

EDUCATION

Carnegie Mellon University, Pittsburgh, PA
Bachelor of Science in Mechanical Engineering, Additional Major: Robotics

Expected Graduation: May 2028
GPA: 3.8/4

EXPERIENCE

Juicy EV: Automated Robotic EV Charging September 2025 - July 2026
Mechanical Engineering Intern Pittsburgh, PA

- **Evaluated competing automated EV-charging system architectures** against power delivery, mobility, cost, and human interaction constraints
- Designed and fabricated a **3-ft electromechanical gantry** in SolidWorks using 80/20 framing, four stepper motors, and a **robotic arm**; iterated components through 3D printing, laser cutting, and machine-shop fabrication
- Wired and programmed an **Arduino-based motion system** controlling four stepper motors, integrating mechanical and electrical subsystems to autonomously position a charging connector at a simulated EV port

AI-Driven Generative Design for Aerospace Manufacturing August 2026 - Present
Mechanical Engineering Researcher Visual Design and Engineering Laboratory

- **Developing an AI-driven generative design model** integrating engineering requirements, business constraints, and manufacturing considerations to generate parameterized CAD models and simulation workflows
- Applying **ANSYS FEA & CFD** to establish causal relationships between key design variables and structural and aerodynamic performance
- Integrating simulation-derived relationships into a **causal engineering model** that AI agents use to evaluate tradeoffs, guide design changes, and drive subsequent iterations

Adaptive Smoothing End Effector for Robotic Concrete 3D Printing August 2026 - Present
Robotics and Mechanical Design Researcher Computational Engineering & Robotics Laboratory

- **Designing in SolidWorks** a shape-adaptive concrete-smoothing end effector using five linear actuators to deform a flexible metal surface into controlled geometries for additive manufacturing
- Developing a **Python-based kinematic model** that maps desired smoothing profiles to actuator displacements and simulates end-effector configurations before physical testing
- Planning mobile-manipulator trajectories to coordinate end-effector shape along deposited concrete layers

Carnegie Mellon Racing - Aerodynamics Team September 2025 - Present
Aerodynamics Engineer Carnegie Mellon University

- Running and analyzing **Luminary CFD studies** to evaluate pressure distributions, flow behavior, and aerodynamic performance across vehicle components ahead of Critical Design Review
- Optimizing **rear-wing endplate geometry in SolidWorks** to limit pressure equalization across the wing and preserve the low-pressure region beneath the aerodynamic surface

ENGINEERING PROJECTS

Electromechanical Reading Assistive Device August 2026 – Present
Assistive Technology Design Project

- Conducted interviews with visually impaired users, translating user needs into mechanical and ergonomic requirements
- **Developing an XY-gantry robotic reading system** integrating motorized linear motion, sensing, embedded electronics, and mechanical hardware to autonomously position a reading interface across printed text
- Designing and integrating mechanical, electrical, and control subsystems through iterative prototyping, testing, and troubleshooting, using test results and user feedback to refine system performance

Modular 3D-Printed RC Aircraft May 2026 - August 2026
Independent Aerospace Engineering Project

- **Designed and flight-tested** a 48-inch, fully 3D-printed RC aircraft integrating aerodynamic analysis, parametric CAD in Fusion 360, structural design, and electronics
- Analyzed airfoils at 80k–120k Reynolds numbers **using XFOIL and OpenVSP/VSPAero**, selecting NACA 4412
- Reduced aircraft weight to 1.3 kg using 0.8-mm PLA shells, DFM-optimized design

SKILLS

- **CAD & Simulation:** SolidWorks, Fusion 360, ANSYS, Luminary CFD, XFOIL, OpenVSP/VSPAero
- **Programming & Controls:** Python, C, Arduino, Embedded Systems
- **Robotics & Mechatronics:** Sensors & Actuators, System Integration, Kinematic Modeling, Electromechanical Prototyping
- **Manufacturing:** FDM 3D Printing, Laser Cutting, Mill, Lathe, Drill Press, Band Saw, Chop Saw