RITCHY HISNE

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EDUCATION

Florida Atlantic University — Boca Raton, FL
Bachelor of Science in Mechanical Engineering — May 2027
GPA: 3.78

RELEVANT COURSEWORK

Statics, Strength of Materials, Engineering Graphics, Probability & Statistics for Engineering, Computer Applications in Engineering I & II, Dynamics, Engineering Materials, Thermodynamics, Intermediate Strength of Material, Electro-Mechanical devices, Fluids Dynamics, Finite Element Analysis

SKILLS

Software: Microsoft Office, MATLAB, SolidWorks
Hardware: Soldering, Electronics

PROJECTS

Turbocharged vs. Naturally Aspirated Engine Thermodynamic Analysis

Aug 2025

- Conducted a comparative thermodynamic analysis of a 2.0 L naturally aspirated and turbocharged engine using real manufacturer data.
- Applied ideal Otto cycle assumptions, PV-diagram analysis, and IMEP calculations to evaluate efficiency and work output.
- Analyzed the impact of intake pressure and boost on engine performance and fuel utilization.

Piston–Crank System Kinematic Analysis

Oct 2025

- Designed and analyzed a piston–crank mechanism to evaluate the conversion of rotational motion into constrained linear motion.
- Applied kinematic modeling techniques, including relative velocity and instantaneous center of rotation methods, to predict slider displacement and velocity at discrete crank angles.
- Utilized motion-tracking software to extract experimental position data and compute velocity using numerical differentiation methods.
- Compared analytical predictions with experimental results to assess model accuracy, identify sources of discrepancy, and validate kinematic assumptions.

Pulley–Belt System Dynamics Analysis

Dec 2025

- Performed a SolidWorks motion study of a pulley–belt system to analyze dynamic behavior of rotating components.
- Evaluated angular velocity and acceleration to understand power transmission and system response.
- Interpreted simulation results to reinforce core dynamics and mechanical system concepts.

Arduino Smart Car (Autonomous Systems Project)

Mar 2025 – Apr 2025

- Developed an Arduino-based smart vehicle utilizing IR sensors for line tracking and ultrasonic sensing for obstacle avoidance.
- Implemented motor control logic using an L298N motor driver to coordinate dual DC motors.
- Integrated sensor feedback to demonstrate basic autonomous navigation and control behavior.

VOLUNTEER

Habitat for Humanity (Key West & Lower Florida Keys)

May 2025

- Represented Florida Atlantic University in a multidisciplinary service team supporting community development through hands-on field work.
- Executed installation of home appliances and interior hardware while following safety procedures, task sequencing, and quality expectations.
- Collaborated with team members to complete build tasks efficiently under time and resource constraints.

WORK EXPERIENCE

Math & Physics Tutor
Palm Beach State College — Boca Raton, FL

January 2024 – Present

- Deliver one-on-one instruction in mathematics and physics, applying structured problem-solving methods to reinforce analytical reasoning and quantitative accuracy.
- Translate complex technical concepts into clear, logically sequenced explanations, adapting communication style to diverse learning needs and knowledge levels.
- Mentor students to improve technical confidence, disciplined study habits, and problem-solving efficiency under academic performance constraints.

ACTIVITIES

Owls Racing – Formula SAE

Aerodynamics | Florida Atlantic University

Aug 2025 – Present

- Help the aerodynamics subsystem, overseeing CAD development and configuration management of aerodynamic assemblies while ensuring integration with structural and mechanical interfaces.
- Coordinate simulation-supported analyses and design trade studies to support system-level performance, requirements alignment, and informed engineering decision-making.
- Conduct technical design reviews, verify modeling assumptions, and collaborate with multidisciplinary teams to ensure design compliance, manufacturability, and competition readiness.