# Hannah Nguyen

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## EDUCATION

**Harvard College** | GPA: 3.7/4.0 | Cambridge, MA **Sep 2023 - May 2027**

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

- **Activities**: Harvard Vietnamese Association, Conflux Art Tech, Asian American Dance Troupe, Ghungroo Build Team
- **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

**Randolph High School** | Valedictorian | GPA: 4.8/4.0 | Randolph, MA **Aug 2019 - June 2023**

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

## SKILLS

**Machining & Manufacturing**: CNC Mill, Lathe, Bandsaw, Laser Cutter, 3D Printing, Woodworking, Silicone Casting, GD&T
**Programming & CAD**: SOLIDWORKS, Python, JavaScript, Arduino, MATLAB, MS Office, COMSOL, Electrical Design

## EXPERIENCE

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

- Designing biomimetic vertebral columns (BVCs) using SolidWorks and 3Matic; 3d printing molds and assembling multipartite structures with silicone materials to replicate vertebral morphology of early tetrapods.
- Using 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.
- Analyzing landscape and regional comparisons along the spine, uncovering evolutionary patterns in response to terrestriality; Investigating 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**

- Leading 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 prototyping and validating 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 2$^{nd}$ place in competition

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

- Executing installation in team of 4 for installation in Sweden, “Three-Body: How to Explain Relationships with Physics?”
- Designing 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**

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