

Derek Gross

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EDUCATION

Purdue School of Engineering and Technology
Bachelor of Science in Mechanical Engineering
Top 100 Students Nominee, 2021-2022

Graduation: May 2024

MISSION STATEMENT

Dedicated Mechanical engineer with hands-on experience in design, wind tunnel testing, and cross-functional collaboration. Proven success delivering manufacturable, regulation-compliant designs at Honda and Tesla. Committed to innovation, data-driven development, and continuous improvement.

EXPERIENCE

Honda Development and Manufacturing

August 2024 – Present

Mechanical (Body) Design Engineer (Raymond, OH)

- Lead design efforts for underbody systems including bumpers, floor, and frame structures.
- Coordinate with vehicle architecture stylists to ensure the vehicle's visual design meets aesthetic and brand standards.
- Collaborate with cross-functional teams including Crash Safety, Manufacturing, and Procurement to optimize part designs for pedestrian and occupant safety, manufacturability, and cost.
- Conduct market research and analyze industry trends to identify opportunities for cost reduction, weight savings, functionality, and various other design improvements that enhance vehicle marketability and performance.
- Play a key role in a battery electric vehicle (BEV) development project (unreleased) with primary design responsibilities for hood and bumper systems.
- Lead wind tunnel testing to validate aerodynamic impact of bumper duct designs.
 - Designed an air duct to channel air flow through the bumper to create an air curtain, forcing air around the wheel and tire area.
- Execute rapid prototyping using 3D printing.
 - Parts frequently used for body panel gap visualization, wind tunnel testing, etc.
- Partnered with external suppliers to ensure DFM & DFA standards were met.
- Balancing performance, quality, and production timelines by understanding project goals.
- Supported project managers in achieving cost and weight reduction goals through design iteration and collaborative review cycles.
- Collaborated with IT to streamline the development and implementation of a new internal software platform, enhancing information sharing across departments.
 - Enabled efficient searching of a centralized database containing personnel, parts, and documents to identify optimal points of contact, design specifications, and project schedules.
- Develop standardized design criteria for bumper rigidity to comply with pedestrian safety regulations while minimizing bumper sag per CAE simulation results.
 - Conduct CAE simulations and real-world testing using existing Honda/Acura bumper components to validate analysis methods.
 - Evaluate historical test data to benchmark pedestrian impact performance and structural deflection.
 - Synthesized findings into a formalized design guideline and requirements document adopted by the body design team, saving valuable time in the initial design stages.

Tesla Inc.

May 2023 – August 2023

Mechanical Engineering Intern (Austin, Texas)

- Consistently recognized by managers to be "exceeding expectations".
- Applied engineering and project management skills to meet production deadlines on the Tesla CyberTruck.
 - Worked with a vendor to review site drawings for eight manufacturing cells across Gigafactory Texas.
 - Managed the installation, quality, and timelines of the cells.
 - Coordinated with Engineers and Project Managers of neighboring manufacturing lines to work through issues.
 - Formulated schedules to ensure delivery of parts to downstream manufacturing lines and prevent delays.
 - Supplied vendors with critical site and facilities information to support manufacturing setup.
 - Work alongside Tesla Facilities to ensure the vendor will have resources needed for manufacturing.
 - Sent daily updates to the team on the project to promote team inclusion and stimulate conversation.
- Maintained rapport with Tesla Logistics and main office of vendor.
 - Schedule shipments with Tesla Logistics to effectively send and receive items to and from Tesla.
 - Determine the urgency of shipments to select the best and most cost-effective shipment method.
 - Discovered new ways to save approximately \$1,500/week on shipping costs.

Cummins Inc.

May 2022 - November 2022

Mechanical Engineering Co-Op (Jamestown, New York)

- 15 Liter Cummins Rocker Lever Measuring Table
 - Tasked with designing an easy and efficient way to measure two offset surfaces on a rocker lever.
 - Developed and integrated a clamping system, using the table base as a datum, to keep the rocker lever stationary for accurate and precise measuring.
- 15 Liter & 12 Liter Flywheel Balancer Label Printer
 - Tasked with designing a system to failsafe the placement of incorrect labels on parts.
 - Designed a failsafe label printing system that ensured one label was produced per part.
- Fanuc Robot Process Improvement
 - Tasked with creating a new process to assist with issues with robot sealant hardening prematurely.
 - Applied additive manufacturing to produce a product to achieve the new process flow.

DLZ

May 2021 - August 2021

Mechanical Engineering Intern (Indianapolis, Indiana)

- Designed HVAC and plumbing systems in Revit.
- Coordinate with architectural, Electrical, Structural, and Civil Engineers to provide the best product.
- Understand and design to meet local codes and requirements.
- Conducted site visits to verify equipment installation aligned with engineering blueprints and project specifications.

Bicycle Garage Indy

October 2023 – August 2024

Bicycle Service and Sales (Indianapolis, Indiana)

- Diagnose, trouble-shoot, repair, replace, and service bicycles and bicycle components to race ready specs.
 - Included bike overhauls, indexing derailleur systems, brake system services, etc.
- Applied in-depth product knowledge to accurately repair bicycles and provide expert guidance to customers during the purchase process.
 - Strong familiarity with brands including Trek, Giant, Liv, Specialized, Shimano, SRAM, Zipp, Reynolds, and others.
- Assist in bicycle sales by helping customers find the best bike for their personal applications.

Pacers Sports and Entertainment

February 2020 – September 2023

Floor Conversion Crew (Indianapolis, Indiana)

- Set up Gainbridge Fieldhouse for events.

ACTIVITIES

Board Member & Competitive Cyclist

Fall 2018 - Present

Team Elevate Endurance

- Appointed to the board in November 2024 to support team operations and brand development.
- Collaborate with Eliel to design custom team kits (uniforms), including layout and sponsor logo placement.
- Design and cost merchandise for team members and patrons, ensuring alignment with brand and budget goals.
- Contribute to the team’s social media presence by creating content and promoting team events and sponsor visibility.
- Compete in races nationwide.
- Organize group rides with teammates and community members.

Christian Student Fellowship @ IUPUI

Fall 2020 – Spring 2024

Life Group Leader

- Organize and hold a weekly bible study.
- Communicate with Campus Minister to maintain the study schedule.

Intramural Sports Leadership @ IUPUI

Spring 2021 – Spring 2024

Team Captain

- Organize a team to compete in different sports each season.

SKILLS

- Geometric Dimensioning & Tolerancing (GD&T)
 - Measurement Systems Analysis
 - Project Management
 - Process Flow Improvement
 - FMEA
 - Tolerance Stack Up Analysis
- Mechanical Design
 - Sheet Metal Part Design
 - Injection Mold Design
 - Additive Manufacturing Design
 - Aerodynamics and Wind Tunnel Testing
 - Design for Manufacturability & Assembly (DFM & DFA)
- Microsoft Office
 - SolidWorks
 - CATIA V4/V5/V6
 - MATLAB
 - Autodesk Inventor
 - PTC Creo Parametric
 - Siemens NX
 - FEA (Catia, Abaqus)