

# JR PEREZ

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## EDUCATION

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Lehigh University, Bethlehem, PA

*Bachelor of Science in Integrated Degree in Engineering, Arts, and Sciences, in Mechanical Engineering, Product Design*

**Honors & Awards:** Full-ride merit (Trustees') Scholarship, Baker Institute EUREKA Pitch Grant (\$500), Student Opportunity Fund Grant (\$650), IDEAS Grant (\$1850)

**Relevant Coursework:** CAD, Statics, Dynamics, Thermodynamics, Materials & Processes, Numerical Methods, MATLAB

**Teaching Experience:** Teaching Assistant for FE/ENGR005 - Introduction to Engineering Practice (Embedded systems, Contract grader and work-study tutor for MAT033 - Engineering Materials and Processes

## RELATED EXPERIENCE

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### Energy Systems Technical Lab Analyst

Sep 2024 - Present

PC Rossin College of Engineering, Lehigh University

Co-author ongoing graduate publication on a nuclear engineering project through analysis of regulations, modeling. Assist graduate energy systems students with **Python programming** and modeling for **optimization**.

### Engineering Peer Tutor

Sep 2024 - Present

Center for Academic Success, Lehigh University

Teach groups of 5-10 undergraduates in materials science and engineering, related to **properties, selection**, and **fabrication** of materials and case study analysis of materials used in transportation systems, microelectronic devices.

### Engineering Teaching Assistant

Aug 2024 - Dec 2024

PC Rossin College of Engineering, Lehigh University

Lead laboratory classes of engineering students in C programming for **microcontroller circuits, embedded systems, circuit analysis**, and creating IoT through APIs.

## RESEARCH/LABORATORY EXPERIENCE

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### Undergraduate Research Assistant | Soft-Matter Physics

Aug 2024 - Present

Complex Fluids and BioPhotonics Laboratory at HST

Develop samples for a **U.S. DOD-funded** project to develop **ultrabroadband optical limiting** with colloid solutions. Perform **confocal microscopy imaging** and develop phase diagrams for optical limiting for PS, PEG concentrations. Present **abstract poster** for the March 2025 American Physical Society global summit.

### Undergraduate Research Assistant | Applied Robotics

Aug 2024 - Present

Autonomous and Intelligent Robotics (AIR) Lab at Building C

Translate CaTL semantics into executable **Python scripts** using **ROS and Optitrack motion capture** system. Utilize and program **actuators** for **multiple robotic agents** for simultaneous navigation without human or active control.

### Undergraduate Research Assistant | Semiconductor Physics

Aug 2024 - Nov 2024

Semiconductor Impurities Laboratory, Fairchild-Martindale Laboratory

Co-publish a paper on **semiconductor efficiency** and doping methods through annealing at different points. Anneal and analyze samples of In2O3 through a Michelson interferometer for **spectral processing and visualization** of interstitial hydrogen impurities using OMNIC and Origin.

## PROJECTS

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### Lehigh Entrepreneurship/New Ventures | Full-Stack Development

Develop and publish a responsive website through the entire web development process from designing in Figma and developing the backend with Next.js to web hosting and maintenance  
Specialized in front-end development and SVG animations with Tailwind CSS

### Simplic Startup | DFMA, Product Design, Project Management

Founded Simplic, a product design startup that exercised product design and development through technical drawings, Solidworks, and prototyping with 3D printing, PCB design, laser cutting

## TECHNICAL SKILLS

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**Software:** Python, C, C++, MATLAB, *Simulink*, *LabView*, Linux Debian, Omnic/Origin, Fluoview, OfficeSuite, Adobe

**Hardware & Electronics:** MSP430, Arduino, Raspberry Pi, Microcontrollers, *Closed-Loop Control*

**Manufacturing & Testing:** GD&T, DFMA, 3D Printing, *PCB Design*, *CNC Machining*, *Waterjet & Laser Cutting*