Om Mihani
Chemical Engineering
Indian Institute of Technology Bombay

200020085
B.Tech.
Gender: Male
DOB: 21-02-2002

Examination	University	Institute	Year	CPI/%
Graduation	IIT Bombay	IIT Bombay	2024	9.38
Intermediate	Telangana State Board	Narayana Jr. College	2020	98.30%
Matriculation	CBSE	S.T.R. Zambad Vidyaniketan Nandura	2018	93.40%

Pursuing a minor degree in **Data Science** from the Centre of Machine Intelligence and Data Science, IIT Bombay

Scholastic Achievements

- Bagged **Department Rank 1** for **three consecutive semesters** in the Chemical Engineering Department *(2022)*
- Secured **Third position** in **Quizit**, a nationwide Chemical Engineering Quiz organised by Azeotropy *(2022)*
- Conferred with **AP grade** in **Introduction to Chemical Engineering** for excellent performance *(2021)*
- Awarded with **AP grade** in **Introduction to Numerical Analysis** for exceptional performance *(2021)*
- Ranked **third** in an Institute Level CFD Competition organised by Azeotropy in collaboration with AnSys *(2021)*
- Bagged an All India Rank of **708** in **JEE Mains** out of **1.1 Million** appearing students *(2020)*
- Attained an All India Rank of **832** in **JEE Advanced** out of **250,000** eligible candidates *(2020)*
- Achieved an All India Rank of **166** in Maharashtra Common Entrance Test out of **2 Lakh**+ students *(2020)*
- Awarded the Kishor Vaigyanic Protsahan Yojana (KVPY) fellowship with an All India Rank of **404** *(2018)*
- Ranked **4** in Maharashtra Talent Search Examination by Centre for Talent Search & Excellence *(2017)*
- Bagged **100 percentile** in **National genius Search Examination** Mains conducted by NGSF *(2015)*

Internships

Process Modeler | *Drug Process Department* *(May 2022 - July 2022)*
Pfizer

- Modelled the **Macroscopic Elasto-Plastic Adhesive model** using python after doing a literature survey
- Used Numerical techniques to shorten the time of Calibration of DEM parameters from **2 days to a few seconds**
- Learnt how to operate a **Delta HPC Supercomputer** and used it to create a data set for the calibration suite
- Applied **Coarse Graining method** to substantially reduce computational effort and time of calibration simulations

Content Creation | *CRAMMN* *(June 2021 - July 2021)*
Bluebacteria Envirotech Private Limited

- Curated a written course summary for the course **CL 152: Introduction to Chemical Engineering**
- Effectively concluded the course in an hour-long duration format by creating an extensive playlist

Projects

NeuroClone | *Institute Technical Council, IIT Bombay* *(Apr 2021 - Jul 2021)*
*Got selected in the **Top 6** teams of the Institute Technical Summer Project*

- Led this project of making a thought-controlled robot that will improve the lives of the paralysed
- Used **Pytorch, Google Colab, Machine Learning and Deep Learning** tools to create the neural network that converts EEG signals from 32 channels of the brain to electrical signals for the functioning of the robot
- Spearheaded a team of **5** members in **ideation, planning, execution** and successful completion
- Did extensive research to find an appropriate data set of EEG recordings used to train the Neural Network

ODE-BVP | *Course Project* *(Jul 2021 - Nov 2021)*
Guide: Prof. Sarika Mehra, Department of Chemical Engineering

- Solved a particular example of **a second order ODE-BVP** and compared the results by varying parameters
- Made a report on the **effect of varying mesh size** and **solving methods** to find out the best possible method

Coating flow of liquids on a rotating Disc | *Course Project* *(Sep 2021 - Dec 2021)*
Guide: Prof. Guruswamy Kuruwaswamy, Department of Chemical Engineering

- Critiqued over **4** Research papers on various concepts in the vicinity of the problem statement
- Worked on experimentation in a lab to implement **Lubrication Theory** which describes the flow of fluids

Lasso Game | *Course Project* *(Nov 2020 - Jul 2021)*
Guide: Prof. B. Raman & Prof. K. Chebrolu, Department of Computer Science & Engineering

- Applied **Graphics Library of SimpleCPP in C++** to handle Keyboard and mouse-click events
- Employed **dynamic data** display for score and created **multiple game levels** with varying difficulties
- Handled **live responses** of mouse-click & keyboard inputs via functions using **multiway branch** statements

Remote Controlled Bot | *Electronics and Robotics Club & Tinkerer's Lab, IITB* *(Sep 2021)*
*Secured the **fourth** position among **35**+ teams across the institute*

- Devised a **design from scratch** for a four-wheeler bot which optimised the available space usage
- Employed techniques such as **Soldering** and **Laser Cutting** for compiling different units of the bot

Predicting IPL Scores | *Course Project* *(Sep 2021 - Dec 2021)*
Guide: Prof. Amit Sethi, Prof. Manjesh K. Hanawal, Prof. Sunita Sarawagi and Prof. S. Sudarshan

- Implemented exploratory analysis and cleaning techniques on a dataset of IPL scores with various other factors
- Performed Descriptive and Predictive analysis of scores given the match conditions and Team players

Thermo Acoustic Cooling of Thermal Hotspots | *Course Project* *(Jan 2021 - Apr 2021)*
Guide: Prof. P. Sunthar and Prof. Venkat Gundabala, Department of Chemical engineering

- Spearheaded a team of **8 students** along with being the **Solver** to generate an innovative approach to cooling
- Pinpointed the issue of **Thermal Hotspots**: bottleneck to the computational power of microprocessors
- Brainstormed to calculate & compare the Thermo-acoustic cooler against two conventional cooling methods
- Used a combination of **Ansys and OpenFOAM** along with Heat Transfer concepts to lower cost by **over 170 times** considering energy and hardware requirements, also improving the cooling efficiency by around **22 times**

Creating own Solver in OpenFOAM | *Independent project* *(May 2022)*

- Modified the IcoFOAM solver to create a new solver for scalar fields called ScalarFoam
- Developed a new Differential equation for the new field to be considered

Flow past nine cylinders in square configuration | *Course project* *(Jan 2022 - Apr 2022)*
Guide: Prof. Janani Muralidharan, Department of Mechanical Engineering

- Studied the effect of the spacing ratio and Reynolds number on the flow of fluids past nine cylinders.
- Analysed the effect of changing the fluid and published the case study on FOSSEE. The link for the same is here

Positions of Responsibility

Class Representative | *Department of Chemical Engineering* *(July 2021 - Present)*
*Elected as CR **twice** for **150+** students based on responsibility, communication and interpersonal skills*

- Voicing **student opinions** & scheduling lectures and exams throughout the year for **150**+ students
- Assisted in executing a successful launch of the ChEA LinkedIn page, thus increasing the outreach by 50%
- Devised & managed **15**+ department events in coordination with the ChEA council, catering to **500**+ students

Convener | *Chemistry Club* *(June 2021 - November 2021)*
A club run by students to foster interest in chemistry and bring like-minded people together

- Selected as a convener due to interest, good networking, communication and organisational skills
- Conceptualised **Winter School of Chemistry**, a series of crash courses on niche topics in Chemistry
- Forged a **Special Interest Group** for Chemistry enthusiasts to discuss advanced topics in the subject
- **Organised talks** for SIG on *"How to present a paper" & "Cutting edge technology in Chemistry"*

Competitions Coordinator | *Techfest, IIT Bombay* *(July 2021 - November 2021)*
*Asia's largest student-run Science and Technology festival with a **175000+** footfall*

- Working as a point of contact for an **INR 3,00,000** Hyperloop competition with over **100** participants
- Designed over **three** problem statements after extensive research and ideation on a large diversity of topics
- Curated a database for contacting **over 50** Hyperloop teams worldwide for the **HyperOps Competition**
- Signed contracts with multiple Instagram pages for effective social media outreach of competitions

Teaching assistant | *Basic Sciences & Biological Engineering Department, IITB* *(Mar 2022 - Apr 2022)*
TA for a batch of 20 students

- Discussed **seven** tutorials with a batch of **20** students and helped them clarify any doubts
- Was part of a proctoring team of TAs, which helped in the smooth conduction of the end-semester Biology Examination

Courses Undertaken

Core Chemical Engineering Courses | *()*

- Introduction to Chemical Engineering, Thermodynamics, Thermodynamics II, Transport phenomena, Numerical Methods, MATLAB Computational Methods Lab, Heat Transfer, Process Fluid Mechanics, CFD and HT Lab, Chemical Engineering Lab I, Introduction to OpenFOAM Development*

Basic Sciences | *()*

- Organic & Inorganic Chemistry, Physical Chemistry, Quantum Physics and Application, Basics of Electricity Magnetism, Biology, Reading Literature, Economics, Engineering Graphics Drawing

Mathematics | *()*

- Linear Algebra, Differential Equations, Differential Equations II, Calculus I, Calculus II

Technical Sciences | *()*

- Computer Programming and Utilisation, Programming for Data Science, Introduction to Data Analysis Machine Learning*, Deep Learning*

(online courses)*

Technical Skills

Programming Languages/Editors | *()*

- MATLAB, Python, C++, Google Colab, Delta HPC

Softwares | *()*

- MS Office Suite, ANSYS, ROCKY, OpenFOAM, DWSIM, MCCCS Towhee, Paraview, VMD, Canva, Latex, Github

Extracurricular Activities

- Ranked **3rd** in district level Inline skating competition by the sports and youth service office, Pune
- Completed a two-semester course on **Dramatics** in the first year under **NSO**
- Participated in the **Hult competition** for startup ideation that has a budget of **USD 1,000,000**
- Participated in an awareness campaign by the **Pranyas Foundation** on *"We always have a choice"*
- Participated in a Consulting competiton by **PropertyPistol**, which has a budget of **INR 50,000**
- Bagged **Second Position** in the PAN India **Light Painting Competition** organised by Techfest