

Pursuing a Dual Minor in **Biosciences & Bioengineering** and **Humanities & Social Sciences**

KEY PROJECTS

Deep Learning in Synthetic Chemistry

(July 2022 - Present)

Summer Undergraduate Research Program, IITB | Guide: Prof. Debabrata Maiti

- Compared **Assisted Neural Networks** and **Graph Convolutional Neural Networks** to design a multivariate regression based predictor. It will anticipate an array of optimal conditions and catalysts for highest product yield
- Exploring **Palladium Catalyst Optimization** and its various parameters for synthesis of hetero coupling product

Fluid Flow Analysis through a Diverging Channel

(January 2022 - April 2022)

Academic Project | Process Fluid Mechanics | Prof. Devang V. Khakhar

- Generated a 2D finite mesh using **Gmsh** & simulated the flow using the **icoFoam** Solver on the **OpenFoam** software
- Analysed **boundary layer separation** due to the diverging channel & reverse pressure gradient at various flow rates

Heat Transfer Optimzation in Greenhouses

(January 2022 - April 2022)

Academic Project | Heat Transfer | Prof. P. Sunthar

- Analysed the heat transfer modes in a greenhouse and designed an **optimal structure** suitable for **Indian farmers**
- Proposed set up cost reduction by **38%**, minimal **diurnal variation effect** and farming of summer crops in winter

Genetic Switch Design

(October 2021 - November 2021)

Academic Project | Cell & Molecular Biology | Prof. Swati Patankar

- Studied the ***vibrio cholerae*** genetic switch which causes cholera in the intestine and selected potential drug targets
- Designed a potential drug to turn off the genetic switch and discussed the advantages and shortcomings of the drug

Nanoparticles & Nanomaterials in Nature

(May 2021 - July 2021)

Summer Reading Project | Maths & Physics Club, IIT Bombay

- Compiled a detailed report on **Defect Structures**, **Property Accentuation** and **Surface Effects** of Nanomaterials
- Explored nanomaterials in nature, namely in animal bones and **superhydrophobicity** on the surface of lotus leaves
- Examined the properties of **Carbon Nanostructures**: Carbon Nanotubes, Graphite, Graphenes as well as Fullerenes

INDUSTRY EXPERIENCE

Firmenich Aromatics

(May 2022 - July 2022)

Perfumery Summer Intern | Technical Fragrance Development Manager

- Explored **olfactive families & fragrance evaluation techniques** in the world's largest privately owned perfumery
- Conducted successful experiments on **HaloScent® Technology** for global bathing soaps & dish washing bars
- Attended & assisted in conducting the Hindustan Unilever Fragrance Workshop for an intricate olfactive experience

OTHER PROJECTS

Cryptography

(May 2022 - July 2022)

Summer of Science | Maths & Physics Club, IIT Bombay

- Explored **Stream Ciphers** and used **Shannon's Perfect Secrecy** to render OTPs secure from Cipher Text attack
- A detailed study of **Fiestal Networks**, Round Function, PRPs and PRFs for **Block Ciphers** and their security
- Proved Block Cipher DES can be broken by Exhaustive Search and learnt the comparative benefits of **Triple DES**

Moodify

(May 2021 - July 2021)

Seasons of Code | Web & Coding Club, IIT Bombay

- Built a **web application** with a team of 13, with the aim of suggesting a suitable playlist based on the user's mood
- Implemented the **Spotify API** and the **Spotipy library** in Python to authenticate the user, fetch user details and music history and add the personalised playlist to their account such that it is accessible from their Spotify application
- Implemented **Machine Learning** using Python libraries like **Matplotlib**, **Pandas**, **Numpy**, **Keras** and **Tensorflow**

SCHOLASTIC ACHIEVEMENTS

- **AIR 6** in the ICSE X^{th} Board Examination and declared the **School Topper** of St. Mary's School, Pune (2018)
- Procured a **99.13** percentile in the JEE Mains Examination among a total of **over 1.12 Million** candidates (2020)
- Obtained **98** percentile in the JEE Advanced Examination among **over 240 Thousand** eligible candidates (2020)
- Cleared the **Dr. Homi Bhabha Balvaidnyanik Examination** with merit out of **over 60000** candidates (2017)

POSITIONS OF RESPONSIBILITY

Department Alumni Secretary | Chemical Engineering Association | SARC (July 2021 - July 2022)

- Founded the **Pan IIT event SARC Tank** and headed the ideation, implementation, organization and hosting
- Implemented the first ever **In Case you Didn't Know Series** about the **future prospects** for a Chemical Engineer
- Conducted a series of **Core Talks** by Alumni in the core chemical industries benefiting **125+ final year students**
- Hosted a panel discussion with **5 eminent Alumni** from the 1996 ChemE batch who completed their Silver Jubilee

Department Academic Mentor | Chemical Engineering Department | D-AMP (July 2022 - Present)

- Part of a 40 member team of mentors selected from 98 applicants, to **guide sophomores** through their semester
- Responsible for collecting and collating internship, research, review, industry experience and branch change blogs

Mentor | Summer of Science | Maths & Physics Club (July 2022 - Present)

- **Designed** 2 month **courses** for 6 students in Nanomaterials, Music Theory & Transcription and Engineering Drawing
- Aided their learning by providing relevant resources, clarifying conceptual difficulties and mentoring them throughout

EXTRA CURRICULAR ACTIVITIES

Literature and Art	<ul style="list-style-type: none">• Best Voice Over (Female) in Radio Play General Championship by Fourthwall, IITB (2020)• Stood third in the classical music General Championship conducted by Roots, IITB (2021)• Lead Singer in college band Shifted Sine & performed in the Summer Bands Showcase (2021)• Completed Rock & Pop Vocals Grade 7, with merit certificate Trinity College London (2020)• Completed Hindustani Classical Music Grade 6 with 1st class and Distinction (2018)• Played the lead character in the remake of 1852 times run Broadway Musical-'AIDA' (2018)• Among the top 5 Young Journalists of Times NIE Newsmakers Challenge, Pune City (2017)• 2nd in renowned Pune Inter School English Debate Rao Sahib T. K. Kurup Trophy (2017)• Indian Classical Bharatanatyam Elementary Senior Diploma(Grade 6) with distinction (2014)
Leadership	<ul style="list-style-type: none">• Only student selected from 120+ for a 100% sponsored Workshop by Shri Ananta Aspen Leadership School for a 14 day long leadership and development training at Rishikesh (2017)• Council Member of St. Mary's School: House Prefect and Cultural Prefect (2015, 2018)
Awards & Mentions	<ul style="list-style-type: none">• Among the only 5 students selected out of over 1000 students from Fergusson College, Pune to attend the 5 day Residential DST Inspire Internship Camp at IISER, Pune (2018)• Presented with the Kishore Kumar Donge Rolling Trophy for the Best All Rounder (2017)• Received the General Proficiency Award for academics consistently, over 11 years (2008-18)
Sports	<ul style="list-style-type: none">• Trained in Sports for one year under National Sports Organization (NSO), IIT Bombay (2020-21)• Awarded the Orange Senior (Grade 6) belt in Nobukawa Ha Shito-Ryu Karate-Do (2017)

RELEVANT COURSES UNDERTAKEN

Chemical Engineering Courses	Transport Phenomena, Chemical Engineering Thermodynamics I & II, Process Fluid Mechanics, Heat Transfer, Chemical Engineering Lab I & II*, Chemical Reaction Engineering*, Solid Mechanics*, Mass Transfer I*
Humanities Courses	Reading Literature, Economics, Hindustani and Western Classical Music Appreciation, Notation and Musical Analysis
Other Courses	Cell and Molecular Biology, Biochemistry and Bioenergetics, Engineering Drawing, Computational Methods Lab, Numerical Analysis, Data Analysis, Organic & Inorganic Chemistry, Physical Chemistry, Evolutionary Biology

*courses to be completed by November 2022

TECHNICAL & SOFTWARE SKILLS

Programming	C++, Python, R, MATLAB, HTML, Java
Libraries	Keras, Tensorflow, Pandas, Matplotlib, NumPy
Office Tools	L ^A T _E X, Git, MS Office