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, Mechanics and Statistical Physics, Computer Aided Machine Design, Applied Electromagnetism, Intro to Electrical Engineering, Python for Scientists and 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

EXPERIENCE

Stephanie E. Pierce Lab | Research Intern | Cambridge, MA **January 2024 - 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.
- Testing BVC performance across versatile configurations to evaluate trade-offs between stability and flexibility, analyzing dynamic metrics such as thrust, long-axis rotation, and cost of transport on flapper systems.
- Investigating the functional diversity of vertebral morphologies through adaptive landscape analyses and regional comparisons along the spine, uncovering evolutionary patterns in response to terrestriality.

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 team in experimental investigations into the launch (and future, flight) mechanics of pterosaurs
- Prototyping and testing latch iterative designs of mediated spring mechanisms to analyze and optimize the theorized quadrupedal launch with SolidWorks, torsion springs, spring steel, 3D printing, laser-cutting, and motors

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

- Worked with team to design all parts in Solidworks and machine by hand Polyoxymethylene, aluminum, silicone, and acrylic using the CNC mill, lathe, horizontal and vertical bandsaw, drill press, and laser cutter
- Main role in designing and fabricating the claw hand (significant in robot function); 2nd place

Organ-Organ (Body Organ that plays Organ Music) **Sep 2024 - Dec 2024**

- Designed silicon mold in Solidworks, 3D printed, casted 28 inches of length, and hooked up with pressure sensors into VCV Rack

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

- Led a team 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.

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

- Executing installation for collaborative installation in Sweden, “Three-Body: How to Explain Relationships with Physics?”
- Designing a microcontroller-based control system with multiplexed motor control for continuous textile movement.

SKILLS

Machining & Manufacturing: CNC Mill, Lathe, Bandsaw, Drill Press, Laser Cutter, 3D Printing, Woodworking, Silicone Casting
Programming & CAD: SolidWorks, Python, JavaScript, Arduino, MATLAB, MS Office, COMSOL