

XANDER GARCIA

xander.garcia@yale.edu | 559.761.3491 | LinkedIn: /in/xander-garcia-212053264/

EDUCATION

Edison High School, Fresno, CA

June 2024

- Graduated Summa Cum Laude (4.32/4.00 GPA, #1/587)

Yale University, New Haven, Connecticut

Aug 2024 – May 2028

- Major: B.S. Mechanical Engineering (ABET Accredited) – GPA: 3.84/4.00
- Relevant Coursework: Dynamics, Orbital Mechanics, Intermediate Mechanical Design, Thermodynamics, Statics, Materials Science, Differential Equations, Linear Algebra, Multivariable Calculus, Electronics, Computing Applications

WORK EXPERIENCE

Ibis Industries - *Manufacturing Engineering Intern*

May 2026 - August 2026

- Supported NPI and production of 50+ complex electromechanical assemblies, developing process flows and implementing DFM/DFA improvements for scalable manufacturing
- Collaborated with Production, Quality, Supply Chain, and technicians to troubleshoot factory-floor issues and improve manufacturability, quality, and build efficiency
- Created work instructions, inspection requirements, process plans, and assembly procedures from customer provided data to standardize and improve production workflows
- Designed and 3D printed custom tooling and fixtures to solve manufacturing challenges across the production lifecycle

Cave Biotechnologies - *Mechanical Engineer*

November 2025 – present

- Conducted design research for an assistive device targeting improved fine motor control for Parkinson's patients
- Designed and evaluated 3D-printed exoskeleton concepts across multiple use cases to improve stability and daily functional performance

Biomechanics Research | Dr. The Nguyen | Lyles College of Engineering - *Undergraduate Researcher* May 2025 – August 2025

- Analyzed gait instability and balance loss mechanisms for a robotic fall-prevention system for elderly individuals using biomechanical motion principles
- Identified pre-fall motion indicators to support evidence-based mechanical design decisions for assistive robotic systems

Yale Undergraduate Aerospace Association, Project Liquid - *Propulsion Subteam Engineer*

Fall 2024 – present

- Designed and integrated a bipropellant combustion chamber for liquid propulsion testing using ethane and nitrous oxide
- Assembled and tested liquid fuel and oxidizer flow systems; performed fluid flow, gas dynamics, and thermal efficiency calculations to validate safe operation
- Applied CAD modeling, mechanical design, thermodynamic analysis, and design-for-manufacturability (DFM) principles

Bulldogs Racing - *Aerodynamics Subteam Engineer*

January 2025 – present

- Assembled a fully electric, open-wheel Formula SAE race car under strict competition deadlines
- Performed composite layup using epoxy resin and custom-cut carbon fiber sheets to reinforce structural components

PROJECTS

Semi-Automated Linear Actuator Soldering Device - *Manufacturing Engineering*

May 2026 - August 2026

- Architected a linear actuator soldering station using DfAM in Fusion 360, reducing cycle time by ~50% and significantly improving operator repeatability
- Designed modular interlocking V-groove indexing rails and 3D-printed fixture tooling with precise clearance offsets to eliminate pin bridging defects
- Integrated a high-precision drive assembly achieving ± 0.01 mm positioning repeatability, incorporating feedback hardware to mitigate physical drift

Theo-Jansen Linkage Robot - *Mechanical Design*

January 2026 - May 2026

- Modeled an 8-legged Theo Jansen robot in SolidWorks, conducting motion simulations and stress/force analyses to derive peak 54 N·mm motor torque requirements
- Utilized 3D-printing and precision-machining via CNC milling, applying DFM practices to achieve component tolerances
- Conducted dynamic load testing, diagnosing powertrain shaft slipping and 180° crank-linkage phase binding to design reinforced mechanical drive solutions

Sterling Engine - *Thermodynamics*

March 2025 - April 2025

- Designed and built a self-sustaining Stirling engine using COTS and custom 3D-printed components to convert thermal gradients into mechanical output
- Calculated cycle efficiency, energy losses, and thermal performance to optimize engine design
- Supported rapid-build manufacturing workflows and iterative design improvements with root cause analysis

SKILLS

- **CAD & Simulation:** Fusion 360, SOLIDWORKS, MATLAB, Onshape, Unreal Engine 5
- **Programming:** C, C++, Java, JavaScript, CSS, HTML
- **Manufacturing & Prototyping:** 3D modeling & printing, composite layup, milling machine, hand and power tools