LUCCA CORREIA

New York, NY | (201) 360-1445 |lec254@cornell.edu | https://correial.github.io/

EDUCATION

CORNELL UNIVERSITY, Mechanical Engineering; Cum. GPA: 4.0/4.3, Dean's List all Semesters — May 2026
CORNELL UNIVERSITY, Masters of Engineering - Systems Engineering — Expected December 2026
HORACE MANN SCHOOL (HM) (New York) - Cumulative GPA: 3.88/4.0 — 2015 - 2022

PROFESSIONAL EXPERIENCE

FOUNDATION - Mechanical Robotics Engineering Intern (San Francisco, CA) — SUMMER 2025
Accelerated humanoid development by optimizing build workflows and fixtures to advance mission in scaling next-gen robot
- Assembled full Phantom MK1 humanoids including structures, linkages, encoder soldering, signal harness fabrication, and actuator calibration; debugged electromechanical integration failures during hardware testing under schedule pressure
- Designed and fabricated CNC fixtures using CAM and 3-axis mill to increase assembly repeatability and reduce deploy time
- Authored comprehensive CAD-based build instructions for the humanoid and optimized workflows with process engineers

MITRE CORPORATION - Mechanical and Systems Engineering Intern (Bedford, MA) — SUMMER 2024
Optimized and modeled defense aircraft cooling module system to advance next-gen communication technology
- Modeled and validated multi-disciplinary thermal systems across mechanical, electrical, and airflow domains via Ansys Icepak
- Performed trade studies and parametric optimization via multi-factor simulations across altitudes, materials, geometries, fans, and boundary conditions to support system-level design decisions under real-world constraints
- Developed MSOSA SysML models of complex aircraft electronic systems (BDD, IBD, activity diagrams, simulations) to coordinate subsystem interfaces

DCC AUTOMATION - Mechanical Engineering and Robotics Intern (Brewster, NY) — SUMMER 2023
Accelerated rapid prototyping by converting drawings into production-ready models for CNC manufacturing
- 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
Developing autonomous insect-scale robots to perform sustained intelligent operation in real-world environments
- Leading design, testing, and integration of dynamic braking mechanism for water surface-skimming robot (*GammaBot)*
- Modeling CAD designs in Solidworks to meet strict mass and system-level constraints informed by research paper analysis
- Developing Matlab scripts to model insect-scale fluid dynamics and optimize breaking performance

NEXUS - Mechanical Subteam Lead — Sep 2022 - Sep 2025
Cornell Engineering Project Team pioneering autonomous rover to filter and collect microplastics from beaches
- 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 drivetrain, intake, filtration, power, GPS, motor drivers, encoders, and PCBs into a fully operational autonomous rover
- Supported field testing, failure diagnosis, and iterative fixes in real outdoor environments

CORNELL MAE 4190 FAST ROBOTS COURSE — Jan 2025 - May 2025
- Designed and fabricated a fast autonomous car with dynamic system modeling, integrated 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, microcontrollers, sensor fusion, and debugging instability and sensor failures

LEADERSHIP AND ACTIVITIES

SOCCER (Cornell United Club Team, HM Varsity Team Captain, US Licensed Coach) — 2018 – Present
USSA/FIS SKIING (HM Varsity Team Captain & Blue Mountain Ski Race Team, USSA U16 State Champion) — 2012 – 2022
FIRST® ROBOTICS (FRC) HIGH SCHOOL TEAM (Team Captain, World Championship Qualifier) — 2018 - 2022

TECHNICAL SKILLS

- **Hardware & Systems:** Electro-mechanical integration, system requirements definition and management, CNC machining, rapid prototyping, dynamic control systems, sensor fusion, hardware debugging, field testing, technical documentation
- **Software & Modeling:** SolidWorks, MatLab, MSOSA SysML, Ansys (Icepak & Mechanical), Python, C++, LaTeX, CAM