Linh Vu

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Education

Stanford University — Stanford, CA
MS. in Materials Science and Engineering — Sep. 2023 - May 2025

University of Rochester — Rochester, NY
BS. in Mechanical Engineering — Aug. 2019 - May 2023
Minor: Materials Science — GPA: 3.83/4.0
Certification: Nanoengineering

Research Experience

Advanced Computational Mechanics & Materials Lab (ACMML), *Research Assistant* — Summer 2021 - Present, University of Rochester

Writing a paper to be submitted as a first author with **Professor Abdolrahim**.

- Examine the orientation-dependent phase transformation and twinning in Molybdenum nanowires (3 x 3 x 19nm) under tensile loading. Apply DOE to successfully propose optimal conditions to increase the structure's ductility to 80% strain while experiencing a second elastic region with a higher yield stress by 100%.
- Utilize MD simulations via LAMMPS and Ovito to simulate the deformation of the nanowires. Optimize the simulation time using the supercomputer network Bluehive.
- Generate MATLAB codes to analyze stress-strain curves, calculate potential energy and surface energy to explain the phase transformation bcc-fcc-bcc and the twin boundaries formation. Visualize atomic structures using VESTA.
- **Presentation:** *Phase transformation in Molybdenum nanowires*. University of Rochester Undergraduate Research Symposium, 2021.

Internship Experience

Commonwealth Fusion Systems (CFS), *Technical Intern* — September - December 2022, Remote

- Executed Finite Element Analysis (FEA) on the welds of the Toroidal Coils using ANSYS. Study the difference between temperature loading and cooling conditions to make reasonable assumptions for the model and optimize solving time by 50%.
- Implemented MATLAB codes and Excel calculations to analyze temperature, heat flux, plastic strains, and Von-Mises stresses.

Viet Nhat Trading Development & Production Investment JSC, *Manufacturing Engineer Intern* — June - September 2020, Vietnam

- Assisted in manufacturing insulator supports for substation using the grinder, lathe, milling machine, TIG and MIG welder.
- Analyzed GD&T from 2D drawings to identify core manufacturing strategies.

Graduate Course Projects

CHE 458 - Electrochemical Battery & Fuel Cell — Fall 2022

- Worked on a Research Project paper about *Stack Compression in Li-ion Battery Cell*. Investigated about how stack compression can be applied internally in Li-ion pouch cell as in fuel cell.

ME 481 - Mechanical Behavior of Materials — Spring 2022

- Worked on a Term paper, *Discussion of Ogden's Model for Incompressible Hyperelastic Materials*, in a team of 3. Wrote the term paper based on an *Isotropic Elasticity* work (1972) by Dr. Ogden with additional critical arguments drawn from other papers.

Undergraduate Course Projects

Laser Monitoring Stability Spring 2023

- Identify the drift sources causing a 1 drift in laser monitors operated by the Laboratory for Laser Energetics in a team of 4.
- Execute thermal and vibration FEA to mimic the system performance. Design prototype experiments on optical bench using the interferometer set up to measure the drift precisely. Design a practical experiment set up to apply onto the large-scale facility.

Beam Optimization (Documentation) Fall 2022

- Utilized NX to design a Balsa beam structure following specific requirements and specifications in a team of 3. Analyzed the failure load, stress, and buckling mode to reach the highest possible Strength-to-Weight ratio ($\approx$ 5,000).
- Built the structure using Balsa and super glue and tested under 250 lbf applied force or until failure.

Fly-wheel Air Engine (Documentation) Fall 2022

- Operated basic procedure on the mill, lathe, grinder, and CNC machine to manufacture the backbone, cylinder, piston, and crank, etc, of the engine. Set up G-code to operate CNC machine using NX Nastran.
- Casted the flywheel in Pewter via pouring method, injection molded the plastic base legs, and laser cut the wooden bases.
- Understood thoroughly the combination of different manufacturing approaches and the importance of design for manufacturing.

Nano-samples Scanning (AFM report, OM report, EM report) Spring 2021

- Utilized UR nano center's microscopes (AFM, OM, EM) to scan different nano samples such as the nanoantenna arrays and silver nanocubes.
- Wrote nanometrology lab reports discussing experimental spectrum, wavelengths images, and intensity data to learn about the samples' structures and properties.

Teaching Assistant Experience

ME 226 - Intro to Solid Mechanics, Spring 2022 - Present
Head Teaching Assistant

- Work closely with the course instructor to plan class contents and logistics. Manage rubric of all assignments (10 HWs, 2 lab reports, 4 exams), distribute 80 students' submissions to 9 TAs. Host 2 OHs and 1 workshop weekly to review lectures' contents and guide students in completing assignments.

ME 104 - The Engineering of Bridges, Fall 2020 - Fall 2022
MATH 143, 161, 162 - Calculus I & II, Fall 2020 - Fall 2021
Teaching Assistant

- ME 104: Supervised students in 3 truss laboratories. Led 1 recitation and 2 OHs weekly to review classes' materials, addressed student concerns in HW and truss design projects.
- MATH 143, 161, 162: Organized 2 workshop sessions and 1 OH weekly to lead students in working in groups and solving problems. Actively revised lesson plans and moderated beyond-lecture discussions for students.

Awards

University of Rochester Rochester, NY
Teaching Assistant Award from Dept. of Mechanical Engineering May 2023
UR Schwartz Undergraduate Research Grant - $5,000 Summer 2022
UR Modern Languages and Cultures Book Award Fall 2021
UR Dean's List Every semester

Community Involvement

Tau Beta Pi NY K Chapter, *Member* (2022)
UR Vietnamese Students Association (VSA)
President (2021 - 2022), *Event Manager* (2020 - 2021), *Member* (2019)
UR BAJA SAE, *Business Manager* (2021), *Member* (2019)