

Amelia Lutzke

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Education

University of Michigan, Ann Arbor - College of Engineering

Expected May 2028

BSE in Mechanical Engineering

Coursework: Solid Mechanics, Mechanical Behavior of Materials, Dynamics and Vibrations, Thermodynamics, Design and Manufacturing, Sustainable Engineering and Design

Skills

Technical: Python (pandas, NumPy, SciPy), MATLAB, C++, JavaScript, Siemens NX, SolidWorks, Moldex3D

Testing & Data: Instrumentation & data acquisition, CMM dimensional inspection, signal smoothing & numerical differentiation, statistical/dimensional analysis

Methods: Data pipeline development, cost analysis, structural validation, stakeholder coordination

Experience

DENSO Corporation | Mold Design Engineering Intern

Battle Creek, MI | **May 2026 – Aug. 2026**

- Eliminated ~\$67,500 in annual Tool & Die labor and downtime costs by redesigning 5+ exchangeable mold inserts to remove water-system interference, enabling floor-level part number changeovers without Tool & Die involvement.
- Reduced non-conformance risk across 10 molds by conducting precision dimensional reviews (CMM data) against engineering drawing tolerances, identifying out-of-spec features and issuing NPICAFOT corrective action reports.
- Scaled a safety risk mitigation framework from a local plant to global headquarters by developing an ejector-ring safety assessment across 25 mold designs, in direct response to an international manufacturing incident.

MRacing Formula SAE | Data Operations & Chassis Engineer

Ann Arbor, MI | **Sept. 2024 – Present**

- Engineered a Python-based data pipeline from scratch to automate processing of raw vehicle telemetry logs (CSV and MATLAB formats), computing damper velocity via numerical differentiation and applying signal smoothing to reduce sensor noise ahead of chassis and suspension validation reviews.
- Reduced accumulator pack temperature rise by 90% (30°C to 3°C) by manufacturing a prototype cooling rig with a custom sensor array to empirically validate thermal/airflow performance prior to production.
- Validated chassis torsional stiffness at ~1,200 Nm/deg at the front axle and ~39,000 Nm/deg near the main hoop through post-season tensile, compressive, and torsional testing, establishing structural targets for the next vehicle.

The Quad | Co-Founder

Ann Arbor, MI | **June 2026 – Present**

- Co-Founded an SMS-first campus matchmaking service, owning product definition, legal setup, naming, and go-to-market strategy while a technical co-founder builds the backend and matching algorithm.
- Modeled study-group matching as a constraint-satisfaction/scheduling optimization problem, defining hard constraints (course, section, availability) and soft signals (study style, group fit) to drive the matching logic.

Leadership

Engineering Student Government | Director of Communications

Ann Arbor, MI | **Dec. 2025 – Present**

- Recruited and managed a 5-person exec team spanning design, logistics, and sponsorship functions, building the event's structure and role division from the ground up ahead of a 36-hour, 200+ attendee hackathon.
- Co-led outreach to 45+ companies and campus organizations, drafting a tiered sponsorship packet and securing co-host commitments from GEECS and SWE @ UMich.
- Scaled ESG's online reach to 25K+ views and 6,770+ accounts reached within 90 days by developing and executing a content strategy for 9,000+ undergraduate engineering students, including a single post achieving 11.7K+ views.
- Managed cross-functional logistics for 5+ large-scale campus events per semester, coordinating funding allocation

College of Engineering Student Tour Leader

Ann Arbor, MI | **Feb. 2025 – Present**

- Represented the College of Engineering to 1,000+ prospective students and families across 52+ tours, and trained 5+ incoming guides on logistics and engagement standards.