



Awasthi Gaurav
Chemical Engineering
Indian Institute of Technology Bombay

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B.Tech.
Gender: Male
DOB: 7/9/2002

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2024	

Pursuing **Honors in Chemical Engineering** and a **Minor in Healthcare Informatics**

SCHOLASTIC ACHIEVEMENTS

- Currently holding a **department rank** of **4** out of 156 undergraduate students (Present)
- Achieved a **perfect 10 SPI** in fourth semester and awarded **3 AP grades** for academic proficiency ('22)
- Served as a **Teaching Assistant** for the freshman Biology course, conducted tutorials for **40+** students ('22)
- Awarded the prestigious **KVPY Fellowship** by the Department of Science and Technology, GoI ('20)
- Cleared state-level and qualified for **Indian National Olympiads** for Physics, Chemistry and Astronomy ('20)

PUBLICATION

Advancements in Experimental Medicine and Biology, 2022

RESEARCH EXPERIENCE AND KEY PROJECTS

Mechanistic Modelling of Regulatory Networks in Cellular Differentiation (May '22 - Present)

Guide: Prof. Mohit Jolly | Centre for BioSystems Science and Engineering | IISc, Bengaluru

- Building a first-principles model to capture the core principles of cell differentiation in **cancer** and **development**
- Utilised a **boolean** architecture to simulate dynamic gene regulatory networks underlying phenotypic plasticity
- Increased efficiency by **60%** by developing an alternative computational framework using a matrix-based approach

Evolution of Microstructures in Additively Manufactured 316L Steel (Nov '21 - Present)

Guide: Prof. Anirban Patra | Department of Metallurgical Engineering and Materials Science | IIT Bombay

- Developing **phase-field models** to simulate **grain growth** during solidification of pure metals and alloys
- Leveraged MOOSE in order to effectively perform multi-physics simulations using **finite-element methods**

Proteomic Analysis of the Second Wave of COVID-19 in India (May '21 - Oct '21)

Guide: Prof. Sanjeeva Srivastava | Department of Biosciences and Bioengineering | IIT Bombay

- Identified **3** peptides from **2** proteins which were **differentially expressed** in non-severe and severe cases
- Leveraged **Skyline** and **MetaboAnalyst** to examine targeted mass spectrometry files of **nasal** swab samples

CFD Simulation of Flow in a Centrifugal Pump (May '22 - Jul '22)

Guide: Prof. Devang Khakhar | Department of Chemical Engineering | IIT Bombay

- Designed a **FreeCAD** model and performed meshing using **Salome** to simulate the system in **OpenFOAM**
- Utilised the **simpleFoam** solver for steady state, incompressible flow and used **ParaView** to visualise the results

POSITIONS OF RESPONSIBILITY

Editorial Board Member | Insight - IIT Bombay's Official Student Media Body (Apr '22 - Present)

Part of an **18-member** team creating content reaching **10k+** students and **650+** faculty; online readership of **400k+**

- Drafted **reforms** to the minor and preparatory **course systems** impacting **4500+** UG students after analysis of responses to an institute-wide **survey** and extensive interviews with student representatives and professors
- Authored a nuanced article on a candle march held on campus for the sensitive issue of **Kashmiri Pandit** violence

Convener | Chemical Engineering Tinkerer's Lab | Institute Technical Council (Jun '21 - Apr '22)

Part of the **first** team establishing a one-of-a-kind lab focusing on **applied chemical engineering** projects

- Structured a **2-phase** plan under a budget of **INR 5 million+** to procure equipment and renovate the location
- Formed the **first-ever** special interest group in the department to encourage research among **450+** UG students
- Conceived **ChemExplore**; engaged with **3** professors to conceptualise **11 projects** undertaken by **20+** students

Department Academic Mentor | Student Mentorship Programme, IIT Bombay (May '22 - Present)

Part of a **40-member** team selected from 98 applicants based on interviews, inter-personal skills and peer reviews

- Mentoring **6 sophomores** from the department to help them in their academic and extra-curricular pursuits
- Contributed to the DAMP blog by authoring **2** exhaustive **course reviews** aimed at guiding the future batches

EXTRACURRICULAR ACTIVITIES

Sports	<ul style="list-style-type: none">Selected among 8 out of 40+ students for the advanced swimming summer camp, IITB ('22)Youngest person to complete 1 km lake swimming at National Defense Academy, Pune ('12)
Misc.	<ul style="list-style-type: none">Completed Green Belt certification on Lean Six Sigma methodology offered by KPMG ('21)Awarded a special mention for exemplary work under Educational Outreach, NSS-IITB ('21)Stood 4th at the state-level Inter-Higher Secondary School Quiz among 50+ teams ('19)Appointed as school Head Boy owing to academic and extracurricular performance ('17)