LUCCA CORREIA

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EDUCATION

CORNELL UNIVERSITY, Major in Mechanical Engineering; Intended Minor in Robotics — Ithaca, NY
Cumulative GPA: 3.99/4.0; Dean's List all semesters 2022-2025 — Expected May 2026

HORACE MANN SCHOOL (HM) — Bronx, NY
Cumulative GPA: 3.88/4.0 — 2015 - 2022

WORK EXPERIENCE

MITRE Corporation — May 2024 – Aug 2024
Mechanical Engineering & Robotics Intern — Bedford, MA

- Simplified complex SolidWorks aircraft component model via Ansys SpaceClaim to prepare for Ansys Icepak analysis
- Calculated volume flow for required power distribution to determine fan selection
- Ran initial simulation with minimized assumptions then 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
- Independently learned MSOSA SysML from company courses (detailed BDD's, IBD's, Activity Diagrams, & Simulations)
- Developed comprehensive SysML models of a complex aircraft electronic system including simulations for visualization

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
- Developed AutoCAD robotic systems drawings by independently collecting measurements, dimensions, and layouts
- Created part drawings for production with in-house CNC five-axis mill and lathe, welding tools, and overall assembly

DRAKE LABS & ORBITAL COMPOSITES — Jun 2020 – Jun 2022
Two-Year Robotics Intern

- Researched, modeled, and constructed, custom tensile tester to quantify and standardize carbon fiber shoe deformation
- Machined cold-rolled steel plates on CNC mill using CAM files and manual paths; Learned to weld plates to vertical struts
- Programmed with Python on Raspberry Pi; designed custom breadboards to include relays and sensors

ENGINEERING AND ROBOTICS EXPERIENCE

NEXUS (Cornell Engineering Project Team) — Sep 2022 - Present
Mechanical Subteam Lead

- Leading effort in fully designing (SolidWorks), machining, and assembling a swerve drive system to maneuver on beach
- Developed MatLab scripts to calculate required torque for robot drive motors to perform on complex terrain with filtration
- Led intake and filtration mechanism for autonomous robot to filter out and collect microplastics from beaches
- Machining via machine shop CNC mills, lathes, laser cutters, 3D printers, band saws, belt sanders, and hand-held power tools

CORNELL MAE 4190 FAST ROBOTS COURSE — Jan 2025 - Present

- Designing 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
- Hands-on experience with rapid prototyping, system debugging, and partial off-board computation

FIRST® ROBOTICS (FRC) HIGH SCHOOL TEAM — Sep 2018- Sep 2022
Full-Team Captain, Hardware Subteam Member

- 2022 NYC Regional Champion & World Championship Qualifier (Houston, TX)

ACTIVITIES

SOCCER (Cornell United Club Team & HM Varsity Team) — 2018 – Present
USSA AND FIS SKIING (HM Varsity Team & Blue Mountain Ski Team USSA U16 State Champion) — 2012 – 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