DHRUV BHAVESH PAREKH

Graduate Student | Electrical & Computer Engineering | University of Texas at Austin

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EDUCATION

University of Texas at Austin
MSE | Electrical & Computer Engineering | Power Electronics and Power Systems | GPA - 4.0/4.0 *Aug'24 - May'26*

Indian Institute of Technology Gandhinagar
B.Tech | Electrical Engineering | GPA - 9.26/10 *Aug'20 - May'24*

WORK EXPERIENCE

Texas Instruments
Systems Engineering Intern | ASM - AUTO *Jun'25 - Aug'25*

- Motor-control algorithm design, validation in MATLAB Simulink and implementation on F29 series micro-controller.
- Test-bed design for comparative evaluation versus SVPWM for various test conditions.

University of Texas at Austin
Graduate Research Assistant | Prof. Brian Johnson *Jan'25 - Present*

- Designing a GFM verification testbed experiment to run a frequency sweep test on any device to verify functioning.

MITACS Globalink | University of Waterloo
Research Intern | Prof. Sahar Azad *May'23 - Jul'23*

- Designed & implemented various control loops for **Voltage-Sourced-Converters based Grid Forming Inverters** in **PSCAD**
- Simulated and ran comparative analysis of **droop control methods** based on transient time and the steady state error

Indian Institute of Technology Bombay
Research Intern | Prof. Zakir Rather *May'22 - Jul'22*

- Collaborated on a pilot project to develop and deploy **Street-Pole based Charging for Electric Vehicles** in IIT Bombay
- Designed and developed an Arduino based circuit to ensure Pilot and Proximity checks for a J-1772 based EVSE

PROJECTS

PCB Design for a Boost Converter and Implementation of Control
Course Project | Prof. Brian Johnson, Prof. Alex Hanson | University of Texas at Austin *Aug'24 - Present*

- Completely designed a boost converter circuit, involving device selections, inductor design, and PCB layout.
- Experimentally verified the design and achieved one of the highest efficiency in class (98 Percent)
- Implementation of peak-current control and tested dynamic performance

Comparison of Different Modulation Techniques for an Inverter
Research Project | Prof. Ragavan K | IIT Gandhinagar *Jan'24 - Apr'24*

- Implemented various PWM Techniques on **STM** aimed at reducing **Total Harmonic Distortion** in Inverters
- Conducted Experimental and simulation based comparison to determine most effective PWM Technique

Gate Driver Circuit Design of a Synchronous Reluctance Motor
Research Project | Prof. Ragavan K | Indian Institute of Technology Gandhinagar *Jan'23 - Apr'23*

- Designed and developed a **gate-driver circuit for IGBTs** being used for the inverter of a Synchronous Reluctance Motor
- Designed the PCB Circuit using ISO-5852S as the Isolated Gate Driver, for the experimental verification of the motor

Building of a Surveillance Car
Course Project | Prof. Jhuma Saha | Indian Institute of Technology Gandhinagar Gandhinagar *Jan'23 - Apr'23*

- Built a controllable Surveillance Car using STM 32 micro controller, with the ability to report data like temperature and pressure at a particular location (coordinates provided with data), along with live camera feed and control access

ACADEMIC ACHIEVEMENTS

- **Institute Gold Medal** for the Highest Cumulative Performance Index in Electrical Engineering Discipline at IIT Gandhinagar

TOOLS & FRAMEWORKS

PSCAD, MATLAB, Simulink, LaTeX, LTSpice, Arduino, Verilog, LabVIEW, KiCad, PLECS, Code Composer Studio, TCAD, Cadence.