

Nathan Huang

Chappaqua, NY 10514

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(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-T_g 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 (E_c/D_p) 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