Nathan Huang
Hillsboro, OR 97124
nathan.huang.hzc@gmail.com
(914) 486-0243

CURRENT POSITION

Intel, Hillsboro, OR 2024-present
Process Engineer

EDUCATION

Cornell University, Ithaca, NY 2024
Master of Engineering, Materials Science and Engineering
Thesis: *Machine Learning-Enabled Self-Assembly Engineering of Crystalline High-Entropy Alloys Through Polydispersity*
Thesis advisor: Professor Julia Dshemuchadse
GPA: 3.95

Cornell University, Ithaca, NY 2023
Bachelor of Science with Honors, Materials Science and Engineering, *magna cum laude*
Thesis: *Enhancing the Self-Assembly of Binary Colloidal Crystals with Confinement*
Thesis advisor: Professor Julia Dshemuchadse
GPA: 3.82

HONORS & AWARDS

Bartels Engineering Student Travel Award, Cornell University 2023
Senior Thesis Award, Cornell University 2023
1st place Senior Thesis Poster, Cornell University 2023
Engineering Learning Initiatives Undergraduate Research Award, Cornell University 2020
National Merit Scholar, National Merit Scholarship Corporation 2019
Most Outstanding Exhibit in Materials Science, ASM Materials Education Foundation 2019

PUBLICATIONS

Nathan Huang, Rachael S. Skye, and Julia Dshemuchadse. *Enhancing the Self-Assembly of Binary Colloidal Crystals with Confinement*. In preparation

PRESENTATIONS

Nathan Huang, Rachael S. Skye, and Julia Dshemuchadse. *Enhancing the Self-Assembly of Binary Colloidal Crystals with Confinement*. Poster presentation delivered at Materials Research Society Fall Meeting & Exhibition 2023. Boston, MA, November 2023

RESEARCH EXPERIENCE

Cornell University, Ithaca, NY
Student Research Assistant; Advisor: Julia Dshemuchadse 2022 – 2024
Machine Learning-Enabled Self-Assembly Engineering of Crystalline High-Entropy Alloys Through Polydispersity

- Determined the influence of size dispersity and composition on the crystal structure of high-entropy alloys using coarse-grained molecular dynamics simulations
- Developed support vector regression models to accurately predict high-entropy alloy structure in five-component systems

Enhancing the Self-Assembly of Binary Colloidal Crystals with Confinement

- Investigated the self-assembly of tetrahedra and octahedra nanoparticles into binary colloidal crystals under spherical and flat-wall confinement using hard particle Monte Carlo simulations
- Analyzed and compared structure of crystals formed under confinement and in bulk

Self-Assembly of Complex Triangle–Square Tilings via Molecular Dynamics Simulations

- Induced self-assembly of colloidal triangle–square systems into complex space-filling tilings with targeted edge–shape interaction biases using coarse-grained molecular dynamics simulations

Cornell University, Ithaca, NY
Student Research Assistant; Advisor: Shefford P. Baker — Summer 2020
Kinetic Monte Carlo Simulation of Incoherent Twin Boundary Migration During Cu Deposition

- Used kinetic Monte Carlo simulations to determine the effect of substrate temperature and deposition rate on incoherent twin boundary migration behavior during the deposition of fcc-type metal thin films

TEACHING EXPERIENCE

Teaching Assistant, Cornell University, Ithaca, NY

Computational Materials Science	Spring 2024
Thermodynamics of Condensed Systems	Fall 2023
Materials Design Concepts I	Spring 2023
Mechanical Properties of Materials: From Nanodevices to Superstructures	Fall 2022

PROFESSIONAL EXPERIENCE

Formlabs, Somerville, MA — Summer 2023
Materials Intern

- Formulated a high-Tg filled resin to expand the materials catalog, simultaneously increasing elongation at break by 35% and heat deflection temperature at 0.45 MPa by 30% above benchmark while maintaining mechanical properties within specifications
- Tested 50+ resin formulations for viscosity and thermal, tensile, flexural and curing properties with dynamic mechanical analysis (DMA), mechanical testing, rheometry, and critical energy/depth of penetration (Ec/Dp) analysis

Azul 3D, Skokie, IL — Summer 2022
Materials Intern

- Developed four resin families to meet varying material property specifications for both internal projects and external clients
- Tuned resin curing behavior to successfully scale-up to production-quantity batches and incorporate additives

Tesla, Fremont, CA — Fall 2021
Materials Engineering Intern

- Developed eco-friendly coating formulations to improve traction on glass roof tiles, resulting in a more than 5x improvement in coating adhesion and traction performance
- Created SOPs and QC guidelines to support materials development and qualification for solar hardware products