

Thomas Han

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Education

Duke University

BSE in Mechanical Engineering; Aerospace Engineering Certificate

Expected Graduation:

May 2028

- GPA: 3.86/4.00
- **Relevant Courses:** Solid Mechanics, Dynamics, Materials Science, Control Systems, Thermodynamics, Mechatronics
- **Spring 2027:** Fluid Mechanics, Mechanical Engineering Analysis, Aircraft Performance

Engineering Experience

Propulsion & Aerodynamics Engineer

Duke AERO

Aug. 2025 – Present

Durham, NC

- Lead liquid-engine igniter design in Onshape; prototype nozzle mounts & conduct physical fit checks & bench load tests.
- Perform whole-rocket CFD in Ansys Fluent across different flight speeds, angles of attack, & control-surface configurations; extract aerodynamic loads & compare results against OpenRocket predictions.
- Verify fin & airframe response in Ansys Mechanical using axial, shear & bending loads calculated at 6 joints across powered ascent, burnout & Max Q; deliver governing load cases to the Structures team for joint sizing.
- Develop a Python model of regen chamber liner stresses at 16 points in 4 critical positions & cross-check results in Ansys.
- Machine solid-motor forward closure & nozzle carrier using lathes, mills & CNC equipment while maintaining tolerances.

Mechanical Engineer Intern

AGIBOT

May 2026 – Aug. 2026

Shenzhen, China

- Designed head roll-pitch joint calibration fixtures, IMU mounts & acoustic-test structural supports for the X2 humanoid robot; developed SolidWorks components & engineering drawings incorporating GD&T.
- Applied design for manufacturability to replace outsourced metal test parts with 3D-printed alternatives, cutting prototyping costs by ~30% & turnaround from days to hours; tuned print parameters & orientations for strength.
- Delivered 2 parts weekly validated for fit & loading, iterating 3D prototypes & resolving CAD issues with other teams.
- Updated BOMs, released part records in Teamcenter PLM & initiated procurement requests for robot components.

Undergraduate Hardware Researcher

General Robotics Lab, Duke University

Aug. 2026 – Present

Durham, NC

- Increased robot runtime by 5× by reducing motor loading with higher-ratio gearing & improving heat conduction away from enclosed motors through thermal interfaces & conductive structures.
- Design the frame & shell for the Argus V2 amphibious spherical robot, balancing strength, weight, sealing, land traction & water propulsion through iterations in Fusion 360 & 3D-printed prototyping.
- Configure & test an integrated servo motor on ARM-based Linux via CAN; solve communication issues & verify feedback.
- Analyze multi-axis pendulum-drive dynamics to assess torque generation & momentum limits of CoM control.

Additional Experience

Teaching Assistant

EGR 105L Computing for Engineers, Duke University Pratt School of Engineering

Aug. 2026 – Present

Durham, NC

- Lead a weekly 2-hour Python lab, guiding students through assignments while reinforcing problem-solving & self-efficacy.
- Grade exams & hold weekly office hours, helping students debug code, reason through algorithms & revise projects.

Flight Simulator Engineer

Duke Aviators

Aug. 2024 – May 2026

Durham, NC

- Designed instrument-panel housing & yoke shaft for a Cessna 172 Simulator to improve on-campus aviation accessibility.
- Developed CAD models of simulator components & manufactured them through 3D printing & manual machining.

Quality Engineer Intern

Haier Smart Home

Dec. 2025 – Jan. 2026

Qingdao, China

- Performed hands-on manufacturing in sheet-metal forming, plastic molding, vacuum forming & foaming production.
- Applied lean Six Sigma & PDCA to identify OPE, workplace ergonomics, quality risks & process standardization issues.

Skills & Other Involvements

Languages: English (fluent), Chinese (fluent), German (intermediate)

Skills & Software: CAD/CFD/FEA (SolidWorks, Ansys, Onshape, Fusion 360), PLM (Siemens Teamcenter), Design for Manufacturing, manual & CNC machining, GD&T, 3D printing, Python, MATLAB, LabVIEW, Arduino, Raspberry Pi

Other involvements: Men's volleyball club, intramural soccer, *The Duke Chronicle* photographer