

# John Peterson

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## EDUCATION

### University of Utah

Honors BS in Chemical Engineering, GPA: 3.90  
Minoring in Mathematics

Expected, May 2025

SLC, UT

## WORK EXPERIENCE

### Idaho National Laboratory, Center for Advanced Energy Studies

Jun 2024 | Aug 2024

Internship (Research Experience for Undergraduates)

Idaho Falls, ID

- Created modifiable interatomic potentials for improved molecular dynamics melting point predictions.
- Developed a paper and presented in 2 poster conferences on the results of the work.

### University of Utah, College of Engineering

Sep 2022 | Present

Student Researcher

SLC, UT

- Developing a research project to qualify the uptake characteristics of 3D-printed graphene monolayers.
- Synthesizing and analyzing graphene samples with Raman spectroscopy and atomic force microscopy.

### University of Utah, Housing and Residential Education

Aug 2023 | Present

Resident Advisor

SLC, UT

- Serving as an advocate for over 80 residents and developing community curriculum.

## PROJECTS

- Photolithography:** Developing and building a desktop photolithography stepper as an educational aid for the University of Utah in collaboration with the department's curriculum as a senior capstone project.
- Molecular Dynamics:** Under Dr. John Russel, worked to develop a modifiable Morse potential, allowing for a simple potential to have a more accurate melting point prediction of materials in nuclear environments.
- Graphene:** Working in Dr. Deisy Fernandes's lab performing research on 3D printing of 2D-nanomaterials such as graphene with the intent of application in biomedical and energy fields, explicitly characterizing the release behaviors of graphene intercalants and exploring the potentials of graphene biosensors.
- Miscellaneous:** Quantification of mixing in custom microfluidics channels, analysis and prediction of bed expansion in a fluidized bed, thermal modeling of heat transfer in various metal fins, rating of heat exchanging devices using numerical simulation software, computational modeling of supersonic flow over a wing, collaboration with companies in the biotech space to explore potential treatments for Niemann Pick Disease, and creation of an acoustic levitation device for use in a K-12 engineering outreach program.

## PUBLICATIONS

Peterson, J., Russel, J. (2024). Modified Morse potentials for classical molecular dynamics simulation of nuclear materials. *In Preparation*. Presented at INL, and CAES 2024 summer poster sessions.

## HONORS

- National Science Foundation: Research Experience for Undergraduates** funding for summer research.
- Undergraduate Research Opportunity Program** funding for 2 semesters of research work.
- Robert Henricks, Mark & Alice Isaacson, and Scott & Jacque Stratton Scholarships** for continued merit throughout university studies.
- Utah Flagship Scholarship** for academic excellence in high school.
- Dean's List** for 6 consecutive semesters as a member of the University of Utah **Honors College**.

## SKILLS & INTERESTS

- Skills:** Molecular Dynamics; Fluid Mechanics; CAD Modeling; Experimental Design; Science Communication;
- Passions:** Playing piano and trumpet; Musical Conducting; Mathematics; Graphics Programming;