victoria yi

MANUFACTURING AND DESIGN ENGINEERING / RESEARCH / PROTOTYPING

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Manufacturing and Design Engineering student with hands-on experience in materials research, instrument development, prototyping, and multidisciplinary production. Interested in product design, R&D, manufacturing, and technical problem-solving roles.

01 EDUCATION

Northwestern University **Expected June 2028**

Robert R. McCormick School of Engineering and Applied Science | Evanston, Illinois

Bachelor of Science in Manufacturing & Design Engineering | Dean's List

Relevant coursework Computer-Integrated Manufacturing: Manufacturing Processes; Mechanics of Materials I; Introduction to Materials Science and Engineering; Engineering Analysis III (Dynamics)

02 ENGINEERING EXPERIENCE

Undergraduate Researcher | Schuh Group **October 2024 - Present**

Northwestern University | **Helen Ann Burgarella Research Fellow, Summer 2025**

- Fabricate nanocrystalline Cu-Au alloys through high-energy ball milling; vary time, frequency, and cycles, then verify homogenization using a Rigaku Ultima x-ray diffractometer.
- Run glovebox furnace annealing and quenching experiments across controlled temperatures to capture equilibrium segregation states and relate processing conditions to microstructure.
- Analyze diffraction patterns for lattice parameter and grain size, then calculate grain-boundary composition with modified Vegard's law and a conservation-of-solute method to build data for model validation.

ASPIRE Intern | Applied Physics **Summer 2023**

Johns Hopkins University Applied Physics Laboratory | 200+ project hours

- Built a portable gamma-ray spectrometer from less than $300 in hardware, integrating a DAC, 0-100 V supply, charge-sensitive preamplifier, peak detector, and Arduino Uno.
- Programmed C and Python workflows for scintillation detection and automated voltage calibration with a Keithley 6500 multimeter; collected an energy spectrum from a cesium source.

SEAP Research Apprentice | Physics **Summer 2022**

United States Naval Academy | 40 hours per week for 8 weeks

- Built and tested a protractor sextant for less than $5; measured local apparent noon within 1-2 minutes across four trials and calculated coordinates from solar observations and the Nautical Almanac.
- Built an environmental sensor and data logger for the U.S. Coast Guard Academy library and created astronomy demonstrations for public outreach.
- Coauthored and presented an iPoster at the American Astronomical Society 241st Meeting; abstract published in the Bulletin of the American Astronomical Society, Vol. 55, No. 2, 170.06 (2023).

03 LEADERSHIP AND PUBLISHING

Director of Production | reel8 Productions **September 2025 - Present**

- Direct concept development, shoots, and post-production for student videos; lead 15+ person teams across lighting, sound, camera, casting, and editing.
- Pitch original concepts, recruit cast and crew, prepare release documentation, and coordinate production workflows from participant briefing through final edit.

Print Editorial Team Member and Digital Contributor | Spoon University **2025 - Present**

- Published "Sticky by Design" and "Tear & Swirl: The Breads That Live to Be Dipped" in The Sauce Issue (January 2026); develop print and digital stories spanning personal essay, reporting, review, and recipe development.

Additional writing Published the short story "Hamartia" in Navigating the Margins: A Collection of Stories by High School Students (2024); accepted to Northwestern's Poetry Sequence based on a manuscript (2026).

04 TECHNICAL TOOLKIT

Design and fabrication CAD, 3D printing, soldering, Arduino, Raspberry Pi

Laboratory Rigaku Ultima XRD, high-energy ball milling, glovebox operations, thermal annealing, furnace quenching, gamma-ray spectrometry

Programming and analysis Python, C, MATLAB, JavaScript, Excel, GSAS, TOPAS, StadiP

Design and media Figma, Canva, CapCut

Honors National Merit Finalist; Scholastic Gold Key; GENIUS Olympiad Science Finalist