

# Noah D. Husby

ELECTRICAL & SOFTWARE ENGINEER

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## Experience

### Ford Motor Company (via Epitec)

Dearborn, MI

SOFTWARE ENGINEER

Jun 2022 - Jun 2024

- Led design of electric-vehicle charger management software by utilizing Websockets, Cloud Run, Nest.js, and Postgres to monitor the status of and authenticate over 2,500 active chargers deployed across the state of Michigan.
- Deployed full automated continuous delivery and integration (CI/CD) pipelines for building and deploying team projects using Kubernetes, Tekton, and OpenShift which reduced the total build time and cost by 50%.
- Developed utility to simulate electric-vehicle chargers to stress-test the infrastructure eliminating the necessity to test on-site, increasing the reliability of the backend, and reducing development overhead.

### IIT Motorsports (Formula SAE)

Chicago, IL

PRESIDENT

Aug 2021 - Present

- Led a team of cross functional engineers to design and integrate a fully electric race car.
- Developed process to document and develop modular subsystems of the vehicle which can be used in future cars, saving the team over \$15,000 in yearly costs and increasing knowledge transfer between members.
- Designed and manufactured fully custom low voltage system using a variety of sensors, MOSFETs, microcontrollers, and safety relays which greatly increased the reliability and modularity of the competition vehicle.
- Designed multiple custom rugged wire harnesses using Altium Designer and manufactured them using industry standard Raychem harness boots and Duetsch connectors.
- Implemented business plan to increase sponsorship involvement with team securing more than \$100,000 of in-kind and monetary funding for the 2023-2024 season, yielding a 150% increase year-over-year.

## Projects

### HusBMS (Battery Management System)

IIT MOTORSPORTS

Jan 2023 - Feb 2024

- Designed a modular battery management system using Analog Devices ADBMS1818, ISO-SPI bus, analog mixers for thermistors, and MOSFETs for passive cell balancing.
- Created schematics and layout for accumulator management system which implements an isolation monitoring device (IMD) and hardware watchdogs to ensure safety of the high voltage system in the vehicle at all times.

### Quad-Channel Motor Inverter

I PRO 497 / IIT MOTORSPORTS

Jan 2024 - Jun 2024

- Led a team in developing a motor inverter in-house using DC/AC IGBT switches, DC-Link Capacitors, and specialized microcontrollers.
- Researched cost effective and efficient methods of implementing DC link capacitors for smoothing DC voltage before AC switching.

### Electric Truck Conversion

PERSONAL PROJECT

Jan 2022 - Present

- Crafted a full-vehicle control system utilizing the CAN Bus, LIN Bus, and Ethernet communication for a full conversion of a 1980 Ford F-100.
- Generated DBC (Database CAN) files using CANoe and CANalyzer software from Vector.

## Skills

|                               |                                                                                                        |
|-------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Electrical Engineering</b> | Altium Designer, Wire Harness Design, Schematic & Routing, Embedded Software, High-Speed Communication |
| <b>Languages</b>              | Java, Python, TypeScript, C++, Terraform Language                                                      |
| <b>Tools</b>                  | Vector CANoe, Git, Linux, Gradle, Maven, IntelliJ, MongoDB, SQL                                        |
| <b>DevOps</b>                 | Terraform, Tekton, OpenShift, Kubernetes, Docker, Jenkins, Portainer, GitHub Actions                   |

## Education

### Illinois Institute of Technology

Chicago, Illinois

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Aug 2021 - Present