Theory, Digital Systems
MOOCs	Google Data Analytics Professional Certificate (Badge of Completion), Generative AI with Large Language Models (DeepLearning.ai and AWS)

Extracurricular Activities

- Conferred title of **'Student of the Year'** by Times NIE for ranking **first** in school *('18)*
- Won **'Outstanding Project Award'** under Avanti Foundation Leadership Program for promoting cleanliness *('16)*
- Successfully performed **Bharatanatyam Arangetram**, lasting **2 hours**, before an audience of **250+** *('16)*
- Completed **7 stages** of Nalanda **Bharatanaytam** examinations, with **5 A++** and **2 A+** grades *('19)*
- Served as an **Editor** for English in the **Editorial Board** of the school magazine, 'News and Views' *('19)*
- Consistently certified for securing **First Class** in the **Rashtrabhasha Vibhushan Pariksha** *('16 - '18)*