

Hayden Geiger

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WORK EXPERIENCE

BEARCATS ELECTRIC RACING

Aug. 2025 – Present

EV Electronics — FSAE EV

Cincinnati, OH

- Designed the schematic and 4-layer PCB layout for an STM32H7-based data acquisition system with three FDCAN buses, GPS, a BNO085 9-axis IMU, microSD logging, a USB-C debug interface, and an ESP32 Wi-Fi HaLow telemetry link.
- Built an ESP32-based reflow oven controller to support in-house assembly of team PCBs, integrating a custom power-regulation board, rotary-encoder HMI, and 3D-printed enclosure.
- Assembled and reflow-soldered BMS sense, shutdown, and high-voltage sensing boards for the team's electric vehicle.
- Characterized lithium-ion cells with a BK Precision 8601 electronic load and a custom four-wire jig to determine internal resistance, capacity, and maximum continuous discharge current.

DUAL-AXIS STAR TRACKING MOUNT

Feb. 2025 – Mar. 2026

Independent Engineering Project

Cincinnati, OH

- Designed and built a battery-powered dual-axis (alt-azimuth) star tracking mount driven by two NEMA 17 steppers through 71:1 planetary gearboxes, reaching sub-arcsecond microstep resolution for sidereal tracking.
- Developed a custom ESP32 PCB integrating TMC2209 stepper drivers, AS5600 magnetic encoders for closed-loop feedback, and multi-rail power regulation, controlled wirelessly through a Wi-Fi web interface.
- Built a custom lithium-ion pack from Samsung 50E cells with a Daly BMS, and streamed voltage-divider state-of-charge telemetry to the mount's web interface.

THE KROGER CO

Jul. 2022 – Present

Pickup Associate

Centerville, OH

- Fulfill online grocery pickup orders accurately and on schedule while meeting productivity targets during evening and night shifts.
- Coordinate with associates and management to keep order staging on pace during peak business hours.

EDUCATION

University of Cincinnati

May 2030

B.S., Electrical Engineering

Cincinnati, OH

Springboro High School

Jun. 2025

High School Diploma

Springboro, OH

AWARDS

Altium Global Scholarship

March 2026

- Awarded the Altium Global Scholarship, providing professional PCB design training and industry-recognized Altium Designer certification.

Kroger Scholarship

July 2025

- Awarded to employees in recognition of sustained service and dedication to the company, supporting educational pursuits while working at Kroger.

SKILLS & INTERESTS

Languages: C++, Python, MATLAB

Software: Altium Designer, Autodesk Fusion 360, STM32CubeMX, Git, Microsoft Excel

Embedded: STM32, ESP32, CAN/FDCAN, SPI, I2C, UART, schematic capture & multilayer PCB layout

Lab & Fabrication: Oscilloscope, multimeter, electronic load, SMD reflow & hand soldering, 3D printing

Battery Systems: Cell characterization, pack assembly & spot welding, BMS configuration

Certifications: Altium Designer Certified, Autodesk Fusion 360 Certified

Interests: Motorsport, EV conversions, endurance racing, small engine repair