Ammar Khozem Barbhaiwala | **200010010**
Aerospace Engineering | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 12/25/2002

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

Pursuing a **Minor** in **Artificial Intelligence and Data Science** at the Centre for Machine Intelligence and Data Science

Scholastic Achievements

- Holding **Department Rank 1** out of **92** undergraduates | Achieved SPI of **9.82** in the fourth academic semester [2022]
- Secured **AP** grade for exceptional academic performance in **3** courses: Incompressible Fluid Mechanics (**1** in **100** students), Compressible Fluid Mechanics (**1** in **99** students), and Spaceflight Mechanics (**1** in **111** students) [2021, 2022]
- Obtained a perfect grade **(AA/AP)** in **10 out of 10** core Aerospace engineering courses [2022]
- Achieved a percentile of **99.88** in **JEE Main** examination | Attained **98.96** percentile in **JEE Advanced** examination [2020]

Position of Responsibility

Mechanical Subdivision Head | *AUV-IITB, IIT Bombay* [Jul '22 - Present]

*Co-leading a **3-tier** team of **11 members** by maintaining proper work flow, planning resources and knowledge transfer*

- Interviewed and recruited **5 freshmen** from the pool of **200+ UG applicants** by conducting a two stage recruitment process
- **Co-authored** the **Technical Design Report (TDR)** on Matsya 6B, highlighting development in the mechanical subsystem

Department Academic Mentor | *DAMP, Aerospace Engineering, IIT Bombay* [May '22 - Present]

*Selected out of **50 applicants** for student mentorship program on grounds of ethics, interviews and extensive peer reviews*

- Guiding **six sophomores** in their **academic** and **co-curricular** pursuits by leveraging the resources of the institute
- Invited speakers and organized **Sophomore 101** session to introduce sophomores to the research in the department

Convener | *Aeromodelling Club, IIT Bombay* [Jun '21 - Apr '22]

*Part of a **10-member core team** in charge of organising **20**+ events catering to over **8000**+ aeromodelling enthusiasts across the institute*

- Spearheaded the organising team and acted as the Quiz Master for **Trivia Jet**, with over **120 participants** from **20**+ colleges
- Managed the club's **Instagram handle** (**1500**+ **followers**) and created content resulting in **67% increase** in reach

Teaching Assistant | *Department of Physics, IIT Bombay*

Served as an undergraduate teaching assistant and **academically mentored** a batch of **40**+ undergraduate freshmen by conducting **weekly tutorial sessions**, solving their doubts and evaluating their **answer sheets** for the following courses:

- PH107: Quantum Physics and Application *[Autumn 2021-22]*
- PH108: Basics of Electricity & Magnetism *[Spring 2021-22]*

Industrial Exposure

Larsen & Toubro Defence | Mechanical Designer | Subsea Surveillance Vehicle [Aug '21 - Present]

The technology transfer project is a joint effort by **AUV-IITB** and **Larsen & Toubro Ltd.** under IMPRINT II.C initiative of **MHRD**

- Played a pivotal role in **mechanical** design, development, testing and optimization of an **underwater, Class-1, ROV**
- Created a model and performed extensive **CFD analysis on ROV** to calculate laminar drag values using **ANSYS Fluent**

Drona Aviation | Mechanical Designer | Mass Manufacturable ROV [Feb '22 - Present]

The project is an industrial collaboration between **AUV-IITB** and **Drona Aviation Pvt. Ltd.** to design an underwater drone kit

- Aided in mechanical design of a **mass manufacturable** ROV kit suitable for students while optimizing its cost per unit
- Designed **custom** cable glands for underwater hulls reducing cost by **85%** compared to underwater penetrators

Key Projects

Applications and Simulation of Ideal Potential Flows | Research Project | Prof. Prabhu R. [Jan '22 - May '22]

Supervised Learning Project on **Potential flows** and **Vortex dynamics** and their applications in modelling and simulating **viscous flows**

- Developed a **python framework** from scratch to **simulate** ideal flows and calculate flow properties over a grid
- Analysed different cases of flow past a cylinder and derived **linear relations** between **lift** and **vortex strength**

Autonomous Underwater Vehicle (AUV-IITB) | Robosub, AUVSI | Prof. Leena V. [Jan '21 - Present]

All student team working on the development of **state-of-the-art AUV, Matsya**, budgeting INR **5 million**, which competes at RoboSub

Accolades: IEEE Young Researchers' Prize awardee, University of Tokyo; 3rd prize in RoboSub 2020; Featured in Janes

- Working on the mechanical **design** of a mass manufacturable and compact autonomous underwater **swarm vehicle**
- Devised a **dynamic waterproofing** mechanism to waterproof underwater **moving interfaces** such as motor shafts

Extra-curricular Activities

Writing	• Created blogs and articles for my Instagram account (**1600**+ followers, **4000**+ reach) • Collaborated and ideated in the **Musings of a Sophomore** article published by **Insight** • Serving as an **Article Lead** for **Friends 101** article for Freshers' Newsletter 9.2
Social	• Gathered volunteers from IIT Bombay to teach **underprivileged** students under **DivyaAsha**
Tech	• Received the **Hostel-3 Technical Special Mention** for contributions to the tech community • Mentored **two** students on **'Celestial Mechanics'** under the Summer of Science 2022
Others	• Completed a 4-week course **Finance 101** under the **Learners' Space Bootcamp 2021** by UGAC