MICHAEL LAWRENCE GARCIA

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OBJECTIVE

Mechanical Engineering student at Columbia University with a background in propulsion and computational engineering seeking a PhD program or industry experience advancing the state of the art in engineering.

EDUCATION

Columbia University in the City of New York August 2020 - May 2024
B.S. in Mechanical Engineering
Minor in Computer Science

PROFESSIONAL EXPERIENCE

California Institute of Technology May 2023 - Present
Visiting Undergraduate Researcher *Pasadena, CA*

- Member of Professor H. Jane Bae's turbulence research group during the summer of 2023.
- Independently procured $11,500 USD to perform AI-augmented large eddy simulation research.
- Presented research in a talk at the American Physical Society Division of Fluid Dynamics.

Columbia University in the City of New York September 2021 - January 2023
Undergraduate Researcher *New York, NY*

- Member of Columbia's Environmental Flow Physics Laboratory, a computational fluid dynamics lab.
- Developed a Lagrangian particle transport solver using large eddy simulation in Fortran.
- Received a $5,000 USD Bonomi scholarship in recognition for my work in turbulence research.

California State University, Long Beach June 2021 - January 2022
Visiting Undergraduate Researcher *Long Beach, CA*

- Collaborated with CSULB's Solid Rocket Propulsion and Combustion Lab to process propulsion data.
- Programmed an image detecting algorithm for resolving fuel grain structure in solid rocket combustion.
- Utilized MATLAB's image processing library to segment and classify high speed camera footage.

ACTIVITIES

Columbia Space Initiative September 2020 - Present
Rocketry Co-Lead *New York, NY*

- Currently lead Columbia's competitive collegiate hybrid rocketry program of 40 students.
- Previously responsible for the design, analysis, and construction of cold fluid systems on the rocket.
- Created pyrotechnic valves, oxidizer tanks, data servers, N2O plumbing systems, and CFD tutorials.

Columbia University Robotics Club September 2020 - June 2023
Co-President *New York, NY*

- Managed a diverse team of engineers competing in the 2022 NASA Big Idea Challenge.
- Coordinated the analysis of an ISRU system arcitechture for mining ice at the Lunar South Pole.
- Won a $25,000 USD prize from NASA for the design, beating several high-profile aerospace firms.

TECHNICAL SKILLS

Programming	Python, Java, C, C++, Fortran, Java, Torch, Numpy, Pandas, SciPy
Engineering Software	SolidWorks CAD/FEA, Ansys Fluent, MATLAB, HSMWorks
Relevant Courses	Linear Algebra, Multiv. Calculus, Differential Equations, Heat Transfer, Thermodynamics, Propulsion, Data Structures