Anudeep Mantravadi

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EDUCATION

Rutgers, The State University of New Jersey Sep 2024 - May 2028
Bachelor of Science, *Aerospace Engineering* Major GPA: 3.88/4.0

SKILLS

Design & Simulation: SolidWorks (CAD/CAM, Sheet Metal), Siemens NX, GD&T, AutoCAD, ANSYS, OpenFOAM
Manufacturing & Hardware: Wire Arc Additive Manufacturing, CNC, Machine Shop Fabrication, 3D Printing, DFM/DFA
Programming: Python, MATLAB, C/C++, PyTorch, Ubuntu/Linux

WORK EXPERIENCE

National Aeronautics and Space Administration's Lucy Mission | Leg Mechanisms Lead Sep 2026 - Present
NASA L'SPACE NPEWEE
- Raised projected tip-over margin 56% (21.6° to 33.8°) by modeling a passive, rocker-coupled 4-leg self-leveling lander in Siemens NX and Fusion 360 CAD
- Co-invented a power-free, strut-tripped leveling lock (Featured in NASA invention disclosure), targeting 10+ landings per leg versus 1 for Apollo-style struts
- Delivered a drop-test-ready lander design 5.5% under NASA's $10K budget by detailing rocker, clevis, and strut CAD for NASA Marshall in-house manufacturing

Computational Mechanics Laboratory | Computational Fluid Dynamics Research Intern Apr 2026 - Present
Rutgers Mechanical and Aerospace Department Funded
- Accelerated aerodynamic analysis 15x (45 to 3 minutes per case) with a PyTorch physics-informed neural network, enabling 100+ daily lift/drag evaluations
- Closed a 20-37% OpenFOAM-XFOIL gap to under 1% lift and 3% drag via Root Cause Analysis of a corrupted airfoil dataset
- Automated CFD error detection with a Python validation tool, dropping checks from 30 minutes to 10 seconds across 34 OpenFOAM cases

Advanced Manufacturing Processes Laboratory | Manufacturing Engineering Research Intern Jun 2025 - Apr 2026
Rutgers and National Science Foundation Funded
- Designed, assembled, and tested the lab's first micro wire-arc additive manufacturing platform, including a 200-component SolidWorks gantry with stepper motor enabled custom wire feeders
- Shortened setup time 4x (8 to 2 minutes) via Root Cause Analysis of stepper-motor winding/driver connections and Python-Arduino 3-axis control
- Calibrated a spring-loaded wire feeder to 0.54% slippage error at 10 mm/s across 4 speed modes
- Reduced weld-bead inspection time 20x (40 to 2 hours) with a Python laser-scan tool parsing 250+ beads at 94.4% accuracy

American Institute of Aeronautics and Astronautics | Aerospace Structures Deputy Lead Dec 2024 - Present
Rutgers Airborne
- Led 16 engineers from requirements through design, fabrication, and flight test, authoring work instructions and Interface Control Documents (ICDs) across 3 missions
- Redesigned aluminum landing gear in SolidWorks, reclaiming 1.0 lb of payload (20% of allowance), validated in ANSYS FEA and released with ASME GD&T drawings
- Selected a biplane from 6 MATLAB/XFLR5 trade-study configurations, doubling wing area within a fixed 40-in span

PROJECTS

Autonomous Inspection Robot on Boston Dynamics Spot | Funded by Rutgers ISE Department Oct 2026 - Present
- Engineered a 7-subsystem remote inspection robot on Spot with a scissor-lift sensor mast, pan-tilt thermal/RGB head, and Jetson Orin Nano controller
- Integrated 4 USB cameras, a thermal camera, and humidity sensors with a Gemini vision-language model to flag heat sources and humidity spikes remotely

Product Design Extern (Co-Lead) - Rutgers MBS Externship Feb 2026 - May 2026
- Lowered projected production cost 85% ($500-1,000 to $78 per brace) by co-designing a 40-component, BOM-backed orthopedic brace in SolidWorks
- Compressed brace cycle time from 2 weeks to 18 hours via Kaizen, converting the design to an automated 3D-printing workflow