Ivan Chen

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EDUCATION

Georgia Institute of Technology (Georgia Tech) Atlanta, Georgia

***B.S.** Mechanical Engineering - **Minor:** Applications of AI & ML - **GPA :** 3.81* *May 2028*

Relevant Coursework: Thermodynamics, Fluid Mechanics, MATLAB Numerical Analysis, Dynamic/Deformable Bodies

SKILLS

- **Languages:** Python, MATLAB, Embedded C, C++
- **Robotics Frameworks:**, OpenCV, STM32CUBE, Arduino IDE, ROS 2
- **Hardware:** STM32, Raspberry Pi, Arduino, Oscilloscopes, Multimeters
- **Mechanical Design:** CATIA V5, Solidworks, Fusion360, AutoCAD, Ansys

PROJECTS

6 Degree of Freedom Robotic Arm *Jul 2026 - Present*

- Architected a **heterogeneous robotics platform** combining **STM32** controls with **Raspberry Pi** computation, enabling integration of **ROS 2** and **OpenCV-based computer vision** for autonomous manipulation tasks
- Designed a 6-DoF articulated manipulator in SolidWorks, performing **actuator sizing, torque analysis, link optimization, and kinematics calculations** to achieve 600 mm reach and 500 g payload capacity.
- Developed robotics software in **Embedded C and Python**, implementing **motor control, UART/USART serial communication protocols, and vision-guided object manipulation** across embedded and edge-computing platforms.

GT Robotics Competition *Aug - Nov 2025*

- Built a 12x18x24 inch competition robot with 3 teammates on a budget of $120, **scoring highest** in a section of 6 teams
- Developed **embedded C firmware** on an **Arduino-based control system**, implementing **sensor interfacing, actuator control, and real-time I/O logic** for four competition-specific tasks

EXPERIENCE

Yamaha | Automation Engineering Intern *Aug - Dec 2026*

- Conducted **time studies and bottleneck analysis** to identify high-impact automation opportunities, using AutoCAD to visualize assembly time reduction system options
- Engineered **electromechanical material-transfer infrastructure**, including rail-guided transport and mechanical docking systems, increasing delivery **payload capacity by 6×**, and supporting **high-throughput manufacturing** operations.
- Collaborated with manufacturing, quality, and packaging teams to validate **robotic process performance** and **production readiness** to ensure process repeatability, efficiency, and ergonomics.

Hytech Formula SAE (FSAE) Racing | Electrical Drives Engineer *Jan 2025 - Present*

- Designed and optimized **air-cooled EV battery systems** using **forced convection** and **airflow distribution analysis** to improve **heat dissipation, temperature uniformity, and thermal efficiency** while minimizing system mass
- Conducted experimental **thermal testing** of battery cooling configurations which improved cooling by 12%, analyzed temperature gradients and flow uniformity to validate designs made in **CATIA** across various vehicle speeds and directions
- Performed steady-state and transient **thermal simulations in ANSYS**, evaluating temperature distributions and thermal expansion to guide battery cooling system optimization and manufacturing considerations

Thompson Ehle Company | Mechanical Engineering Intern *May - Aug 2026*

- Developed 3D HVAC layouts in **Autodesk Revit**, integrating **equipment placement, component routing, and spatial constraints** across large-scale commercial projects.
- Automated MATLAB tools performing **psychrometric and thermal performance calculations** given seasonal weather data, sensible heat ratio (SHR), and cooling-related parameters.

RESEARCH

Stebner Lab @ Advanced Manufacturing Pilot Facility | Undergraduate Researcher *Oct 2024 - Jan 2026*

- Installed **60-inch long Schlieren imaging** modifications for **metal DED 3D printers** manufactured with **CNC machinery**
- Used **SolidWorks and MATLAB** to develop argon gas flow visualization systems with data collected via **force sensors** and **acoustic emission testing** for **root cause analysis** and **time variance**