Mashkaria Satvik Mehulbhai | **170050002**
Computer Science & Engineering | **UG Second Year**
Indian Institute of Technology Bombay | **Male**
DOB: 29/04/2000

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2019	9.78
Intermediate/+2	GSEB	Kameshwar Vidhyamandir	2017	94.00
Matriculation	GSEB	Kameshwar Vidhyamandir	2015	94.00

Pursuing **Minor** in **Applied Statistics and Informatics**

Scholastic Achievements

- Secured **All India Rank 42** in **JEE Advanced** out of 200,000 candidates *(2017)*
- Secured **All India Rank 259** in **JEE Main** out of 1.2 million candidates *(2017)*
- Awarded **AP Grade** (given to **top 3** students out of **900**) in **Calculus Course** *(2017)*
- Scored **438/450** in **BITSAT** examination held by Birla Institute of Technology *(2017)*
- Received the pretigious **KVPY Fellowship** by Government of India with **All India Rank 15** *(2015)*
- Achieved **All India Rank 1** in **National Maths Talent Contests** among 1,20,000 participants *(2015)*
- Bagged **12th rank in Technothlon**, conducted by **IIT Guwahati** among 50,000 participants *(2015)*
- Scored **nationally highest marks** in Mathematics subject in **ASSET** *(2014)*

Olympiads

- Bagged **Gold Medal** for being among the **top 35** in **INPhO**, Indian National Physics Olympiad *(2017)*
- One of the top 35 students selected for attending **International Mathematics Olympiad Training Camp(IMOTC)** for representing **India** at International Mathematics Olympiad**(IMO)** *(2016)*
- Amongst the **top 300** selected for **INAO**, Indian National Astronomy Olympiad, HBCSE *(2015-16)*
- Amongst the **top 300** selected for **INChO**, Indian National Chemistry Olympiad, HBCSE *(2017)*
- Qualified for **INMO**, Indian National Mathematics Olympiad, HBCSE for 3 consecutive years *(2015-17)*
- Awarded **Certificate of Merit** for being in **national top 1%** in **NSEC** , **NSEA** *(2017)*
- Awarded **Certificate of Merit** for being in **national top 1%** in **NSEJS-2015**, **NSEP-2016** *(2015-16)*

Key Projects

ChordIt: Chord Extraction from Audio File —*Machine Learning, Audio Processing* *Summer 2018*
Institute Technical Summer Project *IIT Bombay*

- Analyzed various configurations of Feed Forward Neural Networks and selected **Two Layer ANN**
- Used optimized routines of Fourier Transform to extract **12 dimensional Pitch Class Profile** vector
- Achieved **95%** training accuracy and **86%** test accuracy on a dataset of 2000 chords
- Incorporated mini-batches in **SGD Optimizer** for **Out-of-Core Learning** on online data

Secure Personal Cloud — *Web Development, Cryptography* *Ongoing*
Guide: Prof. Soumen Chakrabarti | Course Project *IIT Bombay*

- Implementing a **Cloud Based File System** where multiple clients can upload and share files
- Designing a Client using **Linux Daemons** that keeps the data on cloud and computer in sync
- Using **Django** for building the website and implementing web client using **React** library
- Using **GNU Privacy Guard** to keep the data encrypted on server to prevent information leakage

Regular Expression to DFA — *Functional Programming* *Spring 2018*
Guide: Prof. Amitabha Sanyal | Course Project *IIT Bombay*

- Designed a **Racket program** to automate matching of a string to a regular expression
- Made a **syntax tree** as an intermediary for this conversion

Gravitational Simulator — *Algorithm, Graphics* *Spring 2018*
Guide: Prof. Amitabha Sanyal | Course Project *IIT Bombay*

- Designed a graphical interface depicting the motion of particles under gravitational effects of each other
- Implemented **Barnes Hut Algorithm**, an $O(n \log n)$ method to simulate a large number of particles
- Used the simulator to calculate the time period of the classic **Three Body Problem**
- Incorporated **Collisions** between particles with coefficient of restitution given as input

Satisfiability Solver — *Bactracking Algorithm* *Spring 2018*
Guide: Prof. Amitabha Sanyal | Course Project *IIT Bombay*

- Implemented a Satisfiability solver which takes a Boolean expression and outputs satisfying interpretation
- Used Davis-Putnam-Logemann-Loveland **(DPLL)**, a **backtracking algorithm** for this task

Technical Skills

Programming	C++, C, Python, R, Java, Bash, Arduino, Racket, Prolog
Software & Tools	MATLAB, PyTorch, Tensorflow, Gnuplot, Git, LaTeX, AutoCAD, SolidWorks
Web Development	HTML, CSS, PHP, Bootstrap, JavaScript, Android Studio

Positions of Responsibility

Teaching Assistant *July 2018 - Present*
Under: Prof. Sourav Pal | Course: MA105 - Calculus *IIT Bombay*

- Among the **7 UG students** selected across all batches for teaching a class of **53 first-year students**
- Responsible for conducting regular **tutorial sessions** and **evaluating exam papers**

Institute UG Academic Coordinator *April 2018 - Present*
EnPoWER, Institute UG Academic Council, IITB

- EnPoWER is the division of UGAC promoting research and impacting **4000+** people in the institute
- Contributed to the launch of the online **Portal for Project Allocation**, attaining registration of over 1000 students and 100 professors which achieved a **200 percent y-o-y growth** in student applications
- Organized **Enthuse**, a talk for creating research awareness among **500** undergraduate students.

Courses Undertaken

Computer Science	Data Structures and Algorithms + Lab*, Discrete Structures*, Data Analysis and Interpretation*, Software Systems Lab*, Design and Analysis of Algorithms**, Digital Logic Design + Lab**, Logic for Computer Science**, Computer Networks + Lab**, Abstractions and Paradigms in Programming + Lab, Computer Programming and Utilization
Maths and Others	Introduction to Probability Theory*, Introduction to Derivative Pricing**, Calculus, Linear Algebra, Differential Equations, Basics of Electricity and Magnetism, Introduction to Electrical and Electronics Circuits*, Biology

**to be completed by November 2018*
***to be completed by April 2019*

Extracurricular

- Completed **Madhyama Pratham**(4th year) in Vocals - Indian classical Music *(2012)*
- Completed **Praveshika Prathama**(2nd year) in Harmonium instrumental *(2011)*
- Underwent one year long training in **Indian classical Music** under **NSO**, IIT Bombay *(2017)*
- Participated in Learners' space Bootcamps of **machine learning** and **app development** *(2017)*
- Cleared **Sanskrit Visharad** examination with **First Division** in 9*th* Grade *(2014)*
- Achieved **State Rank 3** in Bhaskar Genius Scholarship Awards organized by **Parle-G** *(2011)*