

Saya A. Lynch

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EDUCATION

Purdue University - West Lafayette, IN

- **Bachelor of Science in Mechanical Engineering** — Graduating Fall 2027
- **Coursework:** Thermodynamics, Fluid Dynamics, Controls, Manufacturing, Machine Design, CAD, Electrical Engineering Fundamentals, Mechatronics.

EXPERIENCE

Toyota Automated Logistics | Robotics Design Engineer Intern June 2026 - Aug 2026

- Designed a robotic vacuum test stand, reducing material porosity testing time for EOAT development from 2–3 hours to ~10–20 minutes.
- Used SolidWorks to design 15+ custom plates, brackets, and mounts within a 50+ component assembly.
- Created engineering drawings implementing GD&T and DFMA principles for sheet metal bending.
- Developed an Excel sizing tool using first-principles flow equations to properly size vacuum systems.

GE Appliances | Dishwasher Design Engineer Co-op Jan 2025 - May 2025

- Investigated UI-board failures using 3D scanning and lab testing to identify failure modes.
- Developed 8+ ETPs and 5+ prototypes in Creo to validate sealing concepts through lifecycle testing.
- Implemented final rubber seal design on the production floor, resulting in \$370K in annual savings.

Purdue TRACE Robotics Lab | Research Assistant Aug 2025 - Present

- Researching force-feedback control strategies for physical human-robot interaction under Dr. Gu.
- Integrated load cells, tactile sensors, STM32/Arduino, wiring, and synchronized data acquisition.
- Wrote code for processing multi-axis force data in Python to support experimental analysis and control development.

PROJECTS

Purdue Baja SAE | Drivetrain Mechanical Engineer Oct 2024 - Present

- Redesigned rear U-joints for a larger drivetrain spline using SolidWorks after competition failure.
- Used ANSYS FEA to validate joint strength to FOS ≥ 1.4 under drivetrain torque and forces.
- Manufactured drivetrain components using manual/CNC machining and CAM software.

NASA L'SPACE Mission Concept Academy | Systems Engineer May 2025 - Sept 2025

- Designed onboard computing architecture for a proposed Mars rover under reliability constraints.
- Evaluated 20+ avionics components using trade studies and technology-readiness assessments.
- Developed redundant data pathways connecting rover processors, sensors, and software.

Humanoid Robot Club | Hardware Engineer Oct 2024 - Jan 2026

- Designed hip joints and lower-body components for a bipedal humanoid robot using SolidWorks.
- Simulated center-of-mass and joint loads to validate motor sizing and robot dynamics.
- Used ANSYS FEA to iterate critical components, improving rigidity by 25%+.

SKILLS

Software: SolidWorks, Creo, Siemens NX, ANSYS, Mastercam, Python, MATLAB, C/C++, Excel.

Technical: GD&T, DFMA, CNC & Manual Machining, 3D Printing, 3D Scanning, Arduino, STM32

Certifications: Certified SolidWorks Professional (CSWP), Solid Edge Associates, OSHA 30-Hour.