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, Ghungroo Build Team

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

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.
- Analyze landscape and regional comparisons along the spine, uncovering evolutionary patterns in response to terrestriality; Investigate the functional diversity of vertebral morphologies.

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

- Prototyped and demonstrated a proof of concept for an all-season technology for 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.

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 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 continuous textile movement.

Conflux BlackBox Gallery | Co-Founder   **Jan 2024 - Present**

- Lead a team of 4 in building Harvard's first student-run gallery, constructing an 8x10 ft space using wood.
- Collaborate with students to exhibit experiential, non-traditional audiovisual works of art.

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