

Shoshana (Shana) Erbllich

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Hands-on mechanical and mechatronics engineer specializing in R&D, rapid prototyping to pilot hardware development, and automated systems. Experienced owning full mechanical systems end-to-end, leading small engineering teams, and delivering products under aggressive timelines.

PROFESSIONAL EXPERIENCE

PCM (formerly PureLi) – Newark, NJ – Lead Mechanical Engineer

July 2024 – Present

- Mechanical owner of E-LiTE, a high-volume lithium brine concentrator that can achieve >10x improvement in lithium harvesting efficiency. Leading design, system architecture, and bottom-up build from prototype through pilot.
- Led project planning and execution for R&D programs, defining scopes, timelines, milestones, and iteration while managing a 3-person mechanical/mechatronics team.
- Designed and integrated automated electro-mechanical systems including linear actuators, pumps, valves, sensors operating in harsh, salt-fouling environments.
- Rapid prototyping and testing (1-2 iterations/week) through in-house machining, fabrication, and 3D printing to refine performance, reliability, and manufacturability.

Selected Research & Technical Experience – Rutgers University, Bar-Ilan University, Yeshiva University

- Designed and modeled experimental hardware and flow-based deposition systems in SolidWorks, laser induced graphene experimentation.
 - Designed and tested optical water contamination sensing system using SolidWorks, MATLAB, and Arduino.
 - Conducted experiments, data analysis, and documentation for breast cancer treatment studies, developing testing and validation practices.
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EDUCATION

Rutgers University School of Engineering – New Brunswick, NJ

Bachelor of Science in Mechanical Engineering, Summa Cum Laude

May 2024

SELECTED ENGINEERING PROJECTS

Automated Foosball Table – Senior Design Project | Electronics and Systems Lead

- Built a fully automated foosball table using high-speed actuation and computer vision in a 7-person team
- Designed and integrated actuators, sensors, and custom circuits, collaborated on mechanical design.

RU-Wind (DOE Collegiate Wind Competition) – Design and Manufacturing Lead

- Designed and manufactured structural and electro-mechanical subsystems for a fixed-base offshore wind turbine, supporting system integration, project planning, and competition delivery.

B.U.L.B. (Brightness Upkeep Light Bot) – Honors Engineering Project | Team Lead

- Led a team designing and manufacturing a drone capable of autonomously changing lightbulbs using linear actuators, microcontrollers, and 3D printing.
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TECHNICAL SKILLS

Mechanical and Systems: SolidWorks, Fusion 360, Ansys, DFM, Rapid Prototyping, 3D printing (FDM and Resin), In-house Machining, Testing, MATLAB, Technical Documentation, Agile project management, Gantt charts.

Mechatronics: Pumps and Fluid Systems, Linear Actuators, Sensors, Arduino/Microcontrollers.

PUBLICATIONS (SELECTED)

- Erbllich, S. *et al.* "Detecting Contaminants in Water Based on Full Scattering Profiles within the Single Scattering Regime." **ACS Omega**, 2023.
- Erbllich, S. *et al.* "Inhibition of ERK Signaling for Treatment of ERKα Positive TNBC." **PLOS ONE**, 2023.