Daniel J. Schnieder

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Education

The Ohio State University — Columbus, OH
B.S. Electrical and Computer Engineering — *Aug. 2022 – May 2026*

Elder High School — Cincinnati, OH
High School Diploma (Honors) — *Aug. 2018 – May 2022*

Coursework: Embedded Computer Systems, Computer Architecture & Design, Advanced Digital Design, Mobile Internet-of-Things, Microcontroller-Based Systems, Discrete Signals & Systems, Analog Systems & Circuits, PCB Design.

Experience

Electrical Lead — Aug. 2023 – Present
Buckeye Solar Racing — *Columbus, OH*

- Lead a team of 25+ students in the design, integration, and testing of all electrical systems for the team's solar car, including battery, driver controls, high-voltage, solar array, and telemetry.
- Oversee project timelines, delegate tasks, and present progress to leadership and executive members, ensuring readiness for competition in the Formula Sun Grand Prix (FSGP) and American Solar Challenge (ASC).
- Recruit, mentor, and train new members on embedded systems firmware development, PCB design, and high-voltage safety during weekly meetings at the Center of Automotive Research.

Undergraduate Research Assistant — May 2025 – Present
SiC Power Devices Reliability Lab — *Columbus, OH*

- Characterize the reliability of Silicon-Carbide (SiC) MOSFETs for Ford Motor Company's electric vehicles through high-temperature stress testing and recovery analysis.
- Automate complex testing procedures and data acquisition using Keysight B1506A Power Device Analyzers and Easy Test Navigator/EasyEXPERT software.
- Maintain and troubleshoot Time-Dependent Dielectric Breakdown (TDDB) hardware by diagnosing and replacing surface-mount components.

Laboratory Monitor/Teaching Assistant — Jan. 2025 – Present
The Ohio State University — *Columbus, OH*

- Instruct 60+ students weekly on fundamental electrical concepts, including circuit design, programming microcontrollers, and soldering.
- Supervise laboratory safety and provide technical guidance on the use of oscilloscopes, function generators, and precision soldering equipment.
- Evaluate and grade 20+ technical code submissions weekly to ensure student proficiency in core programming principles.

Projects

Solar Car Wireless Telemetry System | *RP2040, LoRa, C++, Python, SQL* — Sept. 2024 – Present

- Engineered a long-range telemetry system to transmit real-time CAN data from the BMS and motor controller across a 3-mile range using RP2040-LoRa.
- Developed a full-stack dashboard utilizing React.js and a custom CAN database to visualize and analyze vehicle performance metrics while racing and testing.

Shaft-Mounted Golf Swing Analyzer | *ESP32, BNO085, BLE, C++, Python* — Aug. 2025 – Present

- Developed an embedded sensor system to capture high-accuracy swing metrics (Speed, Tempo, Face Angle) via Bluetooth Low Energy (BLE).
- Authored C++ firmware featuring orientation tracking using quaternions and a rotational velocity model to achieve high-accuracy motion analysis.

Technical Skills

Hardware: Arduino, Raspberry Pi, ESP32, RP2040, LoRa, BNO085, MCP2515; CAN Bus Protocol; BMS & Motor Controllers; PCB Design; Power Device Analyzer/Curve Tracer; TDDB Setups; Circuit Design; Soldering; 3D Printing.

Software: SOLIDWORKS, EasyEDA, TopSpice, LabView; Visual Studio Code, Arduino IDE, Eclipse, Code Composer Studio, Thonny; Easy Test Navigator, EasyEXPERT; Godot Engine.

Languages: C/C++/Embedded C, Java, VHDL, MATLAB, Assembly, Python, SQL, JavaScript.