Joshua Li

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EDUCATION

Georgia Institute of Technology | Atlanta, GA — Expected Graduation: May 2027
B.S. Mechanical Engineering, Minor in Robotics | GPA: 3.96
Related Coursework: Mechanics of Deformable Bodies, Dynamics, Numerical Methods, Circuit and Electronics, Materials Science, SolidWorks, MATLAB, Differential Equations, Creative Decisions & Designs, Thermodynamics, Fluids

University of Oxford | Oxford, England — Jun 2025–Aug 2025
Georgia Tech Oxford Study Abroad Program

EXPERIENCE

Georgia Tech Solar Racing | Lead Suspension Engineer — May 2025–Present
Coordinate team of 13 in the design, manufacturing, and integration of suspension assemblies for a single-occupant solar-powered car

- Spearheaded complete design of front multi-link and rear trail-arm suspension systems for the SR-5 vehicle within one semester, meeting aggressive design and integration timelines.
- Direct 7 semester-long component design projects (upright, trail-arm, multilinks, hub, spindle, coilovers, clevis mounts).
- Strategically schedule and coordinate sub-team deliverables to achieve on-time suspension system integration.
- Support team members with technical expertise in CAD, FEA, and system integration, accelerating design iterations and problem resolution.

Georgia Tech Solar Racing | Suspension Engineer — Aug 2024–May 2025

- Designed, validated, manufactured and tested rocker component for double rocker front suspension subsystem in multi-occupant solar-powered vehicle (SR-4) using SolidWorks, MATLAB load analysis, and Ansys Static Structural (FEA).
- Implemented pocketing strategies in low-stress regions, enhancing load distribution and achieving a 170% weight reduction while satisfying factor of safety (FOS) requirements.
- Optimized rocker component for DFM compliance and programmed CAM toolpaths in Fusion 360 for CNC machining.
- Played key role in successful assembly and integration of SR-4's front suspension.

Aerial Robotics and Experimental Autonomy Lab | Undergraduate Researcher — Jan 2026–Present

- Designed and prototyped a <400g automated winch deployment system for a solar-powered seaplane UAV to enable long-endurance underwater acoustic monitoring in Autodesk Inventor.
- Integrated mechanical, electrical, and magnetic switching systems to automate hydrophone deployment and reduce sensor power consumption.
- Fabricated and validated 3D-printed prototype; conducted performance testing on weight, power, and reliability.

Laboratory for Intelligent Decision and Autonomous Robots | Undergraduate Researcher — Jan 2026-Present

- Designed and implemented a fifth degree of freedom in the Digit humanoid robot's third arm using SolidWorks, enhancing dexterity and manipulation capabilities.
- Conducted tolerance stackups and structural validation with Ansys FEA to ensure mechanical stability under dynamic loading conditions.

PROJECTS

Custom Competition Robot | ME 2110 Course — Aug 2025–Dec 2025
Designed and prototyped an Arduino-controlled competition robot in SolidWorks, integrating mechanical, electrical, and control systems to execute complex timed tasks

- Applied structured design methods such as function trees, morphological charts, specification sheets, evaluation matrices, and Houses of Quality to evaluate concepts and guide robot design.
- Fabricated custom components through 3D printing and laser cutting using DFM and DFA principles to improve manufacturability & assembly efficiency.

The Robot Collective| Vertically Integrated Project — Jan 2025–May 2025
Developed multi-agent autonomous robot network to cooperatively complete tasks such as path planning

- Implemented OptiTrack motion capture with ROS2 to enable reliable real-time robot localization and stream robot pose data into MATLAB for analysis.
- Created onboarding resources and technical documentation to train new team members on multi-agent robotics systems, motion capture calibration, and AprilTag-based tracking.

SKILLS

CAD and Analysis: Solidworks, Autodesk Inventor, Fusion 360 CAM, Ansys Static Structural (FEA)
Manufacturing: CNC, Manual Mill, Waterjet, Lathe, Laser Cutter, 3D Printing, TIG Welding, Hand Tools, Bandsaw, Soldering
Programming: MATLAB, Java, C++, Python, Arduino Environment
Languages: Chinese (fluent), Spanish (intermediate)
Interests: Hockey (defensemen on Georgia Tech ACHA Hockey team), photography, cello, and hiking