

JOSHUA CHEN

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EDUCATION

Carnegie Mellon University

Pittsburgh, PA/United States

B.S. in Electrical & Computer Engineering

Aug 2024 - May 2028

- *Concentration in Hardware Systems* **GPA:** 3.87/4.0 | 2024 & 2025 Dean's List
- **Relevant Coursework:** Data Structures & Algorithms, Computer Systems, Probability & Random Processes, Linear Algebra, Discrete Math & Proofs, Embedded Systems, Digital Logic & Computer Architecture
- **Honors & Awards:** Jane Street Market Making Hackathon Finalist, DataBricks x United Nations Data-thon Winner, Felicis AI x CMU VentureHacks Winner, Harvard Prize Book Award

EXPERIENCE

Carnegie Mellon Racing | ANSYS Workbench, CFD, Vivado, SystemVerilog

Pittsburgh, PA

Aerodynamics Simulation Engineer

Sep 2024 – Present

- Ran 50+ ANSYS Fluent CFD simulations across multiple front-wing configurations, varying angle of attack, flap spacing, and endplate geometry to analyze pressure distribution, flow separation, and aerodynamic efficiency, ultimately increasing predicted downforce by ~12%.
- Designed, and manufactured two iterations of carbon-fiber control arms, refining composite layup, geometry, and manufacturing processes to reduce weight by ~15% while maintaining the structural strength required for track loads
- Collaborated with Ford engineers and sponsors to manufacture the carbon-fiber monocoque, contributing to material selection, manufacturability, and subsystem integration for a project backed by \$50K+ in sponsorship funding

Kyron Robotics | SolidWorks, Fusion 360, 3D Printing, CNC Machining

Pittsburgh, PA

Co-Founder & Mechanics Lead

April 2026 – Present

- Co-founded Kyron to develop modular robotics platform for automated precision spraying & laser weeding for specialty crops, defining system requirements, targets, and interfaces across mobility, spraying, laser, computer vision, and autonomy
- Engineered a PWM-controlled 5-nozzle sprayer with variable width and flow across broadcast, foliar, and spot modes, reducing pesticide use by 20% and improving precision by 35%.
- Engineered a water-cooling system to maintain the laser module at 35°C and contributed to a computer-vision pipeline achieving 99% weed-stem targeting accuracy.

RoboMechanics Lab | Python, MATLAB, FEA

Pittsburgh, PA

Undergraduate Research Assistant

Jun 2026 – Present

- Analyzed quadruped robot foot slippage, ground-contact forces, and gait parameters across 50+ trials, improving traversal success by 30% and reducing average foot slip by 22%
- Evaluated 6 candidate materials using FEA and stiffness-to-weight analysis, then conducted 30+ balance tests to reduce biped body oscillation by 25%

VEX Robotics Competition | Autodesk Inventor, C++, Laser Cutting

Dallas, TX

Founder & Hardware Lead

Jun 2020 – Apr 2024

- Founded and led team to qualify for the 2023 & 2024 World Championship in Dallas, achieving a top-10 Skills ranking among 2,400+ international teams through iterative mechanical design, autonomous optimization, and competition testing
- Iterated through 20+ robot prototypes across 4 competitive seasons and 20+ tournaments, refining drivetrain, intake, scoring, and structural systems to improve reliability, cycle speed, and field performance between events.
- Developed CAD/CAE workflows in SolidWorks and Autodesk Inventor, producing 50+ custom mechanical components and assemblies with tolerance checks, and design-for-manufacturing considerations for rapid fabrication and integration

SKILLS & INTERESTS

Programming Languages: Java, C, C++, Python, SystemVerilog

CAD/Simulation: ANSYS Workbench, Autodesk Inventor, SolidWorks, Fusion 360

Hobbies: Running, Badminton, Golf, Chinese Calligraphy, Painting