# Mihir Kozarekar

Ann Arbor, Michigan, United States mkozarek@umich.com 2487676656 linkedin.com/in/mihir-kozarekar

## EDUCATION

**BS in Computer Engineering at the University of Michigan**
University of Michigan, Ann Arbor • Ann Arbor, MI • Sept 2020 - April 2024 • 3.867/4.0

## Relevant COURSEWORK

**Data Structures & Algorithms (EECS 281), Intro to Computer Organization (EECS 370), Intro to Logic Design (EECS 270), Intro to Signals and Systems (EECS 216)**
University of Michigan, Ann Arbor

## SKILLS

**Software Development: C++, C, Verilog, Python, Matlab, Julia**

**PCB Design: Altium**

## EXPERIENCE

**Electrified Systems Engineering Intern**
**Ford Motor Company** **May 2022 - August 2022, Allen Park, MI**

- Developed c++ script to convert RS485 Modbus communication protocol into human readable text for debugging
- Tested and verified new 80 A F-150 Lightning charger functionality with bi-directional power transfer.
- Assessed and developed solutions to issues regarding bi-directional power transfer incorrectly powering home utilities

**Embedded Hardware Lead**
**Michigan Mars Rover** **August 2020 - Present, Ann Arbor, MI**

- Lead team of 8 members to develop robust electrical system improve and customize printed circuit boards in electrical box on rover
- Created PCBs to assist rover with science mission and overall power distribution to ease wiring complexity
- Used Altium to design and develop circuit boards according to software and mechanical rover requirements.

**EECS 270 Instructional Aide**
**University of Michigan** **May 2022 - Present, Ann Arbor, MI**

- Taught daily 3-hour lab section in which students worked on combinational and sequential Verilog labs using a de2-115 Altera FPGA pcb.
- Assisted students with debugging behavioral and structural Verilog code.

## PROJECTS

**RS485 Communication Parsing Script**
Ford Motor Company • May 2022 - August 2022

- Created c++ script which takes raw hex/binary Modbus RS485 signals between chips and converts it to human readable form based on Ford predefined register addressing for inverter and vehicle charger.
- Parses data in live time to give user current state machine value and pertinent voltage, current, and inverter information

**SQL Emulator**
March 2022 - April 2022

- Used C++ to emulate SQL in terminal. Allowed for functionality of many different SQL commands.
- Created algorithms to implement functionality of SQL commands such as Generate Index, Join, Print, Delete, Create, Remove, and Insert.
- Templated program and functionality for smooth transition between storage of multiple data types

**Power Distribution Board**
Michigan Mars Rover • September 2020 - May 2022

- Created PCB which hosted 4 voltage buck converters (24V, 12V, 5V, 3.3V) using LT8645S step down switcher ICs.
- Developed and tested custom microcontroller unit using STM32F103C6T6ATR chip to monitor feedback from board.
- Compiled all converters and MCU onto one board which steps down 36V to 24V, 12V, 5V, and 3.3V for component use on rover.