

Daniel Salkin

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EDUCATION

University of Illinois at Urbana-Champaign

Bachelor of Science in Computer Engineering, James Scholar (GPA 3.96/4.00)

Champaign, IL

Graduating May 2029

- **Relevant Coursework:** Computer Systems, Data Structures, Analog Signal Processing, Digital Signal Laboratory

EXPERIENCE

SpaceX

Hardware Reliability Intern – Starshield

Hawthorne, CA

Incoming: May 2027 – August 2027

John Deere

Product Engineering Intern – Tractor Embedded Systems

Waterloo, IA

May 2026 – August 2026

- Developed embedded C firmware to optimize Power Take-Off (PTO) clutch engagement and diagnostic reporting
- Improved tractor state machines to reduce autonomy wait period by >5 seconds while complying with safety guidelines
- Automated SIL/HIL control logic validation with ECU-TEST to ensure software requirement compliance
- Executed on-vehicle testing to verify PTO engagement improvements on 10,000+ production tractors

Illini Electric Motorsports (FSAE)

VCU & Hardware R&D Lead

Urbana, IL

July 2026 – Present

- Oversees design and implementation of Vehicle Control Unit, managing car faults, motor control, and critical sensors
- Directed a team of 10+ junior engineers to develop custom manufacturing CAN interfaces and benchtop tooling
- Researched CAN bus signal integrity, evaluating how node location and capacitance impact network at up to 2MHz baud

Dash PCB Lead

August 2025 – July 2026

- Drove full hardware bringup of rules-critical Dash PCB to handle vehicle enable signals and driver warnings over CAN
- Redesigned and re-routed Dash PCB to reduce footprint area by 23% from version 1.0, meeting integration requirements
- Assembled and tested 4-layer Steering Wheel Board power circuitry and digital quadrature encoder output
- Tested analog signal filtering on 8-layer data acquisition PCB to ensure <5mV ripple on strain gauges and time-of-flights
- Manufactured and validated critical harness sections for 600V 3-phase power, communications, and fault handling

FRC Robotics Team 1515

President, Design Engineer, Drive Coach

Beverly Hills, CA

August 2020 – June 2025

- Directed a 40+ member team and managed \$16,000+ annual budget to design and manufacture competition robots
- Developed Python scripts to analyze scouting data and quantitatively rank alliance partners and opponents
- Established CAN harness standardization to improve uptime and reliability with maximum downtime of 10 minutes
- Developed and integrated Bezier Curve path following algorithms for swerve drive to enhance robot autonomy

PROJECTS

Mixed Signal Swerve Module

January 2026 – May 2026

- Engineered a hardware-only drive control module to translate electrical inputs into holonomic drive
- Built a sequential control loop using ladder DACs, tracking ADCs, and serial logic to vary motor control signal widths
- Validated logic in LTSpice and on oscilloscope to ensure proper circuit function

Voron Micron+ 3D Printer

May 2025 – August 2025

- Fabricated a fully custom 3D printer using commercially available parts and 3D-printed elements
- Implemented CAN protocol to simplify harnessing, reduce EMI impact, and enable interoperability with similar printers
- Utilized input shaping to mitigate resonance, applied closed-loop control to maintain chamber temperature

Custom HID Controllers

April 2024 – June 2024

- Designed custom Human Input Device (HID) controllers to act as inputs for video games and to manage peripherals
- Programmed ESP32 microcontrollers in C++ to emulate computer input and manage follower devices

SKILLS

Software: C, C++, Python, Java, Bash, Batch, Linux (Arch), Git, Vim, Azure DevOps (ADO)

Hardware: Altium Designer, LTSpice, SolidWorks, Fusion360, Schematic Capture, PCB Manufacturing

Verification & Lab: ECU-TEST, CANdela, SavvyCAN, Oscilloscope, Micro-Ohm Meter, Digital Multimeter, SMD soldering