NILA NARAYAN

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EDUCATION

Cornell University | Ithaca, NY **Expected Dec 2024**
Master of Engineering in Mechanical Engineering, *Concentration in Robotics* | **GPA: 4.14**

Cornell University | Ithaca, NY **May 2024**
Bachelor of Science in Mechanical and Aerospace Engineering, **| Cum Laude, GPA: 3.53**

Relevant Coursework: Fast Robots • Haptics • Feedback Controls • Multivariable Feedback Control • Model Based Estimation • Mechatronics • System Dynamics • Mechanics of Materials • Mechanical Synthesis

SKILLS

CAD:
- Autodesk Inventor
- SolidWorks
- PTC Creo
- Catia

MANUFACTURING:
- Manual Mill & Lathe
- CNC Machining, CAM
- 3D Printing
- Composites

PROGRAMMING:
- Python
- MATLAB
- Arduino/C

ANALYSIS:
- ANSYS (Static Structural, Modal)
- 3DCS
- VSA

PROFESSIONAL EXPERIENCE

Cornell Electric Vehicles – Student Project Team | Ithaca, NY **October 2021-May 2024**
Mechanical Team Lead, May 2023 - May 2024 | *Manufacturing Lead, Jan-May 2023* | *Drivetrain Lead, Aug 2022-May 2023*
- Lead a team of 30+ students towards designing, manufacturing, and testing the most efficient electric vehicle possible for competition in the Shell Eco-Marathon Challenge; began the push for full self-driving capability.
- Gave cross-functional, technical feedback at design reviews for the vehicle's chassis, steering, and drivetrain.
- Developed tooling for complex machined parts and trained teammates in fundamental DFMA principles.
- Redesigned vehicle chain and sprocket transmission for optimal performance using ASME/ANSI standards.
- Spearheaded designs for the vehicle's autonomous braking system and autonomous steering testing protocols.

Dimensional/Integration Engineering Intern | *Tesla* | Fremont, CA **Summer 2023, Summer 2024**
- Conducted dimensional root-cause analysis for functional systems across different vehicle programs.
- Developed and validated dimensional locating strategies to minimize variation and optimize the manufacturing process, with a focus on low voltage and consumer electronics.
- Conducted 1D and 3D statistical and variation analyses to determine tolerances needed to meet requirements.
- Supported integration of various vehicle systems with new automated manufacturing processes.

Electromechanical Engineering Intern | *Draper* | Cambridge, MA **Summer 2022**
- Supported the development and testing of high precision accelerometers, including novel MEMS devices.
- Expanded and implemented test fixtures for sensitive MEMS devices to determine their viability before packaging.
- Conducted and documented experiments aimed at improving the sensor packaging process.
- Designed and made drawings for 10+ parts using PTC Creo and GD&T and contacted vendors for manufacturing.

RESEARCH EXPERIENCE & ACADEMIC PROJECTS

Collective Embodied Intelligence Lab | *Electrical Engineering Department, Cornell University* **Feb 2024-Present**
- Contribute to research on large robot collectives able to achieve behaviors beyond the reach of singular robots.
- Design robots and experimental procedure for studies related to strain and vibration based coordination.
- Required design of electromagnetic system for interactions between agents and testing membrane.

Design of an Eddy Current Dynamometer – Senior Design | *2024 Frank O Ellenwood Prize Recipient* **Fall 2023**
- Design of an eddy-current dynamometer for characterization of a 24V brushless DC motor using electromagnets.
- Utilized CAD, MATLAB, design for manufacturing and assembly (DFMA), cost optimization, and other fundamentals.

LEADERSHIP & TEACHING EXPERIENCE

Undergraduate Teaching Assistant, Ithaca, NY **Fall 2023, Spring 2024**
- Served as a TA for MAE 3260: System Dynamics and MAE 3780: Mechatronics

AWARDS

Frank O Ellenwood Prize, *May 2024*: Awarded to a graduating senior for excellence in a project related to power or energy
Undergraduate Teaching Award, *May 2024*: Awarded to the MAE 3780: Mechatronics Teaching Team
Dean's List: Fall 2022, Spring 2023, Fall 2023, Spring 2024