

Andrew Campos

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EDUCATION

Columbia University | New York, NY

Aug 2024 - May 2028

B.S. in Mechanical Engineering; Minor in Aerospace Engineering & Computer Science

GPA 3.90/4.0, Dean's List

- **Relevant Coursework:** Comp. Graphics & Dsgn., Intro to EE, LinAlg, ODE, Multv. Calc., Physics Mech/E&M/Waves, Data Science
- **Activities:** Creative Machines Lab Research, Phi Gamma Delta, Columbia Club Rugby, Formula SAE

Pilot School | Licensed Pilot | Bay Area, CA

Jul 2021 - Present

ASEL & Instrument Rating 220+ Hours, 100 hours Pilot in Command, 430+ Takeoffs/Landings in Cirrus SR22s/Cessna 172s

EXPERIENCE

Tesla Motors, Drive Inverter Team | Palo Alto, CA

June 2026 - September 2026

Mechanical Design Engineering Intern

- Contributing to Tesla's drive inverter phase-out busbar and owning a fault-response hardware component. Progressing part design through DFMEA, material research, CAE simulations, manufacturing reviews, drawing/design packages, supplier coordination, and validation/reliability testing. Utilized materials-science principles to ensure parts meet specific strength, thermal, corrosion, and conductivity requirements while withstanding extreme vibration, temperature, and impact-prone environments.
- Designing fixtures for manufacturing and test assembly, including heat-sink swaging process definition, Hall sensor calibration, PCB mounting and calibration, and laser-welding operations. Utilized CAD, machining, 3D printing, and part sourcing for fabrication.

NASA Research Engineering Internship | Mountain View, CA

Jun 2025 - Aug 2025

Intelligent Systems Division | Ames Research Center

- Developed and scaled a motor-actuated tensegrity structure based on NASA's "Super Ball Bot" design to explore lightweight, compliant systems for robotic mobility. Utilized climbing string and carbon fiber rods for the tensegrity foundation.
- Developed an omnidirectional control system using servos, controlling the movement through a light Pololu controller. The robot successfully survived and continued working after multiple 30-foot free falls. Successfully scaled the initial design to 5 feet in diameter.
- Currently developing a research paper with NASA's Adrian Agogino on our work with the intention of publishing with SciTech 2027.

Power Stroller Research Project | **Creative Machines Laboratory** | New York, NY

Feb 2025 - Present

Project Co-Lead

- Co-leading the design and building of a detachable Segway-like powered tow for non-electric wheelchairs under Professor Hod Lipson in Columbia's Creative Machines Lab. Managing projects through work delegation between research associates, budgeting project expenditures, communicating with MECE lab and Makerspace leaders for resource usage, and directly liaising with Professor Lipson.
- Designing CAD components and machining custom drivetrain parts, including steel axles, sprockets, and keyed interfaces with Lathe and Mill. Fabricating the main frame by cutting, drilling, and assembling metal extrusions and polycarbonate panels. Installing and integrating the motor, gear-shifter, battery, and controller to ensure full mechanical and electrical system functionality.

Formula SAE | New York, NY

Oct 2024 - May 2025

Frame/Body/ Aero Team Member

- Designed and optimized aerodynamic components by modifying CAD designs for race car's front and rear wings to increase downforce and traction, improving the car's aerodynamic performance and controls.
- Used computational fluid dynamics (CFD) simulations in Altair to test CAD design performance under wind tunnel conditions. Analyzed downforce, drag, and flow separation to optimize wing designs for maximum aerodynamic efficiency and traction.

Nuclear Reactor Modeling and Simulation | Los Altos, CA

Dec 2022 - Nov 2023

Research project

- Used OpenMC and python framework, Paramak, to conduct Monte Carlo simulations on 3D tokamak reactor models, optimizing tritium breeding ratios (TBR) by analyzing material performance, neutron multiplication, blanket thickness, and lithium enrichment.
- Identified optimal reactor configurations by testing various component sizes, materials, and lithium enrichment. Found best configurations through measurement tallies on tritium production, neutron multiplication, and heat production.
- Developed a comprehensive research paper on findings and currently working towards publishing work with APS.

Pyka Inc. | Oakland, CA

Jul 2023

Engineering Consultant Intern

- Designed CAD models in SolidWorks and contributed to the full electric aircraft lifecycle by assembling, wiring, and integrating aircraft components and systems, including spray, motor, lighting, and high-voltage battery technologies.

SKILLS & INTERESTS

Technical Skills: CAD/Design: SolidWorks, CATIA, OnShape, Engineering Drawings; Analysis: FEA, DFMEA, CFD (Altair, Beginner); Manufacturing: Tormach CNC Mill, CNC Lathe, Bandsaw, Laser Welding, 3D Printing, Laser Cutting, Soldering; Electronics/Test: Oscilloscopes, Multimeters, Hall Sensor Calibration; Programming/Data: Python (Pandas, NumPy, Matplotlib), Java, HTML; Other: Supplier Coordination, Microsoft Office (Word, Excel, Powerpoint), Academic Writing (LaTeX)

Language: English, Intermediate Spanish

Interests: Aviation and Aerospace, Creative Design, Artificial Intelligence & ML, Electric Propulsion, Vertical Lift Technologies