

# Hannah Nguyen

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## EDUCATION

**Harvard College** | GPA: 3.8/4.0 | Cambridge, MA **May 2027**  
S.B. Candidate in Mechanical Engineering

- **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, SEAS Ambassador, Harvard Vietnamese Association, Asian American Dance Troupe

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

## EXPERIENCE

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

- Design biomimetic vertebral columns (BVCs) using 3Matic; 3d print molds and assemble multipartite structures with silicone 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 technology for regulating indoor access to external cold.
- Rapidly developed devices and models to measure energy usage and determine optimal fluid concentrations

## PROJECTS

**Bridge Building Competition** | **Team Chappell Prone (to Buckle)** **May 2025**

- Achieved a 1250:1 strength-to-weight ratio by designing and building a 0.2 kg all-wood arch bridge that withstood 250 kgf, using SolidWorks and FEA analysis to optimize truss geometry and reinforcement.
- Simulate structural performance to identify weak points, then refine the design with triangular bracing and top rods to maximize load capacity within competition constraints.

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

- Machine 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
- Lead the design and fabrication of the claw (significant in robot function); Team won 2<sup>nd</sup> place in competition

**Biomechanical Reconstruction of Pterosaur** **Dec 2024 - Present**

- Design and engineer a quadrupedal launch mechanism for pterosaur-inspired robotics, iterating on latch-mediated spring systems using SolidWorks and COMSOL

**Conflux X Stockholm Three Body Project** | **Hardware Team** **Sep 2024 - April 2025**

- Design a microcontroller-based, serial-communication system between Python and Arduino with multiplexed motor control
- Execute installation in team of 4 for installation in Sweden, "Three-Body: How to Explain Relationships with Physics?"

**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.

## SKILLS

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