Leah Lee

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EDUCATION

University of Illinois at Urbana-Champaign Expected Graduation: Dec 2027
B.S. in Mechanical Engineering GPA: 3.91/4.00

Skills

CAD & 3D Modeling: Fusion 360, AutoCAD, OnShape, NX, SolidWorks, Creo
Manufacturing & Prototyping: 3D Printing (FDM/SLA), Carbon Fiber Layup, Soldering, Injection Molding, Laser Cutting, Manual Milling, CNC Mill, PCB Fabrication, Rapid Prototyping, Computer Aided Manufacturing System
Course Works: Design for Manufacturability, Numeric Control of Manufacturing Processes, Thermodynamics, Fluid Dynamics
Programming: Python, Java, Matlab, Simulink, Embedded Systems

Experience

Climbing Bot, Novel Mobile Robots Lab Champaign, IL | Aug 2025 – Present
Undergraduate Researcher, Advised by Prof. Justin Yim

- Design and build self-actuated surface inspection robot using vision-based tactile sensing
- Build test rig and system model to size actuators and validate control performance
- Create CAD models and rapid prototypes to achieve stable contact and manufacturable geometry
- Develop closed-loop contact module using force/pressure feedback for tracking on flat, curved, and inverted surfaces

Spherical Tactile Sensor, RoboTouch Lab Champaign, IL | Feb 2025 – Present
Undergraduate Researcher, Advised by Prof. Wenzhen Yuan

- Develop new vision-based tactile sensor for large-area robotic surface scanning
- Fabricate hardware using ESP32S3 and custom PCB, with multi-part molds for repeatable casting
- Build image processing pipeline in Python using OpenCV and photometric stereo to reconstruct surface depth
- Conference paper submitted to IROS

Somansa Seoul, South Korea | June 2025 – Aug 2025
Network Engine Team Researcher Intern

- Built RAG system for ZTNA documentation using LLMs, embedding models, and chunked retrieval
- Evaluated model performance using prompt-based tests and record accuracy comparisons in Excel
- Developed Python scripts to crawl technical websites and convert PDF/HTML documents into trim training data

Foellinger Auditorium Champaign, IL | Feb 2025 – Present
Event and Lobby Staff

- Operate audio-visual systems and manage venue layout for lectures, exams, and performances with 1,300+ attendees
- Provide on-site support and directions to maintain smooth event operations
- Control room access and enforce venue policies in coordination with event staff

Project Highlights

Illini Solar Car Champaign, IL | Aug 2025 – Present

- Lead design and fabrication of fairing door molds using 3D-printed tooling and carbon fiber/fiberglass composite layup
- Manufacture and assemble composite components using sanding, trimming, surface finishing, and vacuum bagging under tight deadlines
- Coordinate with aero, structures, and melec teams to ensure proper fit and integration of structural components

ArachnoBot ASME — 1st Place, Distinguished Robotics (200+ exhibits) Champaign, IL | Jan 2025 – May 2025

- Designed and built terrain-adaptive robot for University of Illinois Engineering Open House
- Implemented 4-bar linkage mechanism to achieve stable movement across varied surfaces
- Presented project to 1,000+ visitors, explaining design and demonstrating robot operation

Assistive Technology Development Project Champaign, IL | Aug 2024 – May 2025

- Designed and prototyped assistive devices including vegetable slicer, ziplock bag closer, and iPad holder under one-handed accessibility constraints
- Optimized designs for single-print, short print time, lightweight structure, and simple one-hand assembly and use
- Collaborated with ASME team and IATP project manager to meet functional and safety requirements

Leadership

Engineering Council, Undergraduate Research in Scientific Advancement Champaign, IL | Aug 2025 – Present
Vice President (2026), Secretary (2025)

- Lead weekly committee meetings and manage logistics, including room reservations, scheduling, and internal documentation
- Manage Canvas course site and coordinate directly with faculty and graduate mentors to support participant progress
- Compile research posters, summaries, and photos to produce semester-end archive book for program documentation