

Hannah Nguyen

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EDUCATION

Harvard College | GPA: 3.7/4.0 | Cambridge, MA **May 2027**

S.B. Candidate in Mechanical Engineering, Secondary in Computer Science, Citation in Vietnamese

- **Relevant Coursework:** Mechanics of Solids, Statistical Physics, Computer Aided Machine Design, Intro to Electrical Engineering, Python for Engineers, Linear Algebra, Multivariate Calculus, Intro to Computer Science, Music Engineering
- **Activities:** Conflux Art Tech, Harvard Vietnamese Association, Asian American Dance Troupe, GAMI

Randolph High School | Valedictorian | GPA: 4.8/4.0 | Randolph, MA **June 2023**

Asian Cultural Club President, Math Team, K12 Math Tutor, Founded town-wide youth Art-A-Thon, Newspaper Club Editorial Team, Tennis Team

EXPERIENCE

Harvard Global Alliance of Medical Innovation | Prosthetics Engineer | Cambridge, MA **Feb 2025 - Present**

- Design modular prosthetic arm socket components using SolidWorks, focusing on customizable, interchangeable elements to accommodate varying limb morphologies and patient needs.
- Fabricate and iterate mechanical prototypes utilizing SLA and FDM 3D printing, thermoformed plastics, and silicone-based interfaces to enhance adaptability and comfort for end-users.

Stephanie E. Pierce Lab | Research Intern | Cambridge, MA **Jan 2025 - Present**

- Design biomimetic vertebral columns (BVCs) using SolidWorks and 3Matic; 3d print molds and assemble multipartite structures with silicone materials to replicate vertebral morphology of early tetrapods.
- Use water-based flapping mechanisms to test BVC performance and evaluate trade-offs between stability and flexibility, analyzing dynamic metrics such as thrust, long-axis rotation, and cost of transport.

Aizenberg Laboratory | Research Intern | Allston, MA **Dec 2023 - Aug 2024**

- Prototyped and demonstrated a proof of concept for an all-season window technology regulating indoor access to external cold.
- Rapidly developed acrylic devices and model houses to measure energy usage and determined optimal fluid concentrations in titanium dioxide and carbon water for specific temperature environments; Prototypes 20% more efficient than normal windows

PROJECTS

Biomechanical Reconstruction of Pterosaur | Project Lead **Dec 2024 - Present**

- Lead a team of 5 to engineer and optimize a quadrupedal launch mechanism for pterosaur-inspired robotics, iterating on latch-mediated spring systems using SolidWorks, COMSOL, and MATLAB.
- Rapid prototype and validate spring-loaded launch mechanisms with torsion springs, spring steel, 3D printing, and laser-cut components, refining structural integrity and launch efficiency through mechanical testing.

Versatile All-Terrain Robot for Turf Wars Competition **Sep 2024 - Dec 2024**

- Machined entire robot from scratch with team of 5 Polyoxymethylene, aluminum, silicone, and acrylic using the CNC mill, lathe, horizontal and vertical bandsaw, drill press, and laser cutter; Designed all components of robots with GD&T in Solidworks
- Led the design and fabrication of the claw (significant in robot function); Team won 2nd place in competition

Conflux X Stockholm Three Body Project | Hardware Team Co-Lead **Sep 2024 - Present**

- Execute installation in team of 4 for installation in Sweden, "Three-Body: How to Explain Relationships with Physics?"
- Design a microcontroller-based, serial-communication system between Python and Arduino with multiplexed motor control for 30 motors creating continuous textile movement in a 6m room.

SKILLS

Machining & Manufacturing: CNC Mill, Lathe, Bandsaw, Laser Cutter, 3D Printing, Woodworking, Silicone Casting, GD&T

Programming & CAD: SOLIDWORKS (CSWA), Python, JavaScript, Arduino, MATLAB, MS Office, COMSOL, 3MATIC