

# JEREMY MANIAGO

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## EDUCATION

### The City College of New York

B.E. Mechanical Engineering, Physics Minor

**Expected Graduation: May 2024**

Cumulative GPA: 3.80

**Relevant Coursework:** Aerodynamic Design, Thermal Hydraulics Advanced Fluid Mechanics, Heat Transfer, Aerothermal Fluids Lab, Thermodynamics, Orbital Mechanics, Manufacturing Processes & Materials, Mechanical Systems Design, Mechanics of Materials, Engineering Materials, Computer Aided Drafting/Design, Numerical Methods in Engineering

**Affiliations:** American Institute of Aeronautics and Astronautics (AIAA), Society of Automotive Engineers (SAE)

## QUALIFICATIONS

**Software:** SolidWorks (3D modeling, CFD, Finite Element Analysis), ANSYS Fluent, Excel, Microsoft Office, OnShape

**Programming:** MATLAB, Python, Arduino(C), HTML, CSS

**Hands-on:** Arduino, 3D printing, material testing, mechatronics sensors, assembly of robots and structures

**Soft Skills:** Problem Solver, Collaborative, Analytical, Creative, Reliable, Patient, Open-minded

## RELEVANT EXPERIENCE

### AIAA, City College, NY | Club Secretary | Aircraft Design Division Lead

**Aug 2023 – Present**

- Directed our AIAA Aircraft Design Division team by dividing aircraft design into subsections of aerodynamics, structures, and payloads design. Assigned research and design tasks accordingly to encourage development of healthy design habits.
- Trained new AIAA members in 3D CAD modelling within Solidworks and Onshape. Introduced members to fundamental aircraft design concepts alongside Computation Fluid Dynamics and Finite Element Analysis through workshops.

### DOE SULI Intern, Princeton Plasma Physics Laboratory, NJ

**Jun 2023 – Aug 2023**

- Participated in a 2-week long training course in plasma physics and fusion energy.
- Researched novel x-ray 2D dual crystal spectroscopy imaging system that alleviates imaging errors from previous methods in imaging inertial confinement fusion (ICF) and high energy density (HED) plasmas.
- Developed a MATLAB script to calculate optimal crystal positions and translate them into a raytracing python package.
- Analyzed detector image efficiency and obtained spatial resolutions as low as 3 microns.

### Research Assistant, Grove School of Engineering, NY

**Dec 2022 – Jan 2023**

- Conceptualized a cooling chamber that maintains generated water droplets at a supercooled liquid state which, aiding in research topics relating to additive manufacturing and shock-droplet interactions on airfoils.
- Utilized MATLAB and heat transfer equations to aid in the selection of an appropriate chamber height, then created a simple model in SolidWorks to visualize and refine the design.
- Incorporated design ideas from published setups to create a simpler, cost-effective cooling chamber.

## PROJECTS

### AIAA RC Plane, City College | Junior Co-designer

**Aug 2022 – Present**

- Designed landing gears for a Design Build Fly (DBF) RC plane with team collaboration.
- Used simulations such as computational fluid dynamics (CFD) to evaluate drag on wheel fairing and finite element analysis (FEA) to assess structural integrity of landing gear, leading to selecting optimal fairing design and carbon fiber materials.
- Manufactured the landing gear strut using carbon fiber, carbon Kevlar, and carbon Innegra composites. Utilized wet-layup method for applying epoxy & resin and vacuum-bagging for surface finishing.

### Baja SAE car, City College | Sophomore Co-designer/manufacturer

**Aug 2021 – May 2022**

- Developed and designed driveshaft guards for an off-road Baja vehicle, ensuring cover and durability in rugged terrain.
- Assisted in researching suppliers for items and tools needed to fully assemble the Baja vehicle.
- Participated in the manufacturing process of additional vehicle components, working collaboratively with a team to ensure timely and accurate production.

### Design and Analysis of Scooter, City College

**Apr 2023 – May 2023**

- Designed a kick scooter assembly with a front wheel suspension system.
- Simulated scooter handlebars and deck by utilizing FEA to assess stress & deflection. Iteratively redesigned geometry and materials of assembly to meet weight and deflection constraints.
- Evaluated cost of materials by using McMaster-Carr for stock material as reference. Final Assembly included a bill of materials (BOM) and required materials to manufacture the scooter.