

# Ravi Dhaliwal

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## Education

<b>University of California, Los Angeles</b> - Physics B.S.	Dec 2025
Coursework: Graduate Plasma, Statistical Mechanics, Electricity & Magnetism, Analog Circuits	
GPA: 3.4	

## Research Experience

<b>Student Researcher</b> , Putterman Group	June 2025 – Present
• Worked with a graduate student on iteratively implementing a bubble collapse algorithm from a naval research paper, specifically a 1-D compressible fluid solver, implemented grid refinement and parallelized it to speed up computation by 8x.	
<b>Student Researcher</b> , UCLA Basic Plasma Science Facility	June 2024 – Present
• Analyzed how various beam characteristics and perturbation geometry affect DBS/CPS backscattered power.	
• Developed and verified COMSOL simulation results to match known linear and non-linear relations of plasma turbulence with scattered beam power, with further data analysis in Python	
• Automated simulations for millimeter-wave propagation in plasma using GENRAY, integrating Python scripts with OMFIT's DBS module to enhance wave propagation analysis.	
<b>Aerodynamics Subteam</b> , Bruin Formula SAE	Sept 2023 – June 2024
• Mounted pitot tubes on custom 3D-printed fixtures to measure local airflow around the chassis.	
• Ran STAR-CCM CFD studies and used results alongside measurements to influence drag-reduction design iterations.	
<b>Principal Investigator</b> , NASA NPWEE – Remote	Sept 2023 – Dec 2023
• Lead a proposal for funding a conceptual engineering project to enhance thrust in satellite electronic propulsion systems.	
• Specifically focused on investigating the feasibility of utilizing super-capacitors to induce large current increases in the thruster, which in turn increased thrust output	
• Led research efforts, organized and managed teams by assigning roles and responsibilities, and conducted various simulations using pSpice	
• Cumulated in a ten page proposal that was presented to a NASA board.	
<b>Student Researcher</b> , University of California, Riverside – Riverside, CA	June 2022 – Feb 2023
• Tasked with designing a venturi tube that would be used in a water filtration system	
• Conducted CFD simulations in SolidWorks to verify the designs functionality under load, ensuring a sufficient pressure drop was achieved.	

## Publications

<b>Full-Wave Modeling of Doppler Backscattering in Turbulent Plasmas</b>	In Review
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## Projects

<b>Level Two Rocket</b>	Sept 2025
• Designed, Simulated, and Fabricated a 3 ft rocket with custom avionics, reaching an apogee of 1500m.	

## Skills

Software: COMSOL, STAR CCM+, SolidWorks, Inventor, AutoCAD

Languages: Python, MATLAB, R, SQL, C++, C, C#, Java