**1.Simulated** fluidic thrust vectoring in a supersonic nozzle using **ANSYS Fluent and MATLAB,** analysing the influence of secondary injection angles across multiple nozzle pressure ratios.

**2. Identified** optimal injection conditions (**θ = 120°**) achieving **maximum thrust deflection of −8.1° at NPR = 4.6** with minimal thrust loss.

**3. Automated** 180+ CFD cases via **MATLAB scripting and Fluent journals**, reducing simulation time by **50%** and improving analysis efficiency

ADP

**4. Designed** a 20-seater supersonic business jet with a **turbo-ramjet engine**, optimizing for fuel efficiency, speed, and luxury in long-range travel.

**5.Conducted** structural load analysis using **V-n diagrams, gust loading, and Schrenk’s curve**, ensuring safety under critical flight conditions.

**6.Simulated** a delta wing in **ANSYS Fluent**, optimizing **aspect ratio (1.7)** and **t/c ratio (3%–2.15%)** to minimize drag and ensure structural integrity.

1.**Simulated** fluidic thrust vectoring in a supersonic nozzle using **ANSYS Fluent and MATLAB**, analysing secondary injection angles at various NPRs.

2.**Identified** optimal injection angle (**θ = 120°**) with max thrust deflection (**−8.1°**) at **NPR = 4.6** and minimal thrust loss.

3.**Automated** 180+ CFD cases using **MATLAB and Fluent journals**, cutting simulation time by **50%**.

4.**Designed** a 20-seater supersonic jet with a **turbo-ramjet engine**, optimized for fuel efficiency and speed.

5.**Performed** load analysis using **V-n diagrams, gust loading**, and **Schrenk’s curve** for structural safety.

6.**Simulated** a delta wing in **ANSYS Fluent**, and **t/c = 3%–2.15%** to reduce drag and ensure strength.

**OCR Representative**

***Aerospace Engineering Department, IIT Bombay | Jul 2024 – Present***

* **Representing 100+ postgraduate students as part of the 4-member AEA Core Council, liaising with faculty and administration for departmental improvement.**
* **Planned and executed technical events and cultural programs such as freshers' welcome and farewell, promoting holistic student engagement.**

**Student Coordinator**

***Institute Student Companion Program (ISCP), IIT Bombay | Jul 2025 – Present***

* **Mentoring junior MTech students as part of the Institute Student Companion Program, assisting with course registration, academic guidance, and personal support throughout their journey.**

**Teaching Assistant**

***Structures Laboratory, IIT Bombay | Jul 2024 – Present***

* **Collaborated with other TAs to conduct lab sessions and supervised practical assessments.**
* **Assisted in exam coordination and evaluation for over 80+ students in structural mechanics.**

**Interview Coordinator**

***Placement Team, IIT Bombay | Dec 2024***

* **Managed logistics and scheduling of interviews during the placement season, ensuring smooth coordination between companies, students, and institute officials.**