DINOR NALLBANI

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SUMMARY

Honors Mechanical and Industrial Engineering student with a strong academic record and hands-on experience in design and manufacturing. Eager to apply problem-solving, communication, and leadership skills to complex engineering challenges

EDUCATION

University of Massachusetts Amherst - **GPA: 3.9** Expected. May 2026
B.S. Mechanical Engineering, B.S. Industrial Engineering
Minor in Engineering Management - Commonwealth Honors College - Dean's List (All Semesters)

SKILLS & CERTIFICATIONS

CWSA Cert. (SolidWorks), Ansys, MATLAB, CNC, LaTeX, Robotics, 3D Printing, Python, Excel, Onshape, project management

RELEVANT COURSEWORK

Design of Mechanical Components, Manufacturing Processes, Material Science, Statistical Quality Control, Strength of Materials

EXPERIENCE

Commonwealth Honors College Thesis - Undergraduate Student Researcher Fall 2025 – Present

- Researching wind turbine aeroelasticity, focusing on tower 2nd mode frequency and damping response to wind speeds
- Developing a series of turbine models with varying complexity to identify trends in structural dynamics and stability
- Applying the Lagrange method to derive the equations of motion, and implementing a symbolic computation framework
- Will analyze the systems with eigenvalue analysis to characterize turbine stability, contributing to efficient renewable energy

Siemens - Smart Building Specialist Intern Summer 2025

- Integrated and managed HVAC systems in 5 locations using Siemens' Desigo CC building management system
- Improved energy efficiency by programming and troubleshooting over 45 building automation controllers
- Diagnosed and resolved trouble tickets related to field devices, such as sensors and actuators, improving system reliability

UMass Robotics Research Team - Mechanical Subteam Lead Fall 2024 – Present

- Directing 15 students in the development of advanced robotic systems, such as a 6 DOF robotic arm and quadrupedal robot dog
- Designing and analyzing the robotic arm using SolidWorks and Onshape, optimizing for efficiency and mechanical robustness
- Overseeing team meetings, coordinating schedules, and conducting research on actuation to enhance system performance

UMass, National Renewable Energy Lab - Mechanical Engineering Undergraduate Researcher Fall 2024 – Fall 2025

- Collaborated with NREL to test added-mass effects on floating marine hydrokinetic turbines as part of a DOE-funded project
- Designed a mounting system for a NACA-profile hydrofoil in Onshape and assisted with its manufacturing and assembly
- Assisted testing in a wave-current tank, calibrating flow conditions, collecting data, and analyzing results using MATLAB

UMass American Society of Mechanical Engineers - Mechatronics/Lunabotics Team Member Fall 2022 – Present

- Collaboratively engineered an FPV Drone for the IAM3D competition, contributing to our 2nd-place performance
- Utilizing SolidWorks, FEA, Altair, and 3D printing prototypes to ensure lightweight fabrication of the vehicle's airframe
- Designing and implementing a payload delivery system, meeting design and constraints, and competition rules

R4 Solutions - Mechanical Engineering Intern Summer 2024

- Designed and modeled components of a bike rack using CAD software, ensuring structural integrity and manufacturability
- Performed hand-calculated static analysis to evaluate strength and durability under various load conditions
- Collaborated with a senior engineer to refine designs, incorporating analysis-driven optimizations and real-world constraints

PROJECTS

TTM Sponsored Senior Capstone Project Fall 2025 – Present

- Engineering an Industry 4.0-compliant computer vision system to replace an obsolete production asset for TTM Technologies
- Designing mechanical systems using CAD, and integrating a dual-camera vision system by selecting appropriate components
- Developing a Human-Machine Interface (HMI) to automate image capture, processing, and circuitry registration calculations
- Aiming for a measurement accuracy of +/- 0.1 mil (2.5 microns), and auto data logging for analysis, alarming, and quality

Autonomous Obstacle-Avoiding "Smart Car" Fall 2024

- Programmed an Arduino Uno microcontroller to enable 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
- Manufactured the wrench from aluminum stock and conducted functional tests to verify the wrench's ability to tighten bolts
- Composed a 44-page write-up discussing the designing, analyzing, constructing, testing, and results of the test

ACTIVITIES

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