

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 3.84/4.0, Dean's List

- **Relevant Coursework:** Linear Algebra, Multivariable Calc, Physics Mechanics/E&M/Waves, Data Structures, Intro to CS for Eng
- **Activities:** Creative Machines Lab Researcher, Phi Gamma Delta Member, Columbia Club Rugby Member

Los Altos High School | *High School Diploma* - GPA 3.98/4.00 | Los Altos, CA

Aug 2020 - Jun 2024

EXPERIENCE

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.

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 a previous NASA 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 and controlling the movement through a light Pololu controller. The robot successfully survived and continued working after multiple 30 foot free falls. Successfully scaled initial design to 5 feet in diameter.
- Currently developing a research paper with NASA's Adrian Agogino on our work with intentions of publishing with SciTech 2026.

UC Berkeley HiPeRLab | Berkeley, CA

May 2025 - Jun 2025

Research Assistant

- Volunteered at UC Berkeley's High Performance Robotics Lab under Professor Mark Mueller. Focused on mechanical design and weight optimization of the PairTilt quadcopter. Contributed to airframe redesign through iterative CAD modeling.
- Investigated structural, manufacturability, and agility trade-offs in carbon-fiber airframe redesigns to reduce overall weight and rotational inertia while maintaining strength and durability.

Formula SAE | New York, NY

Oct 2024 - May 2024

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. I 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: Intermediate Java, Intermediate Python, CAD (SolidWorks, OnShape), Monte Carlo Simulation (OpenMC), Tormach CNC Mill, TRAK 1630RX Lathe, Bandsaw, Computational Fluid Dynamics (Altair), 3D Printing, Laser Cutting, Microsoft (Word, Excel, PowerPoint), Adobe (Photoshop, InDesign), Soldering, Academic Writing (LaTeX, Word, Research Papers)

Language: English, Intermediate Spanish

Licensed Pilot: Airplane Single Engine Land & Instrument Rating 220+ Hours, 100 hours Pilot in Command, 430+ Takeoffs/Landings in High Performance Single Engine Aircraft: Cirrus SR22's

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