Daniella Caldarella

Princeton Engineering Student | Pilot
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EDUCATION

Princeton University Expected Graduation May 2026
Mechanical and Aerospace Engineering Bachelor of Science in Engineering
GPA 3.73

Courses: Aircraft Flight Dynamics, Fluid Dynamics, Aerospace Structures, Mechanical Design, Materials, Mechanics of Fluids, Engineering Design, Solid Mechanics, Thermodynamics, Linear Algebra, Statistics, Differential Equations, Aircraft Design, Rocket Propulsion Technology Fall 2025: Automatic Control Systems (with Simulink), Heat Transfer, Robotics

Coursework: Construct sUAV flying wing drone, simulate-build-test balsawood wing in wind tunnel, configure jet transport aircraft using Open VSP and Matlab, analyze static longitudinal stability, laboratory experiments analyzing: laminar / turbulent flows, open channel flow, and designed/built an autonomous SaRR to traverse terrain/navigate to light source/drop package

Keywords: aerospace engineering, flight experience, flight planning, avionics systems, aircraft configuration, CAD (PTC Creo & SolidWorks), aircraft preflight inspection, GD&T, manufacturability, structural analysis, Finite Element Analysis (FEA)

FLIGHT TRAINING

Princeton Flying School June 2024 – October 2024
Private Pilot's License Certification issued by the Federal Aviation Administration

- Single Engine Land Airplane (ASEL) license with > 80 hours of flight experience in Cessna 172 R/S/N/P
- Flight preparation: calculate weight and balance, generate and file flight plans, review maintenance records, conduct preflight inspection of aircraft structural integrity, engine inspection, oil and fuel levels, lighting systems, navigation and radio systems (Garmin GNS 430 & GNX 375), and flight controls maneuverability
- Mastered: airspace, Federal Aviation Regulations, Air Traffic Control communication, flight aerodynamics, emergency procedures, flight performance maneuvers, meteorology, cross country navigation, aircraft mechanical and electrical systems

RELEVANT EXPERIENCE

General Dynamics Mission Systems Summer 2025 – 12 weeks
Mechanical Engineer Intern

- Modified handheld field inspection tool with mechanical height indicator feature; prepared part & drawings for release
- CAD custom torque adapter (1200 ftlb) & SolidWorks FEA to simulate torque-induced stress, assess structural integrity
- Modeled welds on existing CAD (AWS weld symbology) & ran submerged pressure simulation, evaluate structural reliability
- Skilled in Engineering Data Product release process within the Engineering Product Data Management (EPDM) system

Team Leader | Aircraft Design -- Princeton's Aerospace Engineering Capstone Group Project
Spring 2025

- Configured and constructed a 4' wingspan sUAV flying wing drone – 3D printed with LW-PLA and PAHT-CF
- Engineered internal rib & spar systems with integrated access to a 6-cell LiPo battery & rear-mounted push-prop
- Managed detailed 3d printing log & oversaw team collaboration on full drone manufacturing and assembly
- Facilitated weekly team meetings for 10-peer group with prepared agenda/task list, led weekly professor design reviews, managed $1,200 bill of materials, and created team merchandise

Princeton Electric Speedboating – home to the world's fastest electric boat May 2023 – ongoing
Website Designer & Mechanical Engineer

- Designed waterproof casing for on-board electronics
- Artistically design website, technical director to film/edit promotional content and livestream operations
- Graphic designer of world record apparel, logo rebrand, and full merchandise catalog driving merchandise sales

Team Leader | Engineering Design & Mechanical Design Group Project Spring & Fall 2024

- Design & manufactured autonomous Search and Rescue Robot to traverse wall & navigate to light to drop object
- Manufacture aircraft wing airfoil with water jetting, milling machine, CNC machine, Creo CAD Software
- Conducted Finite Element Analysis for wing under structural loads and stress and tested manufactured wing
- Organize team task list, maintain bill of materials, schedule meetings to meet engineering milestones, and act as liaison between team and professors via weekly progress reports

SENIOR THESIS RESEARCH

Aerodynamics Researcher | Princeton's Bio-Inspired Adaptive Morphology Lab September 2025 – ongoing

- Execute yearlong independent research on aerodynamic effects of spanwise blowing using shark gill–inspired slot geometry
- Manufacture half-fuselage delta wing with controllable gill slots; perform wind tunnel testing with transducer force data; use tufts to visualize flow direction and boundary layer behavior

SOFTWARE SKILLS

- Data/Signal Processing: Matlab
- CAD & Finite Element Analysis: Creo & SolidWorks
- Adobe: Photoshop, Illustrator, Premiere Pro & InDesign
- Parametric Aircraft Geometry & Analysis: Open VSP
- Microsoft Office Suite

HARDWARE SKILLS

- Manufacturing Machining: Milling & Lathe
- Subtractive Fabrication: CNC machine & Waterjet
- TIG welding
- Laser cutting
- Additive Manufacturing: 3D printing