

# LUCCA CORREIA

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## EDUCATION

**CORNELL UNIVERSITY**, Major in Mechanical Engineering; Intended Minor in Robotics  
Cumulative GPA: 3.99/4.0; Dean's List all semesters 2022-2025

Ithaca, NY  
Expected May 2026

**HORACE MANN SCHOOL** (New York) - Cumulative GPA: 3.88/4.0

2015 - 2022

## WORK EXPERIENCE

### FOUNDATION

May 2025 – Aug 2025

Mechanical Robotics Engineering Intern

San Francisco, CA

- Assembled full Phantom MK1 humanoids including structures, linkages, encoder soldering, signal harness fabrication, and actuator calibration; led independent debugging and bring-up.
- Designed CNC work-holding fixtures in CAD, generated G-code in CAM, operated 3-axis mill to fabricate encoder housings
- Authored comprehensive CAD-based build instructions for the humanoid and optimized workflows with process engineers

### MITRE CORPORATION

May 2024 – Aug 2024

Mechanical & Systems Engineering Intern

Bedford, MA

- Independently modeled and analyzed aircraft component model via Solidworks & Ansys Icepak FEA Software
- Proposed variables and conditions to optimize cooling and ran simulations for each (altitudes, materials, geometries, fans, boundary conditions)- Confirmed solutions with heat transfer hand calculations
- Developed comprehensive MSOSA SysML (detailed BDD's, IBD's, Activity Diagrams, & Simulations) models of complex aircraft electronic system

### DCC AUTOMATION

July 2023 – Aug 2023

Mechanical Engineering & Robotics Intern

Brewster, NY

- Modeled SolidWorks parts and assemblies from complex engineering drawings and created motion studies from systems
- Created part drawings for production with in-house CNC five-axis mill and lathe, welding tools, and overall assembly

## ENGINEERING AND ROBOTICS EXPERIENCE

**Helbling Robotics Research Lab** (<https://helbling-lab.github.io/>)

Sep 2025 - Present

Mechanical/Robotics Engineering Position

- Responsible for designing, testing, and integrating dynamic braking mechanism for water surface-skimming robot (*GammaBot*)
- Reviewing research papers and generating CAD designs in Solidworks that meet strict weight and system-level constraints
- Developing Matlab scripts to model insect-scale fluid dynamics and optimize breaking performance

**NEXUS (Cornell Engineering Project Team)**

Sep 2022 - Sep 2025

Mechanical Subteam Lead

- Led design, machining, and assembly of a swerve drive and active intake/filtration system to filter microplastics from beach
- Defined executable system level requirements and test cases across electrical, software, and business subteams; Integrated mechanical and electrical systems (intake, filtration, drivetrain, battery, motor drivers/encoders, PDB & PCBs, GPS) on rover
- Developed MatLab scripts to calculate required torque for robot drive motors to perform on complex terrain with filtration

**CORNELL MAE 4190 FAST ROBOTS COURSE**

Jan 2025 - May 2025

- Designed and fabricated a fast autonomous car with dynamic system modeling and integrating reactive gyroscope and time-of-flight sensor feedback on an embedded processor – extensive programming in C++ and Python
- Achieved fully autonomous navigation and path planning via real time localization and linear/angular PID control
- Hands-on experience with rapid prototyping, system debugging, and partial off-board computation

## ACTIVITIES

**SOCCER** (Cornell United Club Team, HM Varsity Team, US Licensed Coach)

2018 – Present

**USSA AND FIS SKIING** (HM Varsity Team & Blue Mountain Ski Team USSA U16 State Champion)

2012 – 2022

**FIRST® ROBOTICS (FRC) HIGH SCHOOL TEAM** (Team Captain, World Championship Qualifier)

2018-2022

## TECHNICAL SKILLS & ADDITIONAL

- Machining Experience: 3D printer, CNC three-axis mill, lathe, band saw, laser cutter, drill press, hacksaw, and jigsaw
- Software & Modeling: SolidWorks, MatLab, MSOSA SysML, Ansys (Icepak & Mechanical), Python, C++, LaTeX, CAM