# LEIAM GAUDIN

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## EDUCATION

**Purdue University** West Lafayette, IN
*Bachelor of Science in Mechanical Engineering* *GPA: 3.57 — Expected December 2027*

## EXPERIENCE

**Mechanical Design Engineer, Dimensional Engineering Intern** 8/26 – **Present**
*Tesla, Inc.* *Palo Alto, CA*

- Improved 3DCS sim tree workflow by 1200% by developing an automation software tool for CATIA, utilizing computer vision.
- Created a structural beam design alteration that increased Cpk from 0.25 to 2.25 by increasing clearance gap and adding a bracket welded post-assembly to provide "z-slip" while protecting the structural integrity of the enclosure, resulting in 0% of parts out of spec compared to 45.33% on the previous design.
- Analyzed 10+ critical interfaces on the Tesla Megapack (NE42) using DVA models and Monte Carlo contributor analysis simulations in 3DCS for 3DEXPERIENCE / CATIA, optimizing the size of holes and slots through tolerance iteration.
- Defined and protected critical dimensional objectives to reach 8-sigma repeatability and collaborated with manufacturing engineers on GD&T datum strategy and fixture optimization; collaborated to reduce framing station cycle time.
- Performed 40+ 1-D stack-ups to analyze potential assembly interference issues; used data to advise engineers on design.

**Engineering Project Management Intern** 5/26 – 8/26
*American Water Works Company, Inc.* *Indianapolis, IN*

- Led multidisciplinary coordination across 4 water main replacement projects, optimizing project scheduling and milestone tracking for stakeholders, contractors, and inspectors.
- Conducted safety meetings and evaluations during active projects to maintain compliance with corporate safety standards.
- Facilitated project delivery logistics for projects valued at $2M+ through the synthesis of technical documentation and engineering specifications to accelerate review cycles.
- Managed on-the-fly design tweaks when there were discrepancies between physical piping installations and design schematics.

**Mechanical Engineering Intern** 5/25 – 8/25
*Estes Design & Manufacturing, Inc.* *Indianapolis, IN*

- Designed 3D printed fixtures and jigs to improve assembly time over larger, heavier metal jigs, cutting assembly time by 4%, boosting OEE and saving $11,000+ in development costs.
- Drafted 60+ CAD drawings and applied GD&T with tolerance stack up analysis on large assemblies to guarantee the seamless assembly of hardware and sheet metal components.
- Executed DFM principles in sheet metal, gaining expertise in laser cutting (Salvagnini L3) and precision forming (Amada).
- Developed a linear actuator and electrical system for a firearms safe door featuring RFID wireless locking and a comprehensive control plan of a circuit containing limit switches and relays.

**Purdue Electric Racing (SAE) Drivetrain Engineer** 1/26 – Present
*Purdue University* *West Lafayette, IN*

- Verified planetary gear tolerances by designing and manufacturing a fixture for CMM scanning, allowing the team to assess viability of our current gear manufacturing processes, leading to innovations in our carburization process.
- Collaborated with teammates to revise bolt torque spec calculations for upright oil plate and upper suspension arm after bolt failures during assembly, utilizing a Root Cause Analysis approach with Corrective Action.
- Fabricated high precision drivetrain and pedal box potentiometer components by utilizing mills and lathes.
- Hands on assembly of suspension and front uprights (planetary gearboxes) during testing phase to prep the car for competition.

## PROJECTS

**Design of Parametric Cycloidal Drive Reducer** | *CAD in Siemens NX, 3D Printing, Dynamics* 11/25

- Designed a parametric cycloidal drive reducer in Siemens NX featuring counter balancing disks and a fully 3d printed assembly.
- Achieved a 0.02 mm accuracy for reducer components by tuning 3D printers for horizontal expansion and thermal effects.
- Animated a complex motion assembly in Siemens NX to verify disk motion and housing clearances.

## TECHNICAL SKILLS

**Design & Analysis**: GD&T, Tooling Design, FEA, DFM/DFA, Tolerance Stack Up, Sheet Metal, Data Analysis
**Software**: CATIA V5/V6, Siemens NX, SolidWorks, Creo, CAM, MATLAB, Simulink, GT Power, ROS, Visual Studio Code
**Manufacturing**: CNC Machining, Equipment Troubleshooting, Salvagnini Laser/Bender, Rapid Prototyping (FDM printing)
**Programming**: Python, HTML, C++, Arduino, PID Control, Data Acquisition Systems, Quality Control, Measurement Systems