

Kevin Yuan

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Education

Duke University | *Durham, NC*

Aug. 2023 – May 2027

B.S.E. in Mechanical Engineering, Concentration in Materials Science, Minor in Computer Science

GPA: 4.0/4.0

- **Relevant Coursework:** Thermodynamics & Heat Transfer, Materials Science, Computer Architecture
- **Honors + Societies:** 4x Dean's List With Distinction, Theta Tau, Duke AERO, eNable, Huntsman Cancer Foundation

Georgia Institute of Technology | *Atlanta, GA*

Aug. 2020 – May 2022

Dual Enrollment during High School – Concentration in Physics

GPA: 3.83

- **Relevant Coursework:** Quantum Mechanics I, Modern Physics, Combinatorics, Differential Equations

Technical Skills

Software & CAD: Fusion 360, SolidWorks, MATLAB, Arduino IDE, CATIA, Autodesk Inventor, ANSYS, Simulink, Git

Fabrication & Prototyping: CNC Machining, FDM/SLA 3D Printing, Laser Cutting, Soldering, DFM, GD&T, Mechanical Design, FEA

Programming: Python (pandas, NumPy, PyTorch, TensorFlow, NLTK), C/C++, Java, SQL, HTML/CSS, JavaScript

Professional Experience

BlueStamp Engineering | *Engineering Instructor* | *San Jose, CA*

May 2025 – Aug. 2025

- Led 10 students from concept to delivery on projects such as gesture-controlled robots and autonomous rehab devices, guiding CAD, prototyping, and documentation.
- Mentored students to complete functional electromechanical builds by teaching CAD design, circuit integration, and rapid prototyping—including DFM, H-bridges, and sensor logic.
- Reviewed final engineering packages—BOMs, schematics, and test results—and led debugging sessions on C++ firmware, embedded systems, and hardware integration.

Calidar | *Mechanical Engineering Intern* | *Durham, NC*

Jan. 2024 – Present

- Designed key mechanical subsystems for a novel mammography device, including an X-ray diffraction gantry, protective covers, and emergency stop assemblies; modeled in SolidWorks with GD&T for precision CNC fabrication.
- Improved component stiffness and manufacturability through FEA-guided redesigns, enabling scalable production using 3D printing and subtractive fabrication methods.
- Developed a diagnostic interface that enabled real-time system monitoring and improved operator efficiency, integrating MATLAB App Designer with Python for cross-platform control.
- Identified and categorized high-yield markets from 1,000+ imaging facilities using OpenAI and Python, projecting \$50M+ revenue for Series A funding.

Duke University | *Structures & Properties of Solids TA* | *Durham, NC*

Jan. 2025 – May 2025

- Led weekly discussion sections and graded assessments for 100+ students, covering key materials science topics such as stress-strain behavior, crystal structures, phase transformations, and materials selection.
- Co-led assessment writing and logistics with two TAs, ensuring clear communication and reliable grading delivery.

Projects

Wireless Sprint Timer with Adaptive Distance Calibration

- Designed and built a wireless sprint timing system using ESP32 microcontrollers, I²C-connected distance sensors, and LCD display modules to measure sprint intervals between checkpoints.
- Eliminated manual distance setup by integrating RSSI with a Kalman filter and implementing real-time signal filtering and adaptive correction in C++, enabling checkpoint calibration and timing accuracy within $\pm 1\%$.

Dual-Axis Gantry System for X-ray Diffraction Filter Positioning

- Designed and CNC-machined a precision XY gantry with lead screw actuation and aluminum dual-rod supports to position an X-ray diffraction filter with sub-millimeter accuracy.
- Used Fusion 360 FEA to identify instability in single-rod configurations and reduced vibration during motion by $\sim 70\%$ by redesigning the system with dual guide rails for increased lateral stiffness.

Expandable, Low-Cost CSF Detector for Spina Bifida Diagnosis

- Led mechanical design of a $< \$20$ diagnostic kit using colorimetric detection and an expandable straw-based architecture to identify CSF leakage in low-resource clinical settings.
- Engineered 6+ functional prototypes using CAD, 3D printing, and custom rubber molding; optimized for manufacturability, durability, and adaptability across infant body types.
- Applied structured design methods—including Gantt planning, design matrices, and Pugh charts—to guide decision-making and improve clinical usability and production scalability.