DINOR NALLBANI

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SUMMARY

Highly driven and results-oriented Honors Mechanical Engineering and Industrial Engineering student with a strong academic foundation. Skilled in collaboration, and problem-solving, with a desire to contribute to innovative projects.

EDUCATION

University of Massachusetts Amherst - **GPA: 3.93** Expected. May 2026
Bachelor of Science - Mechanical Engineering
Bachelor of Science - Industrial Engineering
Minor in Engineering Management - Commonwealth Honors College - Dean's List (All Semesters)

SKILLS

Ansys, Arduino, AutoCAD, CAD, CNC, Fusion360, Google Suite, Java, LaTeX, Manufacturing, MATLAB, Mechanical Design, Microsoft Office, Onshape, Python, SolidWorks

RELEVANT COURSEWORK

Design of Mechanical Components, Dynamics, Fluid Mechanics, Fundamentals of Electrical Engineering, Heat Transfer, Manufacturing Processes, Principles of Management, Statics, Strength of Materials, System Dynamics, Thermodynamics

EXPERIENCE

UMass, National Renewable Energy Lab - Mechanical Engineering Student Researcher Fall 2024 – Present

- Collaborating with the National Renewable Energy Lab to assess added-mass loads on floating marine hydrokinetic turbines
- Developing a NACA-profile hydrofoil model and mounting mechanism in Onshape for wave-current tank testing
- Testing hydrofoil at varying speeds and oscillation frequencies, calibrating flow, collecting data, and analyzing with MATLAB

UMass Robotics Humanoid Project - Mechanical Subteam Lead Fall 2024 – Present

- Directed 10+ students on the development of a 6 DOF open-chain robotic arm using cable-driven systems
- Designing and analyzing a 6 DOF robotic arm utilizing cable-driven systems using Solidworks and Onshape
- Contributing to team meetings and scheduling, while independently reviewing literature on cable-driven systems

UMass American Society of Mechanical Engineers - Mechatronics Team Fall 2024 – Present

- Collaboratively engineering, and building an FPV Drone for the IAM3D competition, meeting design and safety constraints
- Utilizing SolidWorks, FEA, Altair, and 3D printing to ensure lightweight fabrication of a majority of the vehicle's airframe
- Designing and implementing a payload delivery system, to contribute to the drone's performance in the competition

UMass Engineering Undergraduate Dean's Advisory Group - Member Fall 2022 – Present

- Provided input to the Dean on many topics during advisory meetings and gave feedback to shape the undergraduate experience

R4 Solutions - Mechanical Engineering Intern Summer 2024

- Designed and modeled using CAD software, ensuring structural integrity
- Conducted by hand static analysis to assess strength and durability under various load conditions
- Collaborated with a senior engineer to refine designs based on analysis results and practical constraints

PROJECTS

Autonomous Obstacle-Avoiding "Smart Car" Fall 2024

- Programmed an Arduino Uno microcontroller enabling autonomous movement and maneuvering based on sensor input
- Integrated distance sensors to detect obstacles triggering audible alerts and visual indicators to signal obstacle detection
- Implemented collision-avoidance algorithms, allowing the smart car to navigate a course and avoid obstacles

Ultralight Multifunctional Bike Wrench Fall 2024

- Designed a lightweight wrench using CAD and FEA(Ansys) refining the design to achieve target strength-to-weight ratios
- Fabricated the wrench handle from aluminum stock using milling, drilling, and finishing techniques
- Conducted functional tests to verify the wrench's ability to tighten bolts to specified torque values without failure

Plywood Box Layout Spring 2023

- Optimized yield for a plywood sheet to create boxes of varying sizes while minimizing waste using the Monte Carlo method
- Utilized MATLAB to determine the number of boxes to create and created a graphical representation of the resulting waste

RC Plane Spring 2022

- Designed 3D models of RC plane components in SolidWorks utilizing flow simulation to analyze aerodynamic performance
- Created a comprehensive presentation showcasing the design and requested a grant to proceed with the construction

ACTIVITIES

Engineers Without Borders, Snowboarding, Ice Skating, Rock Climbing, Hiking, Piano, Guitar