

Julian D. Hansell

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Summary — Inquisitive and determined engineering student passionate about advancing the capabilities of additive fabrication and digital design. Experienced in CAD modeling, 3D printing, and embedded electronics, with strong teamwork and leadership developed through two FIRST Robotics World Championship titles, research, and hands-on fabrication.

Skills

Design Onshape, Fusion 360, SolidWorks
Fabrication Laser Cutting, Machining, Welding,
FFF/SLA/Polyjet 3D Printing
Programming Python, Java, C++ for Arduino, MATLAB

Electronics KiCad PCB Design, Soldering, Micro
Controllers
Other Technical Writing, Leadership, Team
Collaboration

Experience

Matter Assembly Computation Lab, CU Boulder

May 2025 – Present

Undergraduate Research Assistant

- Designing soft robotic PneuNet actuators with rigid endoskeletons to improve performance.
- Optimized conductive and elastic TPE print profiles for 3D-printable capacitive skins on robotic arms.
- Selected to present PneuNet research at the National Conference on Undergraduate Research (NCUR) 2026.
- Collaborating with graduate researchers and professors to document fabrication workflows and contribute to open-source design methodologies in soft robotics.

Manufacturing Demonstration Facility, Oak Ridge National Laboratory

May 2026 – Present

SULI System Automation and Monitoring Research Intern

- Leading the design of a custom 5-axis FFF platform to replicate the tool-path movement of an Okuma Hybrid CNC.
- Preparing a novel automated drone manufacturing system for a live demonstration at an upcoming conference.
- Engineering components to be integrated in an innovative Continuous Thermal Forming system.
- Expanding the throughput of the MDF's small scale polymer lab while maintaining effective operations.
- Enhancing professional communication skills through paper writing, presentations, and development workshops.

Up-A-Creek Robotics (F.I.R.S.T. Tech Challenge Team 11260)

Jul 2021 – Jul 2025

Hardware Lead, Drive Team Lead

- Designed and fabricated complex robotic mechanisms for 5 robots using CAD and additive manufacturing.
- Spearheaded the CAD design and fabrication of robust complex systems for five competitive robots.
- Won 30+ awards including: World Championship Winning Alliance (2022,2025), World Championship Finalist Alliance(2023), World Championship Think Award (2025).

Education

University of Colorado Boulder

Expected May 2029

B.S. Integrated Design Engineering (Mechanical Emphasis)

GPA: 4.0/4.0

Engineering Honors Program

Longmont High School

May 2025

High School Diploma

GPA: 4.58/5.00, Top 1% of class

Certifications

- OSHA-10 General Industry Safety
- AWS D1.1 SMAW Certification
- Certified SolidWorks Associate (CSWA)

Projects

DoorMigo – Bluetooth Dorm Door Opener

Fall 2025

- Collaborated on the design and programming of a BLE-enabled ESP32 system controllable via MIT App Inventor.
- Parametrically designed a compact custom 3D-printed housing and pulley mechanism to fit different applications.
- Implemented secure authentication and bidirectional communication between mobile app and embedded controller.
- Section Winner of the Fall 2025 Integrated Design Engineering Project Expo.

Electric Drift Kart

Summer 2025

- Designed and fabricated an electric drift kart chassis and drivetrain from scratch.
- The frame geometry and steering system were digitally modeled before being hand machined.
- Integrated electronic speed control, battery management, and safety systems for reliable performance.