

# Dylan B. Bustamante

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Long Beach, CA 90808

3062 Ostrom Avenue

## EDUCATION

CSULB – Mechanical Engineering

Expected Graduation: Fall 2027

Bachelor of Science in Mechanical Engineering

Long Beach, CA

Aug 2022 – Present

- 3rd year in engineering, full-time student
- Relevant Coursework: SolidWorks (MAE172B), Matlab (MAE205), Manufacturing Processes and Design (MAE272)
- Cumulative GPA: 3.640; Major GPA: 3.508

## EXPERIENCE

Research Assistant (Project Lead) – Paid Internship

CSULB Research Foundation – Computational Fluid Dynamics (CFD) Lab

Long Beach, CA

Jul 2024 – Present

- Led CFD research project focused on aircraft cabin airflow-analysis in collaboration with the CDC and FAA
- Designed a full scale CAD model in ANSYS SpaceClaim from limited measurements and supplemental technical research
- Optimized CAD model for CFD research, improving mesh quality, numerical stability, and simulation efficiency
- Performed 20+ steady-state and transient simulations in ANSYS Fluent to analyze flow behavior and particle transport characteristics
- Post-processed simulation data for presentation to mixed audiences.

Independent Design & Additive Manufacturing

Self-Directed Projects

Long Beach, CA

December 2016 – Present

- Designed and fabricated 100+ functional components using FDM 3D printing, applying principles of mechanical design, tolerance stacking, and material behavior
- Developed custom-fit mechanical solutions (e.g., snap-fit tool holders for grid wall systems), incorporating load considerations and repeated-use durability
- Iteratively prototyped designs, reducing material usage and print time while improving structural performance
- Produced both functional mechanical components and detailed aesthetic designs using CAD modeling software

## SKILLS

- CAD: ANSYS SpaceClaim, SolidWorks, Fusion
- CFD: ANSYS Fluent
- Mesh generation and optimization
- Technical research and specification development
- Large dataset management
- Analytical extraction from data
- Design for manufacturability
- Rapid Prototyping
- Communicating technical findings to federal stakeholders
- File organization that can be navigated by colleagues
- Data visualization using Microsoft Excel and Google Sheets

## Technical Contributions – Embraer E-195 Cabin CFD Study

- **Sophomore Fall semester:** Initial CAD model created using a cross section diagram and personal research. Learned how to use basic ANSYS Fluent functions, created initial mesh without passenger models. ~ 70M cells (unoptimized CAD)
- **Sophomore Spring semester:** Learned manual post processing skills through ANSYS Fluent. Data was extracted from report definitions and analyzed in Excel. New graphs and visualizations were created to be presented in bi-weekly meetings with the CDC and FAA
- **Summer 2025:** Created MatLab codes to streamline analysis of Excel sheets with 10k+ rows and 130+ variables. Revised simulation based on feedback from CDC and FAA representatives, introduced multiphase analysis to define and track “infected” particles.
- **Junior Fall Semester:** Optimized CAD for CFD, old mesh had 116M cells, new mesh with body of influence for regional refinement had 16M cells, new mesh with global refinement has 24M cells.
- **Junior Spring Semester:** Approved of the submission of an abstract for presentation consideration at the SAE Aerotech 2026 conference in Florida. Currently working on transient simulations introducing a moving crew member.