Laya Gopalakrishnan

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EDUCATION

Cornell University, College of Engineering, Ithaca, NY **Aug 2024 - May 2028**
Bachelor of Science, Mechanical Engineering
GPA: 3.568

Relevant Courses: Thermodynamics, Linear Algebra, Multi-Variable Calculus, Physics C Mechanics, Electricity & Magnetism*, Differential Equations*, Statics and Mechanics of Solids* *To be completed FA 2025

ENGINEERING EXPERIENCE

Cornell University Unmanned Air Systems, Cornell University **Nov 2024 – Present**
Airframe Sub-Team Member

- Worked in a 10 person team to manufacture multiple carbon-fiber composite layups for 50 lbs UAV
- Rebuilt malfunctioning quadcopter avionics test platform; integrated legacy avionics (Raspberry Pi, Pixhawk, and camera gimbal) and new LiDAR through cross-team communication
- Designed in SolidWorks; documented bill of materials and manufacturing process in Confluence
- Currently designing V-tail internals (spars, ribs, ruddervator mechanics integration) for new plane

Air Force Research Laboratory (AFRL), Kirtland Air Force Base NM **Jun 2023 – Aug 2023**
Summer Scholar

- Apprenticed as satellite operator; sent real-time commands to and moderated watch dog protocols of XVI satellite in the Link-16 tactical data network
- Developed "Mission Clock" Python software to display XVI's location in mission control center, allowing satellite operators to more easily track passes and manage operation shift coverage
- Authored and presented mission fulfillment risk assessment for early-stage Tetra-5 Tracker Prime satellite
- Presented work at AFRL scholar symposium

RESEARCH EXPERIENCE

ASTRALab, Cornell University **Jun 2025 – Present**
Undergraduate Researcher

- Modeling particle-collision debris buildup generated within electrospray thrusters to slow their degradation (used for satellite mobility)
- Used virtual workstation to run DFT (Bash) and CP2K (MATLAB) simulations to model optimal geometries of select ion pairs; visualized optimizations through MacMolt and OVITO
- Contributing toward research paper for AIAA SciTech 2026 conference; to be published in Jan 2026

Dark Matter Nucleation in Scintillating Bubble Chambers, Northwestern University
Student Researcher **Oct 2023 – Apr 2024**

- Determined conditions necessary for bubble nucleation in super-heated Lennard-Jones liquids; preparation work for graduate particle physics lab's future experimental procedures
- Coded molecular dynamics simulations through HOOMD-Blue in Jupyter Notebook
- Completed research paper including extensive literature review; presented work at IMSAlloqium symposium

SKILLS

Technical: SolidWorks, Confluence, Teams, Manufacturing
Programs: Java, Python, HTML, MatLab, Bash

AWARDS

- Hunter Rawlings Presidential Research Scholar | Cornell University
- Type 1 Scholarship | Air Force ROTC Detachment 520
- Meritorious Service Award | Air Force ROTC Detachment 520