Hanan Basheer | **20B030018**
Aerospace Engineering | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 13-12-2001

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2024	8.58
Intermediate	CBSE	Delhi Public School, Navi Mumbai	2020	94.60%
Matriculation	CBSE	Delhi Public School, Navi Mumbai	2018	97.20%

Pursuing a **Minor in Computer Science and Engineering** from the **Department of CSE, IIT Bombay**

Scholastic Achievements

- Acquired **Department Rank 8** in **B.Tech Aerospace** *('20)*
- Awarded a **Branch Change** to **Aerospace Engineering (B. Tech Programme)** from **Chemistry (BS Programme)** based on exceptional academic performance in the first year among all freshers *('20)*
- Attained **99.38** percentile among **1.2 million** candidates in **JEE Mains** organized by **NTA** *('20)*
- Secured **98** percentile among almost **2.5 Lakh** candidates in **JEE Advanced** conducted by **IIT Delhi** *('20)*
- Scored **372 marks out of 450** in **Birla Institute of Science and Technology Aptitude Test**, qualifying for **B.Tech Computer Science** in **BITS Pilani** on **Pilani Campus, Rajasthan** *('20)*
- Secured an **All India Rank 101-500** in the Pre-Board International Scholarship Examination (PBISE) *('19)*
- Among **Top 600** students qualified for second round of **Science and Maths Talent Examination (SMTE)** conducted by **DPS Society** in collaboration with **Science Olympiad Foundation (SOF)** *('18)*
- Qualified first round of the prestigious **Dr. Homi Bhabha Balvaidnyanik Competition** *('17)*
- Secured distinction of **Zonal level Gold medal** in **National Science Olympiad** conducted by **SOF** *('15)*

Professional Experience

Crammn Interns | *Crammn* *May '21 - Present*

- Crammn is a startup providing a **Peer to Peer Learning Platform** for students busy with academics and extracurricular activities
- Part of **20 member contigent** of mentors, selected especially for **course explanation** and **video creation**
- Conceptualized and created videos for core and minor courses **ME 119, CH 104, BB 101, Minor CS 224** for Midsems and Endsems, which proved beneficial for the registered students in these courses.

Python Contributer | *Python Software Foundation* *Aug '21 - Present*

- Certified as **Contributer** for Python version control repository **CPython** on **Github**
- Applied for Pull Request for appending crucial documentation errors for **Python 3.9**

Positions Of Responsibility

Controls Engineer | *Team Sedrica, Innovation Cell, IIT Bombay* *Sep '21 - Present*

*Innovation Cell facilitates technical startups, foster an atmosphere of **innovation** and **entrepreneurship***

- Designing code for the **Non-Linear Model Predictive (NMPC) algorithm** for the Self Driving Car (SeDriCa) being developed by IIT Bombay for the **Intelligent Ground Vehicle Competition (IGVC) '22**
- Member of the team in charge of **planning**, **organizing** and **publicizing** events under Innovation Cell

Mood Indigo eSports Co-ordinator | *51st Edition* | *Mood Indigo, IIT Bombay* *May'21 - Present*

Asia's Largest College Cultural Festival | Viewership: 100k+ | Events: 100+ | 1,50,000+ footfall

- Assisting in **conceptualization** and **execution** of innovative ambience across the **Mood Indigo platform**
- Attempting to bring Mood Indigo to **offline mode** this year after pandemic
- Organizing first ever **Valorant eSports tournament** of IIT Bombay

Key Projects

Intelligent Ground Vehicle Competition '22 | *Oakland University in Michigan, USA* *Sep '21 - Present*

- **Member of Controls subsystem** of Team Sedrica which is going to participate in **IGVC '22**
- Designing code for implementation of **NMPC time independent algorithm**

Spanning Tree Protocol | *CS 224 Project, IIT Bombay | Prof. Varsha Apte* *Sep '21 Oct '21*

- Designed an **object-oriented C++ simulation** of network of bridges and LANs to establish Spanning Tree
- In-taking a topology, the simulation would run the spanning tree algorithm and each bridge would establish the status of each of its ports as a designated port, root port or a null port

- Simulated the process of setting up the spanning tree by printing the flow of messages sent and received by each bridge at every instant of time till the spanning tree is well-established

Developing Hybrid ANN-Statistical Model for Robust Stock Market Prediction | *Summer of Code (SOC), IIT Bombay* *Mar '21 - Aug '21*
- Designed code for analyzing stock market price trends to predict prices in future using **SARIMA**, **Basic GARCH** and **Hybrid Garch-LSTM** Models
- Implemented the **Seasonal auto regressive Integrated Moving average model**, after analysing the Partial autocorrelation plots for each of the given datasets
- Models were implemented on Python using the **Numpy dependency**, followed by a **Multi-Layer Perceptron Network** and a **Time Dependent Neural Network**
- Used a **Gradient Descent** as an optimizer; with the **LSE L2-Norm Loss Function** for the Regression Model; and the **Logistic Loss Function** for the Classifier Model
- Included newer seasonal hyperp.arameters for **Seasonal AR**, **Seasonal MA** and **Seasonal Differencing**

Mobile Calculator Application | *Learner's Space, WNCC, IIT Bombay* *Jul '21 - Aug '21*
- Successfully created a working **Calculator app** using **Dart on Flutter** and **Android Studio**
- Achieved to implement **all calculation operations** as performed by a regular calculator

Quiz Application | *Learner's Space, WNCC, IIT Bombay* *Jul '21 - Aug '21*
- Successfully created a **GUI-based Quiz application** which creates basic true/ false based questions
- Created **database of multiple questions** based on daily activities as well as general knowledge

TO-DO Application | *Learner's Space, WNCC, IIT Bombay* *Jul '21 - Aug '21*
- Successfully created a **TO-DO application** for maintaining daily schedule
- Integrated **Google Firebase authentication** to the app for login and security purpose

Hand of God | *Institute Technical Summer Project (ITSP), IIT Bombay* *Mar '21 - Aug '21*
- Created a **mechatronic glove** which can be used to control various gadgets, including everyday appliances
- Developed an all-new sensor **String Sensor** based on string length to return voltage values
- Designed the **ML algorithm** using **Sklearn Python library** to learn hand gestures in real-time
- Implemented **Python-Arduino integration** for reading voltage values and predict actions using Python
- Successfully showcased the glove use by **controlling an Air Mouse** pointer on screen
- Finished among **Top 6** winning teams out of 80+ teams

CS 101 Lasso Game Project | *CS 101 course, IIT Bombay | Prof. Bhaskaran Raman* *Jan '21 - Feb '21*
- Successfully enhanced a **GUI-based Coin Catching Game** written on C++ by adding new modes of playing, different types of coins and many other special objects that act as obstacles.
- Acquired **AA Grade** in this course due to successful completion and verification of game code

Technical and Extracurricular Activites

- Attempting **Google Summer Of Code (GSOC) '22** and **active member** of its club *Jul '21 - Present*
- Attended the **Breast Cancer Awarness session** conducted by **Techfest** *Oct '21*
- Co-Founder of the startup project ***Hand of God*** by **Zextrex Robotics**, which is registered in **Technovation, IIT-Bombay**, and aims to revolutionize daily lives by commercialising my ITSP Project *Sep '21 - Present*
- Successfully completed the **Learners' Space App Development Program** organized by **Web and Coding Club** for technical skill gain and improvement, and got all projects successfully approved *Jul '21 - Aug '21*
- Finished among the **Top 6 out of 80+ teams** in **Institute Technical Summer Project (ITSP) '21** by creating a glove to control technical appliances *Mar '21 - Aug '21*
- Successfully completed the **Chess course** of **National Sports Organization (NSO)** under **International Master Sharad Tilak**, and passed all the tests conducted over a span of just 6 months *Dec '21 - Jun '21*
- Secured **3rd position** in **Valorant e-sports tournament** among 9 intra-departmental teams *Jul '21*
- Participated in **Rubik's Cube Open** conducted by **Aavhan** *Mar '21*
- Volunteered as **a Mentor for teaching 3X3 Rubik's cube** for **Rubik's Cube Club** *Mar '21*
- Completed the **Analytics Workshop** as a part of **Alumination 2020** facilitated by Dean ACR Office under the **IIT Bombay Alumnus Virendra Dafane** *Dec' 20*
- Got certified for **Introduction to Programming using Python** on **Hackathon** *Nov '20*
- Got certified for **Problem Solving** on **Hackathon** *Apr '20*
- Programmed a **Self-learning AI** using Python in High School *Oct '19 - Jan '20*
- Developed a paper on **Discrete form of Calculus** in attempt to solve **Reimann Integral Problem** and was later disclosed as field of complex maths known as finite differences by **Mike Giles, Professor of Scientific Computing Head of Department of Mathematical Institute University of Oxford** *Jan '20*
- Pursued **French** language for **7 years** and attained proficiency in it

Technical Skills

- Operating System : Windows, Ubuntu
- Languages : C++, Python, HTML, Dart, LaTeX, SQL, Django, Octave, Git
- Software : Abaqus, Ansys, Anaconda, Android Studio, Comsol, VS Code, Github, Spyder, Jupyter Notebook, Arduino IDE, Flutter, ROS, Matlab, MS Office
- Others : Artificial Intelligence, Machine Learning, Strategic Vision, Problem Solving, Logical Reasoning