

Miriam Lerner

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EDUCATION

Tulane University

Master of Science: Electrical Engineering

Bachelor of Science in Engineering: Engineering Physics, ABET Accreditation

Minors: Mechanical Engineering

Relevant Coursework: Thermodynamics, Photonic Materials and Devices, Semiconductor Devices, Feedback and Control Theory

Activities: SWE, Theta Tau, Makers and Robotics Society, Tulane Theater and Dance Department, WTUL Progressive Radio

Honors: Tulane 34 Award, Cum Laude, Engineering Capstone Best Project Award, Elsie DuPre Memorial Prize in Physics, William Benjamin Gregory Medal Class of 1918 Award, Oak Wreath Award, Order of the Engineer, Honors Scholars Program, Merit Scholarship(\$18,000 per year), Dean's List, CELT Grant Award

New Orleans, LA

Graduation: May 2027

May 2026

GPA: 3.834

PROJECTS

Capstone Team Design | Hybrid Concentrator Photovoltaic-Thermal Receiver - Thermal Lead

August 2025 - May 2026

- Led thermal modeling for a hybrid solar-concentrator system using COMSOL Multiphysics.
- Performed theoretical efficiency, heat-transfer, and material-reliability analysis to guide design iterations.
- Prototyped and tested receiver components; developed machining and assembly workflows; collaborated on mechanical fixture design for accurate optical and thermal testing.

ErGO!

August 2023 - December 2023

- Designed, constructed, and tested an affordable, portable, comfortable, and ergonomic chair
- Used CAD to model, run FEA testing, and rapid prototype elements of the design
- Built 2 prototypes, both of which displayed human-centered design and durability over multiple months

The Road Not Taken - A Choose Your Own Adventure Game

March 2024 - May 2024

- Wrote, designed, and implemented a complex text-based role-playing game in MATLAB with over 25 paths and outcomes

Cozy Crochet Depop Shop

September 2020 - Present

- Co-founded and managed a small business dedicated to handmade crochet hats. Have manufactured and sold over 140 hats online
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PROFESSIONAL EXPERIENCE

Caterpillar | RIOP Dynamic Energy Transfer Team - Engineering Intern

May 2026 - Present

- Designed and prototyped hardware for DET. Saw electromechanical hardware through the production process into realization.
- Worked on system integration; validated electrical and mechanical parts in the field.
- Performed research and design for an end-of-line test stand for the transfer arm arrangement of the DET technology.

Tulane University | Escarra Photonic Materials and Devices Lab - Research Assistant

August 2024 - Present

- Developed techniques and structures for CVD growth, design, and transfer of monolayer heterostructures for IC devices
- Conducted spectroscopy for material characterization; analyzed experimental data to evaluate device-quality metrics.
- Assisted in infrastructure setup for new growth methods; reviewed technical documentation and manuals to configure tools safely
- Prepared technical reports and contributed to competitive research grant proposals

Tulane University Makerspace - Fabrication Technician and CNC Mill Specialist

August 2023 - Present

- Managed and maintained CNC mill operations; trained 50+ users in machine setup, calibration, and safe operation
- Troubleshoot mechanical, alignment, and tooling issues, ensured reliable performance of CNC, laser cutters, and 3D printers
- Provided guidance on rapid prototyping workflows; assisted researchers with design and fabrication for engineering projects

Tulane University School of Science and Engineering - Teaching Assistant

January 2026 - May 2026

- Assisted professor with grading assignments, exams, and projects for the Statics course. Proctored exams and tutored students.

WTUL Progressive Radio Station - Technical Director and DJ

May 2024 - Present

- Oversaw all station technical operations, ensuring continuous on-air performance for a 24/7 broadcast system
- Diagnosed and repaired equipment issues, managed system resets, and maintained backup infrastructure for uninterrupted service.

Camp Kee Tov of Congregation Beth El - Program Director (2024,2025), Senior Counselor (2023)

May 2023 - August 2025

- Supervised 15 staff and coordinated programs for 50+ participants daily; led logistics for field trips and large-scale events
- Developed structured activity systems and managed safety protocols; Communicated daily performance notes and evaluations

Shakespeare and Performing Arts Regional Company - Assistant Lighting Technician

June 2022 - Aug 2022

- Set up trellises and structures to create a lighting system for a vineyard Shakespeare festival. Hung and programmed lights.

Temple Sinai, first Hebrew Congregation of Oakland - Teaching Assistant*Sep 2017 - May 2022*

- Taught children ages 5-11 in a weekly religious school setting, assisted in creating and leading lesson plans.
 - Worked with the Temple's leadership program to further develop the teaching assistant role and the youth community.
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LEADERSHIP EXPERIENCE**Tulane Society of Women Engineers Executive Board****President (2025-2026), Vice President; Outreach Coordinator; Freshman Representative***September 2022 - Present*

- Led the 10-person Executive board and organized social, professional, and outreach-based events for our chapter of 200 students
 - Pioneered new outreach events for local high-school and middle-school involvement in STEM, raising over \$1000 in a single event
 - Organized our chapter's yearly SWE panel, featuring 5 industry professionals with diverse backgrounds and experiences
 - Led activities and competitions for Tulane's STEM educational events for 5th-7th graders, attended by 200+ students
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Theta Tau Professional Engineering Fraternity Executive Board - Scribe (2025-2026), Member*September 2022 - Present*

- Kept record of weekly executive meetings and chapter-wide meetings. Managed data and history of the chapter
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Tulane Newcomb Dance Company and Theater Department - Stage Manager and Technician*January 2023 - May 2024*

- Attended rehearsals and production meetings during ongoing shows and developed reports. Assisted on headset and called shows
 - Worked on lighting circuits, programming, sound systems, and projection design. Troubleshoot technical issues during live shows
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VOLUNTEER EXPERIENCE**Tulane Department of K-12 STEM Education***October 2022 - Present*

- Led and prepped activities and competitions for BATs and GiST youth outreach program each semester
 - Planned and ran outreach events at local New Orleans schools involving fun, friendly STEM competitions
 - Organized high school tour programming events to encourage young student interest in engineering
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FIRST Robotics Mentor Program*December 2025 - Present*

- Mentored a high school FIRST robotics team for their spring competition season. Offered technical knowledge, advice, and training
 - Trained students to use manufacturing machinery and taught them basic engineering skills
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Grow Dat Youth Farm*January 2024 - May 2024*

- Worked on a local New Orleans community farm and engaged with young people. Participated in general farmwork
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SKILLS**Testing & Characterization:** Reliability testing, Thermal analysis, Spectroscopy, IC/2D-material sample handling, Metrology fundamentals**Lab & Equipment:** CNC Mill & Lathe, Waterjet, CVD growth systems, Optics/Spectroscopy hardware, 3D printers, Laser cutters**Technical:** CNC Mill and Lathe, Waterjet, Chemical Vapor Deposition, Wood and Metal Shop Tools, Spectroscopy, Spanish (Conversational)**Software:** COMSOL Multiphysics, MATLAB, Python, CAD, CAM, Tormach Systems, Fusion360, Solidworks, OrcaSlicer, QLab**Coding and Data:** Data acquisition, Modeling, Curve fitting, Error analysis, Experiment automation, Scientific computing

PERSONAL INTERESTS

Knitting, Skiing, Modern Dance, Guitar, Piano, Alto Saxophone, Theater Design, Carpentry, Hiking, Camping, Rock Climbing, Cooking