Vinn Nguyen

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EDUCATION

Massachusetts Institute of Technology (MIT) — **Cambridge, MA**
Bachelor of Science in Mechanical Engineering — *Expected Graduation 2027*
GPA: 4.8/5.0
Relevant Courses: Thermo-Fluids I/II, Mechanics and Materials I, Dynamics and Controls I, Modeling with Machine Learning

White Plains High School — **White Plains, NY**
Advanced Regents Diploma — *June 2023*
GPA: 4.0 / 4.0 | SAT: 1580 / 1600 | Rank: 2/503

EXPERIENCE

System-Level Optimization of Green Hydrogen Production through Electrolyzer and Balance of Plant (BoP) Modeling — **Cambridge, MA**
September 2025 - Present
Undergraduate Researcher (Lab: The Global Engineering and Research Center; Supervisor: Samuel Heath)
- Developing MATLAB-based models to evaluate electrolyzer performance under variable and intermittent renewable energy inputs by processing wind and solar datasets to simulate real-world operating conditions
- Conducting techno-economic analyses to identify cost drivers and efficiency bottlenecks.

NiMH Battery Reconditioning & Repurposing Intern — **Boston, MA**
Battery Engineer — May 2025 – August 2025
- Developed and implemented repurposing recipes to regain lost amp hour capacity from Toyota NiMH modules for sustainable energy applications
- Utilized machine learning regression models to optimize and evaluate the state of charge (SOC) of NiMH batteries, identifying key predictors to enhance reconditioning efficiency

Fabrication of Perovskite Solar Cells Across Diverse Environmental Conditions — **Cambridge, MA**
Undergraduate Researcher (Lab: Accelerated Materials Laboratory for Sustainability; Supervisor: Dr. Tianran Liu) — June 2024 – January 2025
- Designed, fabricated, and analyzed thin films and perovskite solar cells using spin-coating deposition techniques, focusing on improving efficiency and stability under real-world conditions
- Developed a real-time environmental monitoring system for fabrication (humidity, temperature, and solvent vapor) using Arduino and Raspberry Pi

Recovery of Agricultural Nutrients from Spanish Groundwater with Selective Electrodialysis & Nanofiltration — **Cambridge, MA**
Jan 2024 – September 2024
Undergraduate Researcher (Lab: The Lienhard Research Group; Supervisor: Samuel Heath)
- Assisted with and independently ran Nanofiltration and Monovalent Selective Electrodialysis experiments, completed water sample analysis, and performed data analysis
- Developed and adapted semi-empirical multi-ion MSED transport model to simulate the behavior of brackish groundwater treated for irrigation
- Aided in publication of a novel nanofiltration method for selective separation of aluminum from waste cryolite electrolyte (Published)

Multi-dimensional Analysis on The Efficiency of Renewable Energy Devices in Westchester County — **Bronx, NY**
Student Researcher (Research Mentor: Dr. J. Patrick Abulencia) — Dec 2021 – June 2023
- Developed a novel location-based multi-dimensional optimization system to analyze the most efficient renewable energy source across Westchester County, NY

Creative Engineering LLC — **Bronxville, NY**
Design Engineering Intern — Aug 2023
- Designed mechanical parts using SolidWorks CAD modeling to provide project assistance for senior engineering teams
- Managed, maintained, and operated fleet of 8 commercial 3D printers for rapid prototyping and ideation
- Operated laser cutting equipment for rapid in-house fabrication of prototype parts

SKILLS AND INTERESTS

- **Skills:** SolidWorks, MATLAB, Beginner CFD (OpenFoam), Python, Machine learning, Battery Reconditioning, Arduino, Raspberry Pi, FDM Printing, Woodshop Tools, Research Skills
- **Interests:** Renewable Energy, Thermo-fluids simulations/engineering, Sustainability, Batteries, Rock Climbing, Playing the Ukulele, Eating Hotdogs